Australian Government

AUR Automotive Retail, Service and Repair Training Package

Release 2.1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

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AUR Automotive Retail, Service and Repair Training Package

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AUR30514 Certificate III in Marine Mechanical Technology

Modification History

Release	Comment
Release 1	New Qualification

Qualification Description

This qualification reflects the role of individuals who perform a range of tasks in the marine industry. It is suitable for entry into the marine mechanical service and repair sector.

Entry Requirements

This qualification may be accessed by direct entry.
No licensing, legislative or certification requirements apply to this qualification at the time of publication.

Packaging Rules

Total number of units = 30
11 core units
19 elective units, of which:

- up to **19** elective units may be chosen from the elective units listed below
- up to **5** elective units may be chosen from a Certificate II qualification or above in this Training Package or another endorsed Training Package or accredited course, provided that the units chosen contribute to the vocational outcome of this qualification and do not duplicate the outcome of another unit chosen for the qualification.

Core Units

Unit code	Unit title
AURASA2002	Apply safe working practices in an automotive workplace
AURETR2012	Test and repair basic electrical circuits
AURETR3025	Test, charge and replace batteries
AURETR3029	Diagnose and repair charging systems
AURETR3030	Diagnose and repair starting systems
AURREA2001	Apply environmental and sustainability best practice in a marine workplace
AURRTE3005	Diagnose and repair marine electrical systems and components
AURRTE3008	Install marine engines, controls and instruments
AURRTR3002	Install marine electronic systems and components
AURTTE3001	Apply knowledge of engine science
AURTTK2002	Use and maintain workplace tools and equipment

Elective Units

Unit code	Unit title
AURAFA2001	Use numbers in an automotive workplace
AURAFA2002	Read in an automotive workplace
AURAFA2003	Communicate effectively in an automotive workplace
AURAFA2004	Solve routine problems in an automotive workplace
AURAFA2005	Write routine texts in an automotive workplace

Unit code	Unit title
AURAMA2001	Work effectively with others
AURAMA2002	Communicate business information
AURAQA2001	Contribute to quality work outcomes
AURETB3001	Repair electric braking systems
AURETK2002	Use and maintain automotive electrical test equipment
AURETR2006	Carry out soldering of electrical wiring and circuits
AURETR2009	Install, test and repair vehicle lighting and wiring systems
AURETR2011	Install and test basic ancillary electrical components
AURETR2015	Inspect and service batteries
AURETR3021	Inspect, service and repair electronic management, monitoring and tracking systems
AURETR3023	Diagnose and repair electronic spark ignition engine management systems
AURETR3024	Diagnose and repair electronic compression ignition engine management systems
AURETR3026	Remove, replace and program electrical and electronic units and assemblies
AURETR3028	Diagnose and repair instruments and warning systems
AURETR3031	Diagnose and repair ignition systems
AURETR3032	Repair electrical systems
AURHTZ3001	Diagnose and repair heavy vehicle emission control systems
AURLTB3003	Diagnose and repair light vehicle hydraulic braking systems
AURRGA3001	Launch and recover a vessel using a trailer
AURRGA3002	Launch and recover a vessel from crane, gantry and forklift
AURRGA3003	Moor a motor-driven vessel
AURRTA2001	Service deck, hull and cabin equipment
AURRTA3002	Carry out hull repairs

Unit code	Unit title
AURRTA3003	Winterise vessel and engine systems
AURRTA3004	Recommission vessel systems
AURRTA3005	Repair deck, hull and cabin equipment
AURRTA3006	Water test a vessel
AURRTD3001	Diagnose and repair marine steering systems
AURRTE2002	Service outboard engines and components
AURRTE2003	Service inboard engines and components
AURRTE3006	Diagnose and repair outboard engines and components
AURRTE3007	Diagnose and repair inboard engines and components
AURRTE3009	Recommission marine engine systems
AURRTE3010	Water test engines in tanks
AURRTE4011	Overhaul two and four cycle outboard engines
AURRTQ2001	Service inboard propeller drive systems
AURRTQ2002	Service jet drive propulsion systems
AURRTQ3003	Install inboard propeller drive systems
AURRTQ3004	Diagnose and repair inboard propeller drive systems
AURRTQ3005	Install jet drive propulsion systems
AURRTQ3006	Diagnose and repair jet drive propulsion systems
AURRTR3003	Test, diagnose and repair marine electronic systems and components
AURRTR3004	Install marine electrical systems and components
AURRTX2001	Service marine outboard and stern drive transmissions
AURRTX2002	Service marine inboard transmissions
AURRTX3003	Diagnose and repair marine outboard and stern drive transmissions
AURRTX3004	Diagnose and repair marine inboard transmissions

Unit code	Unit title
AURTGA3001	Drive and manoeuvre trailers
AURTTA2010	Service and repair trailers up to 4.5 tonnes
AURTTA3013	Repair hydraulic systems
AURTTA3018	Carry out diagnostic procedures
AURTTA3019	Carry out advanced diagnostic procedures
AURTTA4021	Carry out diagnosis of complex system faults
AURTTB2001	Inspect and service braking systems
AURTTF2002	Service diesel fuel injection systems
AURTTF3004	Repair diesel fuel injection systems
AURTTF3005	Inspect and repair engine forced induction systems
AURTTK2001	Use and maintain measuring equipment in an automotive workplace
AURVTW2001	Carry out manual metal arc welding procedures
AURVTW2003	Carry out gas metal arc welding procedures
AURVTW2008	Carry out oxy acetylene welding, thermal cutting and thermal heating procedures
BSBFLM312C	Contribute to team effectiveness
BSBWOR202A	Organise and complete daily work activities
BSBWOR301B	Organise personal work priorities and development
MEM09002B	Interpret technical drawing
TLID1001A	Shift materials safely using manual handling methods
TLILIC2001A	Licence to operate a forklift truck

Qualification Mapping Information

No equivalent qualification.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

AUR31114 Certificate III in Heavy Commercial Vehicle Mechanical Technology

Modification History

Release	Comment
Release 1	New Qualification
Release 2	Corrections to metadata

Qualification Description

This qualification reflects the role of individuals who perform a broad range of tasks on a variety of heavy commercial vehicles in the automotive mechanical service and repair sector.

Entry Requirements

This qualification may be accessed by direct entry.
No licensing, legislative or certification requirements apply to this qualification at the time of publication.

Packaging Rules

Total number of units = 36
22 core units
14 elective units, of which:

- a unit must be chosen from one of the Specialist Elective Unit Groups below
- of the remaining units required to make up the elective unit total:
  - up to **13** elective units may be chosen from the Specialist Elective Unit Group not already chosen, and General Elective Units listed below
  - up to **6** elective units may be chosen from a Certificate II qualification or above in this Training Package or another endorsed Training Package or accredited course, provided that the units chosen contribute to the vocational outcome of this qualification and do not duplicate the outcome of another unit chosen for the qualification.

Core Units

Unit code	Unit title
AURAEA2002	Apply environmental and sustainability best practice in an automotive workplace
AURASA2002	Apply safe working practices in an automotive workplace
AURETR2012	Test and repair basic electrical circuits
AURETR3022	Diagnose and repair vehicle dynamic control systems
AURETR3024	Diagnose and repair electronic compression ignition engine management systems
AURETR3025	Test, charge and replace batteries
AURETR3029	Diagnose and repair charging systems
AURETR3030	Diagnose and repair starting systems
AURHTB3001	Repair air braking systems
AURHTD3002	Repair steering systems (heavy vehicle)
AURHTD3003	Repair suspension systems (heavy vehicle)
AURHTE3002	Repair engines and associated engine components (heavy vehicle)
AURHTQ3003	Repair final drive - driveline (heavy vehicle)
AURHTZ3001	Diagnose and repair heavy vehicle emission control systems
AURTTA2004	Carry out servicing operations

Unit code	Unit title
AURTTA2006	Service hydraulic systems
AURTTA3018	Carry out diagnostic procedures
AURTTC3003	Diagnose and repair cooling systems
AURTTF2002	Service diesel fuel injection systems
AURTTF3005	Inspect and repair engine forced induction systems
AURTTK2002	Use and maintain workplace tools and equipment
AURTTQ2001	Service final drive assemblies

Specialist Elective Unit Groups
Group A: Heavy Vehicle Manual Transmission

Unit code	Unit title
AURHTX3001	Repair transmissions - manual (heavy vehicle)

Group B: Heavy Vehicle Automatic Transmission

Unit code	Unit title
AURHTX3003	Repair transmissions - automatic (heavy vehicle)

General Elective Units

Unit code	Unit title
AURAFA2003	Communicate effectively in an automotive workplace
AURAMA2001	Work effectively with others
AURETR3020	Repair electronic systems
AURETR3032	Repair electrical systems
AURETR3043	Service and repair electronic body management systems
AURETR3044	Service and repair electronic drive management systems
AURETU2003	Service air conditioning and HVAC systems
AURETU3004	Diagnose and repair air conditioning and HVAC systems

Unit code	Unit title
AURETU3005	Retrofit and modify air conditioning and HVAC systems
AURHTB3002	Diagnose and repair heavy vehicle hydraulic braking systems
AURHTB3007	Diagnose and repair heavy vehicle electronic braking systems
AURHTD3004	Carry out wheel alignment operations (heavy vehicle)
AURHTE2001	Remove and install heavy vehicle engine assemblies
AURHTJ2003	Remove, inspect, and refit heavy vehicle wheel assemblies
AURHTJ2006	Remove, inspect, repair and fit tyres and tubes (heavy)
AURHTQ3002	Repair final drive assemblies (heavy vehicle)
AURHTX3002	Inspect, test and replace transmissions - automatic (heavy vehicle)
AURHTX3004	Diagnose and repair heavy vehicle clutch systems
AURTTA2005	Select and use bearings, seals, gaskets, sealants and adhesives
AURTTA3013	Repair hydraulic systems
AURTTA3014	Assemble and install pneumatic systems and components
AURTTB2001	Inspect and service braking systems
AURTTB2004	Inspect and service air braking systems
AURTTB3006	Inspect, service and repair auxiliary braking systems
AURTTD2002	Inspect and service steering systems
AURTTD2004	Inspect and service suspension systems
AURTTE2004	Inspect and service engines
AURTTF3004	Repair diesel fuel injection systems
AURTTK2001	Use and maintain measuring equipment in an automotive workplace
AURTTX2002	Inspect and service transmissions (manual)
AURTTX2003	Inspect and service transmissions (automatic)
AURTTZ2002	Repair exhaust system components

Unit code	Unit title
AURVTW2001	Carry out manual metal arc welding procedures
AURVTW2003	Carry out gas metal arc welding procedures
AURVTW2004	Carry out gas tungsten arc welding procedures
AURVTW2008	Carry out oxy acetylene welding, thermal cutting and thermal heating procedures

Qualification Mapping Information

No equivalent qualification.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

AUR32613 Certificate III in Automotive Tyre Management

Modification History

Release	Comment
Release 1	New qualification
Release 2	Superseded imported units updated

Qualification Description

This qualification reflects the role of individuals who perform a range of tasks related to managing tyres in the automotive industry.

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

Entry Requirements

Those undertaking Certificate III in Automotive Tyre Management must have completed the Certificate II in Automotive Tyre Servicing Technology from AUR12 or be able to demonstrate equivalent competency.

Packaging Rules

Total number of units = 12

- **7 core units**
- **5 elective units**, of which:
  - up to **5** elective units may be chosen from the elective units listed below
  - up to **2** elective units may be chosen from a Certificate II qualification or above in this Training Package or another endorsed Training Package or accredited course, provided that the units chosen contribute to the vocational outcome of this qualification and do not duplicate the outcome of another unit chosen for the qualification.

Core Units

Unit code	Unit title
AURAEA3003	Monitor environmental and sustainability best practice in the automotive mechanical industry
AURAMA3003	Conduct information sessions
AURAQA3003	Maintain quality systems
AURATA3004	Provide technical guidance
AURKKJ001	Manage use of tyre management software
AURLTJ3004	Provide advice on the effects of wheel and tyre combinations
FDFPPL3003A	Support and mentor individuals and groups

Elective Units

Unit code	Unit title
AUMAQA001	Apply quality assurance techniques
AURACA3002	Establish customer requirements of a complex nature
AURAFA2003	Communicate effectively in an automotive workplace

Unit code	Unit title
AURAFA2004	Solve routine problems in an automotive workplace
AURAKA3002	Adapt work processes to new technologies
AURAMA2002	Communicate business information
AURAMA3004	Maintain business image
AURAQA2001	Contribute to quality work outcomes
AURAQA3002	Inspect technical quality of work
AURASA2002	Apply safe working practices in an automotive workplace
AURHTJ2002	Select heavy vehicle tyres and rims for specific applications
AURKTJ003	Perform minor repairs to earthmoving and off-the-road tyres
AURKTJ004	Conduct non-destructive testing of wheel and rim assemblies
AURKTJ005	Select earthmoving and off-the-road tyres, wheels and rim assemblies for specific applications
AURKTJ006	Use earthmoving and off-the-road tyre handlers
AURLTJ2001	Select tyres and rims for specific applications (light)
AURSAA2001	Process customer complaints
AURSCA2002	Present stock and sales area
AURSCA2004	Carry out cash, credit and funds transfers
BSBPRO401A	Develop product knowledge
BSBWOR204A	Use business technology
CSCORG301A	Prepare reports
HLTAID003	Provide First Aid
MSAPMSUP390A	Use structured problem solving tools
PMBPROD336A	Inspect heavy off-the-road tyres
RIICOM201D	Communicate in the workplace

Unit code	Unit title
RIIQUA201D	Maintain and monitor site quality standards
RIIRIS201D	Conduct local risk control
RIIRIS301D	Apply risk management processes
RIIWHS201D	Work safely and follow WHS policies and procedures
RIIWHS204D	Work safely at heights
RIIWHS301D	Conduct safety and health investigations
SIRXINV001A	Perform stock control procedures
SIRXINV002A	Maintain and order stock
SIRXMER201	Merchandise products
SIRXRSK002A	Maintain store security
TAEDEL301A	Provide work skill instruction

Qualification Mapping Information

No equivalent qualification.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

AUR40514 Certificate IV in Vehicle Loss Assessing

Modification History

Release	Comment
Release 1	New Qualification

Qualification Description

This qualification reflects the role of individuals who perform a range of high level evaluation and assessment functions in the vehicle loss assessing industry.

Entry Requirements

Entry Requirements
Those undertaking Certificate IV in Vehicle Loss Assessing are required to have completed an automotive Certificate III qualification in one of the following disciplines.

- Automotive vehicle body or equivalent
- Automotive paint or equivalent
- Automotive mechanical or equivalent
- Automotive electrical or equivalent

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

Packaging Rules

Total number of units = 17
11 core units
6 elective units, of which:

- up to **6** elective units may be chosen from the elective units listed below
- up to **3** elective units may be chosen from a Certificate III qualification or above in this Training Package or another endorsed Training Package or accredited course, provided that the units chosen contribute to the vocational outcome of this qualification and do not duplicate the outcome of another unit chosen for the qualification.

Core Units

Unit code	Unit title
AURVLA001	Identify and report vehicle claim fraud indicators
AURVNA001	Provide vehicle loss assessments and identify repair requirements
AURVNA002	Provide vehicle total loss assessments
AURVNA003	Review vehicle repair quotations
AURVNA004	Apply insurance industry knowledge to vehicle loss assessments
AURVNA005	Inspect quality of vehicle repair work
AURVNA006	Identify and value vehicle salvage
AURVNA007	Apply automotive mechanical and electrical knowledge to vehicle loss assessments
AURVNA008	Apply automotive body and paint knowledge to vehicle loss assessments
AURVNN001	Evaluate vehicle bodywork for damage and identify repair requirements
AURVNP001	Evaluate vehicle paintwork for damage and identify refinish requirements

Elective Units

Unit code	Unit title
AURAEA2002	Apply environmental and sustainability best practice in an automotive workplace
AURAEA4004	Manage environmental compliance in an automotive workplace
AURAKA2001	Use information technology systems

AURAMA4005	Manage complex customer issues
AURVTA3004	Inspect vehicle systems and determine preferred repair action
BSBCCO405A	Survey stakeholders to gather and record information
BSBMGT403A	Implement continuous improvement
BSBREL402A	Build client relationships and business networks
BSBWHS301A	Maintain workplace safety
BSBWOR401A	Establish effective workplace relationships
BSBWOR404B	Develop work priorities
BSBWRK408A	Undertake negotiations
FNSPIM410A	Collect, assess and use information
PSPTRAN501A	Provide specialist vehicle technical advice

Qualification Mapping Information

No equivalent qualification.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

AURAFA009 Carry out research into the automotive industry

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to carry out research into the nature and structure of an automotive retail service and repair (RS&R) or automotive manufacturing workplace. It also requires the learner to prepare a research report.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Common

Unit Sector

Foundation Skills

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare and plan research	1.1 Automotive industry sectors and types of businesses are identified for research 1.2 Information on the structure and operation of the automotive industry is located 1.3 ***Safety and environmental requirements*** for the automotive business are sourced
2. Investigate nature and structure of automotive business	2.1 Type of business, product line and customer profile are identified 2.2 Basic ***supervision or management structure*** of business is identified 2.3 ***Employment conditions*** of business are identified 2.4 ***Employee clothing requirements*** for business are identified 2.5 Workplace plan is drawn detailing identified ***workplace safety features*** 2.6 ***Environment protection features*** of business are identified 2.7 Findings and details are recorded for research report
3. Prepare research report	3.1 Research findings are reviewed and summarised under broad headings 3.2 Research findings are presented as a document

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate key information quickly and efficiently in appropriate sources.
Reading skills to:	• interpret information from industry and workplace documents.
Writing skills to:	• organise findings and prepare a research report.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to obtain information on business structure and operation from business workers.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• relevant workplace procedures reflecting health and safety requirements • material safety management systems • hazardous substances and dangerous goods codes.
Supervision or management structure must include one or more of the following:	• employee supervision • line or operational management • team leaders • trainers.
Employment conditions must include one or more of the following:	• employee attendance times • induction training • shift work and weekend work requirements • type of qualifications.
Employee clothing requirements must include:	• any requirements in special work areas, such as foundry or paint shop • ear protection • personal protective clothing and footwear • safety glasses • any uniform requirements.
Workplace safety features must include:	• emergency procedures • fire extinguishers (type and location) • first aid facilities • hazardous warning signs • manual-handling procedures.
Environment protection features must include:	• emission control • material recycling • waste material disposal.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURAFA009 Carry out research into the automotive industry

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- produce a research report on an automotive retail service or repair business or a component manufacturing business.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- automotive industry information, including:
  - sectors of the industry
  - types of businesses in each sector, including their products and services
  - distribution channels for industry products and services
  - relationships of the automotive industry with other industries
  - state and commonwealth government agencies responsible for directing safety and environmental requirements for the automotive industry
  - major automotive industry bodies and associations
  - career opportunities and career paths in the automotive industry
- roles, responsibilities and inter-relationships of individual personnel in an industry environment, including:
  - unions and employer bodies
  - professional associations
- industrial relations issues, including:
  - awards and enterprise bargaining agreements
  - non-award areas
  - cultural issues
- employment obligations in day-to-day work activities in the automotive industry
- new technologies in the automotive industry and their effect on the industry
- procedures for recording, reviewing and presenting research findings.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that validates the industry research.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- reference books and technical manuals
- industry journals
- computer and internet access
- job descriptions
- federal and state industrial awards
- specialist technical publications.

Links

Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-strategies-guide
Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

AURETK003 Operate electrical test equipment

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to operate electrical test equipment. It requires the learner to plan and prepare the task, select the correct equipment, test electrical and electronic circuits, and check and store the electrical test equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Electrical

Unit Sector

Technical - Tools and Equipment

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Plan to operate electrical test equipment	1.1 ***Safety requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and vehicle electrical circuit to be worked on is identified 1.3 Manufacturer specifications and workplace procedures for operating electrical test equipment are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 Electrical test equipment is identified according to task instruction and manufacturer specifications
2. Test electrical circuits	2.1 ***Electrical test equipment*** is checked prior to use according to manufacturer specifications and safety requirements 2.2 Electrical test equipment is used to test vehicle electrical circuits according to manufacturer specifications and safety requirements 2.3 Electrical test equipment readings are checked and compared with manufacturer specifications 2.4 Electrical test equipment readings are recorded
3. Complete work processes	3.1 Final inspection is made to ensure work meets task instruction and workplace standards, and vehicle or equipment is presented ready for use or storage according to workplace procedures 3.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures 3.3 Tools and equipment are checked and stored according to workplace procedures, or tagged and reported where necessary 3.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of vehicle electrical system information and electrical test equipment operating procedures.
Reading skills to:	• select and interpret key information from job instruction, manufacturer specifications, safety requirements and workplace procedures to safely and effectively operate electrical test equipment • select and interpret key information from environmental requirements and workplace procedures to support environmental sustainability and to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation, using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• use basic mathematical operations, including addition, subtraction, multiplication and division, when using Ohm's law and Watt's law to calculate electrical voltage, current flow, resistance and power • read and interpret electrical test equipment correctly, and report and record the results correctly using relevant mathematical symbols and conventions (e.g. Ω for ohms).
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• refer problems that cannot be readily resolved and seek assistance from workplace supervisor.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety requirements must include:	• information about key aspects of work health and safety (WHS) and occupational health and safety (OHS) requirements, including: • use of personal protective equipment, including safety glasses, ear protection and safety footwear • use of tools • identification of electrical hazards • application of procedures for operating electrical test equipment.
Electrical test equipment must include:	• 12 volt test lights and LED test lights • ammeters • voltmeters • ohmmeters • multimeters.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURETK003 Operate electrical test equipment

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- correctly and safely operate electrical test equipment to test electrical circuits on a minimum of two different vehicles.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS) and, occupational health and safety (OHS) requirements when operating electrical test equipment, including:
- procedures for the correct use of personal protective equipment, including safety glasses, ear protection and safety footwear
- procedures for the correct use of tools
- identification of electrical hazards

  procedures for operating electrical test equipment
- meaning of electrical terms, including:
  - voltage
  - amperage
  - watts
  - resistance
- theory of electrical circuits, including:
  - Ohm's law
  - Watt's law
- circuit types, including series and parallel
- electrical component symbols
- types of electrical circuits in vehicles, including electrical components
- types of electrical circuit diagrams
- types, application and operation of electrical test equipment, including:

  12 volt test lights and LED test lights
  - ammeters
  - voltmeters
  - multimeters
  - ohmmeters
- procedures for testing electrical circuits on vehicles
- procedures for identifying and rectifying faults
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to operating electrical test equipment, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- electrical test equipment, including:
  - 12 volt test light
  - ammeter
  - voltmeter
  - ohmmeter
  - multimeter
  - LED test light
- two vehicles with operational electrical circuits.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURETR046 Remove and refit vehicle batteries

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to remove and refit lead-acid batteries from a vehicle. It requires the learner to plan and prepare the task; investigate battery types and connections; perform the task; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Electrical

Unit Sector

Technical - Electrical and Electronic

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to remove and refit battery	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and vehicle battery to be worked on is identified 1.3 Manufacturer specifications and workplace procedures for battery removal and refitting are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 Tools and equipment required for battery removal and refitting are identified according to manufacturer specifications
2. Remove battery	2.1 Tools, equipment and materials are selected and checked prior to use according to manufacturer specifications and safety requirements 2.2 Vehicle is prepared for battery removal according to workplace procedures and safety and environmental requirements 2.3 ***Battery*** is removed according to workplace procedures and manufacturer specifications, and without causing damage to components, tools or equipment 2.4 Battery is identified and inspected according to manufacturer specifications 2.5 Battery inspection results are recorded
3. Refit battery	3.1 Battery is refitted according to workplace procedures, manufacturer specifications and safety requirements, and without causing damage to components, tools or equipment 3.2 Vehicle is checked for correct electrical operation
4. Complete work processes	4.1 Final inspection is made to ensure work meets task instruction and workplace standards, and vehicle is presented ready for use or storage according to workplace procedures 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures 4.3 Tools and equipment are checked and stored according to workplace procedures, or tagged and reported where necessary 4.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of vehicle battery information and battery removal and refitting procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to safely remove and refit batteries • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret numerical information imbedded in battery identification codes.
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to remove and refit batteries.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
	  • use of personal protective equipment, including safety glasses, ear protection and safety footwear
	  • use of hand tools and lifting equipment
	  • application of procedures for handling, storing and disposing of automotive batteries.

Battery must include:	• lead-acid battery.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURETR046 Remove and refit vehicle batteries

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- correctly remove and refit the automotive batteries of a minimum of two different operational vehicles.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements when removing and refitting batteries, including:
  - safety data sheets (SDS) and procedures for handling, storing and disposing of used automotive batteries
  - use of personal protective equipment, including safety glasses, ear protection and safety footwear
  - use of hand tools and lifting equipment
- battery types and their application, including:
  - lead-acid batteries, including:
    - deep cycle batteries
  - maintenance-free batteries, including gel batteries and absorbed glass mat batteries
  - lithium-ion batteries
- battery identification procedures
- battery polarity and connection methods
- battery removal and refitting methods, precautions and procedures
- battery cleaning methods
- post-fitting inspection procedures
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles where they have removed and refitted batteries, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- two operational vehicles with lead-acid batteries
- hand tools for removing and refitting lead-acid batteries.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURETR047 Recharge vehicle batteries

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to recharge a vehicle's battery. It requires the learner to plan and prepare the task; investigate battery types and connections; inspect, test and charge batteries; and maintain a work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Electrical

Unit Sector

Technical - Electrical and Electronic

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to recharge battery	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and battery to be worked on is identified 1.3 Manufacturer specifications and workplace procedures for recharging vehicle battery are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 Tools and equipment are identified according to manufacturer specifications
2. Determine battery serviceability	2.1 ***Battery testing equipment*** is checked prior to use according to manufacturer specifications and safety requirements 2.2 ***Battery*** is cleaned and prepared for inspection and testing according to manufacturer specifications and safety and environmental requirements 2.3 Battery is inspected and tested according to manufacturer specifications and workplace procedures 2.4 Observations of battery condition and serviceability or issues requiring further exploration are recorded
3. Charge battery	3.1 Battery charging equipment is checked prior to use according to manufacturer specifications and safety requirements 3.2 Battery is prepared and charged according to manufacturer specifications and procedures 3.3 Battery post-charging condition and serviceability are checked according to manufacturer specifications and workplace procedures 3.4 Observations of battery condition and serviceability post charging or issues requiring further exploration are recorded
4. Complete work processes	4.1 Final inspection is made to ensure work meets task instruction and workplace standards, and battery is presented ready for use or storage according to workplace procedures 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures 4.3 Tools and equipment are checked and stored according to

	workplace procedures, or tagged and reported where necessary 4.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of vehicle battery information and battery charging procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures relating to recharging vehicle batteries • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret numerical information in battery identification codes and ratings • use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate appropriate charge rates • read and interpret electrical test equipment correctly, including voltmeters and hydrometers, and report and record the results correctly using relevant mathematical symbols and conventions (e.g. V for volts).
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to recharge batteries.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
	  • use of personal protective equipment, including safety glasses, ear protection and safety footwear
	  • use of hand tools and battery lifting equipment
	  • identifying dangers of working with battery testing and charging equipment
	  • applying procedures for handling, storing and disposing of used automotive batteries and battery fluid.

Battery testing equipment must include:	• hydrometer • high-rate discharge tester.
Battery must include:	• lead-acid battery.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURETR047 Recharge vehicle batteries

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- correctly recharge at least two automotive batteries with different cold-cranking amp (CCA) ratings.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
  - use of personal protective equipment, including safety glasses, ear protection and safety footwear
  - dangers of working with battery testing and charging equipment
  - safety data sheets (SDS) and procedures for handling, storing and disposing of automotive batteries and battery fluid
- battery inspection and testing methods, including:
  - visual checks
  - hydrometers
  - high-rate discharge testers
  - resting battery voltage
- battery charging procedures, including:
  - methods for determining appropriate charging rate, including reserve capacity (RC) and CCA methods
  - types, application and operating procedures for automotive battery chargers
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles where they have recharged batteries, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- two lead-acid automotive batteries with different CCA ratings
- battery testing equipment, including hydrometer and high-rate discharge tester
- battery charger
- automotive hand tools.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURETR048 Construct and test basic electronic circuits

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to construct and test basic electronic circuits using a small number of standard electronic components. It requires the learner to plan and prepare the task, select the correct equipment, construct and test electronic circuits, and check and store the electrical test equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Electrical

Unit Sector

Technical - Electrical and Electronic

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to construct basic electronic circuit	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and ***electronic circuit*** to be worked on is identified 1.3 Manufacturer specifications and workplace procedures for electronic circuitry are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor
2. Draw circuit diagrams and identify equipment and materials to construct electronic circuit	2.1 Electronic circuit diagrams that accurately reflect the circuit specifications are drawn according to manufacturer specifications 2.2 Electronic components are depicted correctly in circuit diagram using standard symbols 2.3 Component and material requirements are identified from electronic circuit diagram and recorded
3. Construct electronic circuit	3.1 Tools, equipment and electronic components are sourced and selected according to manufacturer specifications and safety requirements 3.2 Component manufacturer installation and connection information is read, interpreted and applied 3.3 Circuit is constructed using ***electronic components*** according to manufacturer specifications and safety requirements
4. Test electronic circuit	4.1 Circuit fault testing equipment is identified and sourced according to workplace procedures, manufacturer specifications and safety requirements 4.2 Electronic circuit is tested according to workplace procedures, manufacturer specifications and safety requirements 4.3 Faults detected are corrected and circuit is re-tested to confirm their operation 4.4 Circuit testing procedures and outcomes are recorded
5. Complete work processes	5.1 Final inspection is made to ensure work meets task instruction and workplace standards, and that electronic circuit is constructed ready for use or storage 5.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures

ELEMENT	PERFORMANCE CRITERIA
	5.3 Tools and equipment are checked and stored according to workplace procedures, or tagged and reported where necessary 5.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of electronic circuit information and electrical test equipment operating procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures relating to constructing basic electronic circuits • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret numerical information imbedded in electronic components' identification codes • use basic mathematical operations, including addition, subtraction, multiplication and division, when using Ohm's law and Watt's law to calculate electrical voltage, current flow, resistance and power • read and interpret electrical test equipment correctly, and report and record the results correctly using relevant mathematical symbols and conventions (e.g. Ω for ohms).
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to construct basic electronic circuits.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS) and occupational health and safety (OHS) requirements, including: • use of personal protective equipment, including safety glasses • use of tools • identification of electrical hazards • applying procedures for disposing of used electronic circuit components and materials.
Electronic circuit must include:	• printed circuit board.
Electronic components must include:	• heat sinks • electronic wiring • terminals • solders • switches • lamps • relays • diodes • resistors • capacitors • transistors.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURETR048 Construct and test basic electronic circuits

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- correctly and safely construct and test two different basic electronic circuits.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements relating to the construction of basic electronic circuits, including:
  - use of personal protective equipment, including safety glasses
  - use of soldering irons
  - use of hand tools and electrical test equipment
  - identification of electrical risks and hazards
  - disposal of used electronic components
- meaning of electrical terms, including:
  - voltage
  - amperage
  - watts
  - current
  - resistance
- theory of electrical circuits, including:
  - Ohm's law
  - Watt's law
- types and application of electronic components, including:
  - heat sinks
  - electronic wiring
  - terminals
  - solder
  - switches
  - lamps
  - potentiometers
  - relays
  - diodes
  - resistors
  - capacitors
  - transistors
  - integrated circuits
- types, application and operation of basic electronic circuits, including:
  - flashing circuits
  - timing circuits
  - speed control circuits
  - methods for drawing electronic circuit diagrams
  - procedures for constructing basic electronic circuits
  - procedures for testing electronic circuits, and identifying and rectifying faults
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to having constructed basic electronic circuits, e.g. circuit diagrams.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace, including a safe work area for constructing electronic circuit boards
- personal protective equipment appropriate to the workplace, including safety glasses
- electronic components and materials, including:
  - heat sinks
  - electronic wiring
  - terminals
  - solders
  - switches
  - lamps
  - relays
  - diodes
  - resistors
  - capacitors
  - transistors.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURKKJ001 Manage use of tyre management software

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to identify the scope of information available in tyre management software, and to make decisions using the software. The unit also involves monitoring the use of tyre management software, and providing support for others using the software.
It applies to those who use tyre management software to coordinate the effective use of tyres in a vehicle fleet or similar operation.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Competency Field

Mechanical - Mobile Plant

Unit Sector

Information Technology - Wheels and Tyres

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Identify scope of tyre management software	1.1 Categories of information held in tyre management software are identified and accessed 1.2 Categories of information relevant to organisation are identified 1.3 Information available for inputting into tyre management software is identified
2. Use tyre management software	2.1 Data is identified and accessed using software 2.2 Completed tasks are entered into software 2.3 Work processes that require information from tyre management software are identified 2.4 Data and information on current tyre performance are obtained from tyre management software
3. Make decisions using information from tyre management software	3.1 Tyre management software is interrogated to find required current, historical or predicted information 3.2 Information is interpreted and analysed 3.3 Actions are taken in response to information, according to workplace procedures and Australian standards
4. Monitor the use of tyre management software	4.1 Tyre management software is routinely monitored 4.2 Use and performance of tyre management software are reviewed with team
5. Support others to use tyre management software	5.1 Regular ***communication*** with team or other work groups is undertaken 5.2 Improvements to software and team use of software are identified 5.3 Actions to implement improvements are taken and recorded

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Skills	Description
Reading skills to:	• read and interpret workplace procedures and Australian standards • interpret and analyse written information on tyre performance.
Writing skills to:	• document performance improvement actions • complete a range of workplace documentation.
Oral communication skills to:	• communicate performance information and receive feedback from team and other work groups • report tyre performance data results.
Numeracy skills to:	• read and interpret both metric and imperial systems of measurement. • interpret numerical tyre performance data.
Digital literacy skills to:	• manipulate data in tyre management software • produce reports using tyre management software.
Initiative skills to:	• plan and prioritise own work to achieve required outcomes.
Planning and organising skills to:	• use appropriate processes and procedures • recognise limitations and seek timely advice.
Self-management skills to:	• seek information and assistance as required to solve problems.
Problem-solving skills to:	• identify software deficiencies and determine required actions.
Teamwork skills to:	• monitor team use of software • support team to achieve required outcomes • identify team deficiencies and take appropriate action.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Communication must include:	• face to face • use of tyre management software.

Unit Mapping Information

No equivalent unit

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURKKJ001 Manage use of tyre management software

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must have competently used tyre management software on a minimum of three occasions, inputting and accessing at least two different types of tyre reports.
Individuals must demonstrate they can:

- communicate effectively with team regarding software and its use
- input and access data into tyre management software
- prioritise own work
- read, interpret and analyse tyre management information
- use basic and advanced computer functions that support the use of tyre management software.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- basic and advanced computer functions relating to tyre management software
- Australian standards and workplace procedures relating to tyre management
- key features of the following types of tyre reports:
  - end of month reports
  - health safety and environment (HSE) reports
  - job safety analysis reports
  - rim reports
  - tyre failure reports
  - tyre maintenance reports
- tyre management software.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the tyre management software that they have worked on, e.g. tyre reports.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- Australian standards and workplace procedures relevant to tyre management
- a range of tyre reports
- tyre management software.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURKTJ001 Remove, inspect and fit earthmoving and off-the-road tyres

Modification History

Release	Comment
Release 1	New unit of competency
Release 2	Minor changes to the application, performance criteria, foundation skills, range of conditions, performance evidence, knowledge evidence and assessment requirements

Application

This unit describes the performance outcomes required to remove, inspect and fit earthmoving and off-the-road (OTR) tyres to construction, mining, agricultural and industrial vehicles. It involves removing the tyre from the rim; controlling risks; inspecting the tyre, wheel and rim assembly; recommending required repair action; fitting the tyre to the wheel and rim assembly; and preparing the tyre, wheel and rim assembly for use or storage.
It applies to those who fit tyres to wheel assemblies and rim assemblies of not less than 600 mm (24 inches) nominal diameter.
Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Mechanical - Mobile Plant

Unit Sector

Technical - Wheels and Tyres

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to remove tyre from wheel and rim assembly of a vehicle	1.1 Australian standards for earthmoving and OTR tyres, manufacturer instructions, workplace procedures and safety information are identified and interpreted 1.2 Site and task hazards are identified and control measures determined 1.3 ***Safety requirements*** are identified and applied 1.4 Tyre, rim and mounting system is identified 1.5 ***Tools and equipment*** are selected and checked according to manufacturer instructions and workplace procedures
2. Control risk	2.1 ***Hazardous conditions*** in ***work environment*** are identified and controlled 2.2 ***Hazardous tyre and wheel and rim assembly conditions*** are identified and controlled 2.3 Tyre is deflated according to Australian standards, manufacturer instructions and workplace procedures
3. Remove tyre from wheel and rim assembly	3.1 Australian standards and workplace procedures are accessed and interpreted to determine tyre removal procedures 3.2 Tyre is removed according to Australian standards and workplace procedures 3.3 Tyre removal is completed without causing component damage 3.4 Tyre and rim assembly are cleaned and visually inspected according to Australian standards and workplace procedures
4. Inspect tyre, wheel and rim assembly	4.1 Tyre is cleaned and visually inspected for damage and wear according to Australian standards and workplace procedures 4.2 Wheel and rim assembly are visually inspected for serviceability 4.3 ***Mounting components and fasteners*** are visually inspected for damage, wear, corrosion, foreign material and cracks according to workplace procedures
5. Recommend repair action and replace unserviceable parts and components	5.1 Inspection findings are recorded and reported according to workplace procedures 5.2 Recommended repair actions are documented according to workplace procedures 5.3 Unserviceable parts and components are replaced and reported according to workplace procedures
6. Fit tyre to wheel and rim	6.1 Workplace procedures for fitting tyres are accessed and

ELEMENTS	PERFORMANCE CRITERIA
assembly	interpreted 6.2 Tyre is fitted according to workplace procedures 6.3 Tyre and rim assembly are checked according to Australian standards and workplace procedures to confirm correct assembly and component compatibility and serviceability prior to inflation
7. Inflate tyre	7.1 Tyre inflation safety procedures are identified and applied prior to inflating tyre 7.2 Tyre is inflated according to Australian standards and workplace procedures 7.3 Tyre and rim assembly are monitored during inflation according to Australian standards and workplace procedures
8. Complete work processes	8.1 Final work inspection is conducted to ensure work is to required standard 8.2 Tyre, wheel and rim assembly are prepared for use or storage according to workplace procedures 8.3 Tools and equipment are checked, tagged where necessary, and stored according to workplace procedures 8.4 ***Workplace documentation*** is completed and processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance are not explicit in the performance criteria.

Skills	Description

Reading skills to:	• read and interpret:
	  • written information in Australian standards, workplace procedures, manufacturer instructions, and occupational health and safety (OHS) and work health and safety (WHS) requirements relating to removing, inspecting and fitting earthmoving and OTR tyres
	  • charts, lists, drawings and other applicable documents.

Writing skills to:	• document inspection findings and recommend repair actions.
Oral communication skills to:	• ask questions to clarify instructions and procedures • report inspection results • brief team and customers.

Numeracy skills to:	• read and interpret metric and imperial systems of measurement
	• read and interpret mathematical information, including charts and drawings
	• use specialist tools and measuring equipment, including:
	  • gauges
	  • pressure testing guns.

Digital literacy skills to:	• use workplace computerised technology and tools relating to the removal and refitting of earthmoving and OTR tyres.
Planning and organising skills to:	• plan and prioritise own work to achieve required outcomes.
Self-management skills to:	• select and use appropriate equipment, materials, processes and procedures • recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• seek information and assistance as required to solve problems • identify tyre condition and performance • match tyres to wheel and rim assemblies and vehicle type.
Teamwork skills to:	• work with team members, such as riggers, doggers, mechanics, tyre fitters, drivers and site operators.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety requirements must include:	• those prescribed under Australian standards, OHS and WHS Acts and regulations, and workplace policies and procedures
	• hazard control
	• manual-handling techniques
	• personal protective clothing and equipment
	• using tools and equipment
	• working with dangerous or toxic substances:
	  • chemicals
	  • compressed air
	  • nitrogen gas
	  • polyurethane resin (PUR) tyre fill
	  • tyre additive.

Tools and equipment must include:	• bead breakers • cranes • forklifts • grab trucks • hand tools • inflation and deflation tools • integrated tool handlers • jacks • lifting equipment • lock ring catcher • mufflers • pneumatic tools • power tools • soft face hammers • support stands • torque tools • tyre levers • wire brushes.
Hazardous conditions must include:	• changing and unstable ground conditions • dust • hard, soft or uneven ground conditions • line of fire • noise • standard or non-standard heavy rims

	• traffic • variable weather conditions • working in or around other machinery.
Work environment must include:	• day and night • indoors and outdoors • interaction of work personnel • workshop or work site.
Hazardous tyre and wheel and rim assembly conditions must include:	• blocked or damaged valves • cracks • corrosion • cuts and damage • distortion • dislodged components • expired scheduled testing date • heat damage • leakage • mechanical damage • structural damage • tyre defects • under- or over-inflated tyre • valve gear • wear • wheel and rim component defects.
Mounting components and fasteners must include:	• adaptor rings • bolts • cleats • nuts • reducers • spacer bands • studs • washers • wedge bands • wedges.
Workplace documentation must include:	• job safety analysis • risk assessment • tyre change documentation.

Unit Mapping Information

AURKTJ001 Remove, inspect and fit earthmoving and off-the-road tyres.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURKTJ001 Remove, inspect and fit earthmoving and off-the-road tyres

Modification History

Release	Comment
Release 1	New unit of competency
Release 2	Minor changes to the application, performance criteria, foundation skills, range of conditions, performance evidence, knowledge evidence and assessment requirements

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- remove, inspect and fit earthmoving and off-the-road (OTR) tyres on a minimum of three occasions
- perform the above work on tyres fitted to wheel assemblies and rim assemblies of not less than 600 mm (24 inches) nominal diameter.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- Australian standards relevant to removing, inspecting and fitting earthmoving and OTR tyres
- procedures relating to earthmoving and OTR tyres:
  - fitting
  - hazard identification and risk control methods
  - inflation and deflation
  - inspection
  - post-fitting inspection
  - pre-removal inspection
- removal procedures of earthmoving and OTR wheel and rim assemblies relating to:
  - methods for undoing fasteners
  - methods for handling earthmoving and OTR wheel and rim assemblies
  - safety lock rim
  - split industrial rim
  - rim or hub-mounted multi-piece rim
  - one piece wheel and rim
- types and classifications of earthmoving and OTR tyres, rims and wheel assemblies
- types of mounting systems for earthmoving and OTR wheel and rim assemblies
- methods for deflating earthmoving and OTR tyres
- occupational health and safety (OHS) and work health and safety (WHS) requirements relevant to removing, inspecting and fitting earthmoving and OTR tyres.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles that they have worked on, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- Australian standards relevant to removing, inspecting and fitting earthmoving and OTR tyres, wheels and rim assemblies
- crane
- earthmoving and OTR tyre handler
- earthmoving and OTR tyres, wheels and rim assemblies
- forklift
- grab truck
- integrated tool handler
- tyre, wheel and rim assembly specifications and workplace instructions
- tools and equipment appropriate for removing, inspecting and fitting earthmoving and OTR tyres
- OHS and WHS requirements and workplace procedures relevant to removing, inspecting and fitting earthmoving and OTR tyres
- workplace location or simulated workplace.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURKTJ002 Remove, inspect and fit earthmoving and off-the-road wheel and rim assemblies

Modification History

Release	Comment
Release 1	New unit of competency
Release 2	Minor changes to the application, performance criteria, foundation skills, range of conditions, performance evidence, knowledge evidence and assessment requirements

Application

This unit describes the performance outcomes required to remove, inspect and fit earthmoving and off-the-road (OTR) wheel and rim assemblies and fasteners.
It applies to those who fit wheel assemblies and rim assemblies of not less than 600 mm (24 inches) nominal diameter.
Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Mechanical - Mobile Plant

Unit Sector

Technical - Wheels and Tyres

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
1. Prepare to remove wheel and rim assembly from a vehicle	1.1 Australian standards for earthmoving and OTR wheel and rim assemblies, workplace procedures and ***safety requirements*** are identified and interpreted 1.2 Site and task hazards are identified and control measures determined 1.3 ***Wheel and rim assembly*** to be removed is identified 1.4 Wheel and rim assembly is cleaned and visually inspected to assess potential health and safety threats according to workplace procedures 1.5 ***Tools and equipment*** are selected and checked according to manufacturer instructions and workplace procedures
2. Control risk	2.1 ***Hazardous conditions*** in ***work environment*** are identified and controlled 2.2 ***Hazardous wheel and rim assembly conditions*** are identified and controlled
3. Remove wheel and rim assembly from vehicle	3.1 Vehicle is raised and supported according to Australian standards and workplace procedures 3.2 Tyre is deflated according to Australian standards and workplace procedures 3.3 Wheel and rim assembly is removed according to manufacturer instructions and workplace procedures
4. Inspect wheel and rim assembly, mounting surfaces and fasteners	4.1 Wheel and rim assembly is cleaned and visually inspected according to Australian standards and workplace procedures 4.2 ***Mounting components and fasteners*** are visually inspected according to manufacturer instructions and workplace procedures 4.3 Findings are recorded and reported according to Australian standards and workplace procedures
5. Fit wheel and rim assembly	5.1 Wheel and rim assembly is ***checked and confirmed*** prior to fastening 5.2 Wheel and rim assembly is fitted using handling equipment according to Australian standards and workplace procedures 5.3 Wheel and rim assembly positioning and alignment are checked prior to fastening 5.41 Wheel and rim assembly tightening sequence and torque settings are applied according to Australian standards and workplace procedures
6. Inflate tyre	6.1 Tyre inflation safety procedures are identified and applied prior to inflating tyre 6.2 Tyre is inflated according to Australian standards and workplace

ELEMENTS	PERFORMANCE CRITERIA
	procedures 6.3 Tyre, wheel and rim assembly are monitored during inflation according to Australian standards and workplace procedures
7. Complete work processes	7.1 Vehicle is lowered according to Australian standards and workplace procedures 7.2 Wheel fastener torque settings are re-checked according to Australian standards and workplace procedures 7.3 Wheel and rim assembly clearances are checked 7.4 Final inspection is made to ensure work is to workplace requirements 7.5 Tools and equipment are checked and stored according to workplace procedures, or tagged and reported where necessary 7.6 ***Workplace documentation*** is completed and processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Skills	Description

Reading skills to:	• read and interpret:
	  • written information in Australian standards, workplace procedures, manufacturer instructions, and occupational health and safety (OHS) and work health and safety (WHS) requirements relating to removing, inspecting and fitting earthmoving and OTR wheel and rim assemblies
	  • charts, lists, drawings and other applicable documents.

Writing skills to:	• document inspection findings and recommended repair actions.
Oral communication skills to:	• follow oral instructions • ask questions to clarify instructions and procedures • report inspection results • brief team and customers.

Numeracy skills to:	• read and interpret metric and imperial systems of measurement
	• use specialist tools and measuring equipment, including:
	  • gauges
	  • pressure testing guns
	• read and interpret mathematical information, including charts and drawings.

Digital literacy skills to:	• use workplace computerised technology and tools relating to removing and refitting earthmoving and OTR wheel and rim assemblies.
Planning and organising skills to:	• plan and prioritise own work to achieve required outcomes.
Self-management skills to:	• select and use appropriate equipment, materials, processes and procedures • recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• seek information and assistance as required to solve problems • identify tyre condition and performance • match wheel and rim assemblies to tyres and vehicle type.
Teamwork skills to:	• work with team members, such as riggers, doggers, mechanics, tyre fitters, drivers and site operators.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety requirements must include:	• those prescribed under Australian standards, OHS and WHS Acts and regulations, and workplace policies and procedures
	• hazard control
	• manual-handling techniques
	• personal protective clothing and equipment
	• use of tools and equipment
	• working with dangerous or toxic substances:
	  • chemicals
	  • compressed air
	  • nitrogen gas
	  • polyurethane resin (PUR) tyre fill
	  • tyre additive.

Wheel and rim assembly must include:	• one piece wheel and rim • rim or hub-mounted multi-piece rim • rim or hub-mounted split rim • safety lock rim • split rim • tyre and rim • tyre and rim mounted to a hub.
Tools and equipment must include:	• bead breakers • cranes • earthmoving and OTR tyre handlers • forklifts • grab trucks • hand tools • inflation and deflation tools • integrated tool handlers • jacks • lifting equipment • lock ring catcher • mufflers • pneumatic tools • power tools • soft face hammers • support stands • torque tools

	• tyre levers • wire brushes.
Hazardous conditions must include:	• changing and unstable ground conditions • dust • hard, soft or uneven ground conditions • line of fire • noise • standard or non-standard heavy rims • traffic • variable weather conditions • working in or around other machinery.
Work environment must include:	• day and night • indoors and outdoors • interaction of work personnel • workshop or work site.
Hazardous wheel and rim assembly conditions must include:	• blocked or damaged valves • cracks • corrosion • cuts and damage • distortion • dislodged components • expired scheduled testing date • heat damage • leakage • mechanical damage • structural damage • tyre defects • under- or over-inflated tyre • valve gear • wear • wheel and rim component defects.
Mounting components and fasteners must include:	• adaptor rings • bolts • cleats • nuts • reducers • spacer bands • studs • washers • wedge bands • wedges.

Checked and confirmed must include:	• component compatibility • wheel and rim component serviceability • correct assembly of wheel and rim assembly.
Workplace documentation must include:	• job safety analysis • risk assessment • tyre change documentation.

Unit Mapping Information

AURKTJ002 Remove, inspect and fit earthmoving and off-the-road wheel and rim assemblies

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURKTJ002 Remove, inspect and fit earthmoving and off-the-road wheel and rim assemblies

Modification History

Release	Comment
Release 1	New unit of competency
Release 2	Minor changes to the application, performance criteria, foundation skills, range of conditions, performance evidence, knowledge evidence and assessment requirements

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- remove, inspect and fit earthmoving and off-the-road (OTR) wheel and rim assemblies on a minimum of three occasions
- perform the above work on wheel assemblies and rim assemblies of not less than 600 mm (24 inches) nominal diameter.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- Australian standards relevant to removing, inspecting and fitting earthmoving and OTR wheel and rim assemblies
- procedures relating to earthmoving and OTR wheel and rim assemblies:
  - fitting
  - hazard identification and risk control methods
  - inflation and deflation
  - inspection
  - post-fitting inspection
  - pre-removal inspection
- raising, supporting and lowering procedures for mining and construction vehicles that include soft ground support procedures and systems
- removal procedures of earthmoving and OTR wheel and rim assemblies:
  - methods for undoing wheel or rim fasteners
  - handling methods
  - safety lock rim
  - split industrial rim
  - rim or hub-mounted multi-piece rim
  - one piece wheel and rim
- types and classifications of earthmoving and OTR tyres, wheels and rim assemblies
- types of mounting systems for earthmoving and OTR wheel and rim assemblies
- methods for deflating earthmoving and OTR tyres
- occupational health and safety (OHS) and work health and safety (WHS) requirements relevant to removing, inspecting and fitting earthmoving and OTR tyres.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles that they have worked on, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- Australian standards relevant to removing, inspecting and fitting earthmoving and OTR wheel and rim assemblies
- crane
- earthmoving and OTR tyre handler
- earthmoving and OTR wheel and rim assemblies
- forklift
- grab truck
- integrated tool handler
- OHS and WHS requirements relevant to removing, inspecting and fitting earthmoving and OTR wheel and rim assemblies
- tools and equipment appropriate for removing and fitting earthmoving and OTR wheel and rim assemblies
- tyre, wheel and rim assembly specifications and workplace instructions
- operational vehicles with earthmoving and OTR wheel and rim assemblies
- workplace location or simulated workplace.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURKTJ003 Perform minor repairs to earthmoving and off-the-road tyres

Modification History

Release	Comment
Release 1	New unit of competency
Release 2	Updated to correct data
Release 3	Minor changes to elements, foundation skills, performance evidence and knowledge evidence

Application

This unit describes the performance outcomes required to inspect and perform minor repairs to earthmoving and off-the-road (OTR) tyres.
It applies to those who fit earthmoving and OTR tyres, wheel and rim assemblies of not less than 600 mm (24 inches) nominal diameter.
Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Mechanical - Mobile Plant

Unit Sector

Technical - Wheels and Tyres

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare for inspection of tyre	1.1 Australian standards for earthmoving and OTR tyres, workplace procedures and safety information are identified and interpreted 1.2 Site and task hazards are identified and control measures determined 1.3 Initial workplace documentation for tyre inspection is completed 1.4 Tyre is prepared and cleaned for inspection 1.5 Tyre is positioned and secured for inspection
2. Inspect tyre	2.1 Extent and nature of internal and external tyre damage are identified 2.2 Damage is categorised in line with Australian standards 2.3 Repairable and non-repairable damage and extent of repairs are identified 2.4 Overall repairability of tyre is determined
3. Carry out minor repair	3.1 Information on appropriate manufacturer instructions and Australian standards is accessed and interpreted 3.2 Task hazards and risks are identified, and risk controls are applied to equipment to be used 3.3 Minor repair to tyre is carried out according to workplace procedures, manufacturer instructions and Australian standards
4. Complete work processes	4.1 Workplace documentation relating to tyre repair is completed 4.2 Inspection documentation is completed according to Australian standards 4.3 Tyre is stored according to workplace procedures 4.4 Work area is cleared and waste materials disposed of, reused or recycled according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Skills	Description
Learning skills to:	• identify information and assistance in manufacturer instructions and Australian standards relating to the inspection and repair of earthmoving and OTR tyres

Reading skills to:	• read and interpret information in:
	  • written Australian standards, workplace procedures and manufacturer instructions
	  • charts, lists, drawings and other applicable documents.

Writing skills to:	• document required repair actions • complete inspection documentation.
Oral communication skills to:	• ask questions to clarify instructions and procedures • report inspection and repair results.
Numeracy skills to:	• read and interpret metric and imperial systems of measurement. • read and interpret mathematical information, including charts and drawings • use specialist tools and measuring equipment, including: • gauges • pressure testing guns.
Digital literacy skills to:	• use workplace computerised technology and tools relating to the inspection and repair of earthmoving and OTR tyres.
Initiative skills to:	• plan and prioritise own work to achieve required outcomes.
Planning and organising skills to:	• select and use appropriate equipment, materials, processes and procedures when inspecting and repairing tyres • recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• seek information and assistance as required to solve problems • identify tyre condition and determine repair requirements.

Unit Mapping Information

AURKTJ003 Perform minor repairs to earthmoving and off-the-road tyres

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURKTJ003 Perform minor repairs to earthmoving and off-the-road tyres

Modification History

Release	Comment
Release 1	New unit of competency
Release 2	Updated to correct data
Release 3	Minor changes to elements, foundation skills, performance evidence and knowledge evidence

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria and foundation skills:

- inspect and perform minor repairs to earthmoving and off-the-road (OTR) tyres on a minimum of three occasions on different earthmoving and OTR tyres
- perform the above work on wheel assemblies and rim assemblies of not less than 600 mm (24 inches) nominal diameter.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- Australian standards and manufacturer instructions relevant to inspecting and repairing earthmoving and OTR tyres
- hazard identification procedures and risk control methods relevant to inspecting and repairing earthmoving and OTR tyres
- inspection procedures for earthmoving and OTR tyres
- indicators of tyre damage
- procedures for identifying and undertaking minor repairs to earthmoving and OTR tyres
- procedures for reporting damage and repair work on earthmoving and OTR tyres
- types of tyre damage, including repairable and non-repairable damage.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles that they have worked on, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- Australian standards relevant to the inspection and minor repair of earthmoving and OTR tyres
- earthmoving and OTR tyres
- manufacturer instructions and workplace procedures relevant to inspecting and repairing earthmoving and OTR tyres
- tools and equipment appropriate for the inspection and minor repair of earthmoving and OTR tyres
- workplace location or simulated workplace.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURKTJ004 Conduct non-destructive testing of wheel and rim assemblies

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to conduct non-destructive testing of vehicle wheel and rim assemblies. It requires the ability to use technical skills to prepare for and conduct non-destructive testing.
It applies to those who conduct non-destructive testing of vehicle wheels and rims in order to determine their serviceability by checking for material defects and malfunctions.
Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Mechanical - Mobile Plant

Unit Sector

Technical - Wheels and Tyres

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare for non-destructive testing	1.1 Workplace procedures and manufacturer instructions are used to determine job requirements 1.2 Inspection area is cleaned and prepared for testing using workplace materials and in line with required procedures 1.3 Tools and equipment are checked for safety and serviceability 1.4 Non-destructive test equipment is prepared according to manufacturer instructions and workplace procedures 1.5 Work area and equipment problems are reported to appropriate personnel
2. Perform non-destructive testing	2.1 Testing methods are determined in line with workplace procedures and manufacturer specifications 2.2 Hazards and safety requirements associated with testing are identified and addressed 2.3 Testing is performed according to workplace procedures and manufacturer instructions 2.4 Non-conformance and defects are identified against workplace procedures and manufacturer instructions 2.5 Test results are verified and documented according to workplace procedures
3. Clean work area	3.1 Testing equipment is maintained and stored according to workplace procedures 3.2 Work area is cleaned and prepared for subsequent use

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Skills	Description

Reading skills to:	• read and interpret information in:
	  • written workplace procedures
	  • manufacturer instructions
	  • charts, lists, drawings and other applicable documents
	• collect, analyse, organise and understand information relating to non-destructive test results.

Writing skills to:	• produce reporting documentation detailing non-destructive test results.
Oral communication skills to:	• confirm work requirements • report work outcomes and problems.
Numeracy skills to:	• read and interpret both metric and imperial systems of measurement. • read and interpret mathematical information including: • charts and drawings • use mathematical ideas and techniques to complete measurements and estimate material requirements required for non-destructive testing.
Planning and organising skills to:	• prepare and lay out work area, and obtain equipment and material to avoid wastage, backtracking and workflow interruptions.
Teamwork skills to:	• work with team members, such as technical supervisors, technicians and workers.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURKTJ004 Conduct non-destructive testing of wheel and rim assemblies

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must have competently conducted non-destructive testing on wheels and rims on a minimum of four occasions, using at least two of the following hardness testing methods:

- penetrant
- magnetic
- Rockwell
- Brinell.

Individuals must demonstrate they can:

- prepare equipment for testing, including zeroing and calibration checks
- select and apply testing methods
- verify test results
- record test outcomes.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- principles and methods of penetrant, magnetic, Rockwell and Brinell hardness testing, and limitations, advantages and hazards associated with the testing
- non-destructive testing terminology
- non-destructive test equipment use, maintenance and storage
- non-destructive testing preparation procedures
- non-destructive testing verification methods and techniques
- non-destructive testing analysis techniques
- reporting and recording procedures relevant to non-destructive testing.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the equipment that they have worked on, e.g. test results.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- Australian standards relevant to the non-destructive testing of wheel and rim assemblies
- workplace procedures and manufacturer instructions
- non-destructive testing equipment
- workplace location or simulated workplace.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURKTJ005 Select earthmoving and off-the-road tyres, wheels and rim assemblies for specific applications

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to select earthmoving and off-the-road (OTR) vehicle tyres, wheels and rim assemblies to suit specific applications. It involves identifying and confirming work requirements; preparing for work; selecting tyres, wheels and rim assemblies; and completing work finalisation processes.
It applies to those working on earthmoving and OTR vehicle tyres, wheels and rim assemblies in the mining, construction and other industrial environments.
Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Mechanical - Mobile Plant

Unit Sector

Technical - Wheels and Tyres

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to select tyres, wheels and rim assemblies	1.1 Customer and job requirements are determined 1.2 Workplace instructions and information required to select tyres, wheels and rim assemblies are sourced
2. Determine appropriate tyres, wheels and rim assemblies	2.1 Information required to select earthmoving and OTR tyres, wheels and rim assemblies is accessed from manufacturer and component supplier specifications 2.2 Tyre, wheel and rim assembly options are analysed to identify technical compliance, economic benefits and operational requirements 2.3 Selection procedures are carried out according to workplace instructions and work health and safety (WHS) requirements 2.4 Product is selected according to customer requirements, manufacture and component supplier specifications
3. Complete selection of tyres, wheels and rim assemblies	3.1 Customer is briefed on product selection 3.2 Required documentation regarding selection is completed

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Skills	Description
Learning skills to:	• identify sources of information and assistance in selecting earthmoving and OTR tyres, wheels and rim assemblies.
Reading skills to:	• read and interpret written information in: job instructions manufacturer and component supplier specifications workplace instructions.
Writing skills to:	• complete workplace documentation • document product selection.
Oral communication skills to:	• ask questions to clarify instructions, procedures or customer requirements • brief customer on product selection • follow oral instructions.
Numeracy skills to:	• read and interpret both metric and imperial systems of measurement. • interpret numerical information in: job instructions manufacturer and component supplier specifications workplace instructions relating to wheels, rim assemblies, and tyres.
Problem-solving skills to:	• seek information and assistance to solve problems.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURKTJ005 Select earthmoving and off-the-road tyres, wheels and rim assemblies for specific applications

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must have competently selected a minimum of two different earthmoving and off-the-road (OTR) tyres, wheels and rim assemblies.
Individuals must demonstrate they can:

- access and interpret information required for selecting tyres, wheels and rim assemblies
- select a range of earthmoving and OTR vehicle tyres, wheels and rim assemblies according to customer, workplace, manufacturer and component supplier requirements, observing safety procedures and requirements.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- Australian standards relating to earthmoving and OTR vehicle tyres, wheels and rim assemblies
- work health and safety requirements relating to selecting earthmoving and OTR vehicle tyres, wheels and rim assemblies
- earthmoving and OTR vehicle tyres, wheels and rim assembly terminology and codes
- earthmoving and OTR tyre tread patterns; and tyre and wheel and rim assembly types and their applications.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles that they have worked on, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- workplace location or simulated workplace
- Australian standards relating to earthmoving and OTR vehicle tyres, wheels and rim assemblies
- earthmoving and OTR vehicles with tyres, wheels and rim assemblies
- manufacturer and component supplier specifications
- workplace instructions.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURKTJ006 Use earthmoving and off-the-road tyre handlers

Modification History

Release	Comment
Release 1	New unit of competency
Release 2	Minor changes to the application, elements, performance evidence and knowledge evidence

Application

This unit describes the performance outcomes required to use an earthmoving and off-the-road (OTR) tyre handler. It includes checking the tyre handler and work site for suitability, operating the tyre handler, and completing work according to operational requirements.
It applies to those who fit earthmoving and OTR tyres, wheels and rim assemblies of not less than 600 mm (24 inches) nominal diameter.
Earthmoving and OTR tyre handlers must be operated in compliance with the licence requirements and regulations of the relevant state or territory authority.
Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Mechanical - Mobile Plant

Unit Sector

Technical - Wheels and Tyres

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Check tyre handler and work site for suitability	1.1 Work site is selected for operations 1.2 Work area is checked for obstructions and proximity to vehicles and equipment 1.3 Barriers and warning signs are erected in areas where there may be passing traffic 1.3 Specialist equipment and tools are selected 1.4 Tyre handler is inspected for serviceability and compliance with relevant Australian standards
2. Operate tyre handler	2.1 Tyre handler pre-operational checks are conducted, and any operating hazards identified and addressed 2.2 Tyre handler, and specialist equipment and tools are operated within safe working limits and to maximise efficiency of operations 2.3 Tyres, wheels and rim assemblies are handled according to workplace procedures and Australian standards
3. Complete work processes	2.4 Barriers and warning signs are removed and stored 2.5 Tyre handler, and specialist equipment and tools are returned to appropriate storage or parking area 2.6 Documentation is completed, reporting any ***damage or faults***

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Reading skills to:	• read and interpret written information in Australian standards and workplace procedures relating to the use of earthmoving and OTR tyre handlers.
Writing skills to:	• document actions required during work.
Oral communication skills to:	• report damage or faults.
Numeracy skills to:	• interpret vehicle instruments and indicators • read and interpret metric and imperial systems of measurement.
Initiative skills to:	• identify and avoid potential work obstructions and danger to passing traffic.
Planning and organising skills to:	• prepare and lay out work area, and obtain equipment and material to avoid wastage, backtracking and workflow interruptions.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Damage or faults must include:	• specialist equipment and tool damage • tyre, wheel and rim assembly damage • tyre handler damage or faults • work area damage.

Unit Mapping Information

AURKTJ006 Use earthmoving and off-the-road tyre handlers

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURKTJ006 Use earthmoving and off-the-road tyre handlers

Modification History

Release	Comment
Release 1	New unit of competency
Release 2	Minor changes to the application, elements, performance evidence and knowledge evidence

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- use an earthmoving and off-the-road (OTR) tyre handler on a minimum of three occasions, demonstrating that they can:
- observe safety procedures and requirements when operating earthmoving and OTR tyre handlers
- select methods and techniques to operate an earthmoving and OTR tyre handler appropriate to the circumstances
- perform the above work on wheel assemblies and rim assemblies of not less than 600 mm (24 inches) nominal diameter.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- Australian standards and workplace procedures relevant to operating an earthmoving and OTR tyre handler
- duty of care requirements relating to operating an earthmoving and OTR tyre handler
- handling procedures for earthmoving and OTR tyre handlers
- earthmoving and OTR tyre handler controls, instruments and indicators and their use
- operating hazards and procedures to be followed in the event of an operational emergency
- procedures for pre-operational checks
- factors affecting selection of work site, including site layout and obstacles
- typical damage and faults related to operating earthmoving and off-the-road tyre handlers, including:
  - specialist equipment and tool damage
  - tyre, wheel and rim assembly damage
  - tyre handler damage or faults
  - work area damage.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles that they have worked on, e.g. vehicle log books.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- Australian standards relevant to the use of an earthmoving and OTR tyre handler
- earthmoving and OTR tyre and wheel and rim assemblies
- tools and equipment appropriate to the use of an earthmoving and OTR tyre handler
- earthmoving and OTR tyre handler
- operational vehicles with earthmoving and OTR tyres, wheel and rim assemblies
- workplace instructions relating to the use of earthmoving and OTR tyre handlers
- workplace location or simulated workplace.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURTTA027 Carry out basic vehicle servicing operations

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to carry out basic vehicle servicing operations. It requires the learner to plan and prepare the servicing task; select the correct equipment and service the major vehicle systems according to manufacturer servicing procedures and specifications; record findings; maintain the work area; and check and store the servicing tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Plan to carry out basic vehicle servicing operations	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2. Task instruction is interpreted and ***vehicle*** to be serviced is identified 1.3 Manufacturer specifications and workplace procedures for basic vehicle servicing operations are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 Tools and equipment required for vehicle servicing are identified according to manufacturer specifications
2. Carry out basic vehicle servicing operations	2.1 Tools and equipment are selected and checked prior to use according to manufacturer specifications and safety requirements 2.2 ***Basic vehicle servicing operations*** are carried out according to workplace procedures, manufacturer specifications and safety and environmental requirements 2.3 Observations of worn vehicle components or issues requiring further exploration are recorded 2.4 Basic vehicle servicing operation procedures are recorded
3. Complete work processes	3.1 Final inspection is made to ensure work meets task instruction and workplace standards, and serviced vehicle is presented ready for use or storage according to workplace procedures 3.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures 3.3 Tools and equipment are checked and stored according to workplace procedures, or tagged and reported where necessary 3.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of vehicle servicing information and servicing equipment operating procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to perform basic vehicle servicing operations • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret metric and imperial systems of measurement • read and interpret mathematical information, including charts and drawings • use specialist tools and measuring equipment, including gauges • use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate volumes and ratios.
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to perform basic vehicle servicing operations.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
	  • use of personal protective equipment, including safety glasses, ear protection and safety footwear
	  • use of hand tools and lifting equipment
	  • application of procedures for handling, storing and disposing of used oil, lubricants and coolants.

Vehicle must include one or more of the following*:*	• passenger or light commercial motor vehicle • motorcycle • constructed vehicle.

Basic vehicle servicing operations must include:	• servicing the following:
	  • engine and exhaust system
	  • drive belt
	  • cooling system
	  • transmission and final drive
	  • tyres, suspension and steering
	  • fuel and intake system
	  • electrical system
	  • braking system
	  • body fittings and pedal rubbers.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURTTA027 Carry out basic vehicle servicing operations

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- correctly perform basic servicing operations on a minimum of two different operational vehicles.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements relating to basic vehicle servicing operations, including:
  - use of personal protective equipment, including safety glasses, ear protection and safety footwear
  - use of hand tools and lifting equipment
  - safety data sheets (SDS) and procedures for handling, storing and disposing of used oil, lubricants, coolants, transmission and brake fluids
  - reasons for servicing vehicles
- basic vehicle servicing procedures, including:
  - servicing the engine:
    - checking for leaks, worn or loose fittings, cracks or other damage
    - changing the engine oil
    - changing the oil filter
  - servicing the drive belt:
    - checking for cracks, fraying, oil soaking and glazing at the belt to pulley contact area
    - adjusting the belt
  - servicing the cooling system:
    - checking for leaks, signs of corrosion, damaged or cracked hoses, worn or loose fittings
    - topping up the coolant
  - servicing transmission and final drive systems:
    - checking for leaks, worn or loose fittings, cracks or other damage
    - checking and topping up transmission and final drive lubricant level
    - topping up the clutch master cylinder fluid
  - servicing the tyres and suspension and steering system:
    - checking for leaks, splits in rubber boots, worn or loose fittings, and tyre wear
    - adjusting air pressure
    - lubricating ball joints
    - topping up power steering reservoir fluid
  - servicing the fuel system:
    - checking for leaks, worn or loose fittings, cracks or other damage
    - replacing air filters
  - servicing the electrical system:
    - checking the lighting system
    - checking and topping up the battery
  - servicing the brakes:
    - checking for leaks, wear, excessive heat damage, cracks or other damage
    - topping up the master cylinder fluid
  - other tasks, including checking:
    - windscreen wipers

    - windscreen washers (fluid level)
    - heating, ventilation and air-conditioning (HVAC) operation
    - body panels
    - exhaust system
    - mirrors
    - condition of foot pedal rubbers
- hand and power tools and equipment used in vehicle servicing
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles that they have serviced, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- two vehicles for servicing
- automotive hand and power tools and lifting and supporting equipment
- automotive fluids and oils, including:
- engine oil
- transmission oil
- brake fluid.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide -
http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURTTB007 Remove and replace brake assemblies

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to remove and replace the front and rear brake assemblies of a vehicle. It requires the learner to plan and prepare the task; identify types of brake assemblies; inspect components and identify their function; remove and replace the front and rear brake assemblies; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical - Brakes

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to remove and replace brake assemblies	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and vehicle brake assemblies to be worked on are identified 1.3 Manufacturer specifications and workplace procedures for brake assemblies removal and replacement are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 Tools and equipment required for removing and replacing brake assemblies are identified according to manufacturer specifications
2. Remove and inspect brake assemblies	2.1 Tools, equipment and materials are selected and checked prior to use according to manufacturer specifications and safety requirements 2.2 Vehicle is prepared for brake assemblies removal according to workplace procedures and safety and environmental requirements 2.3 ***Brake assemblies*** are removed according to workplace procedures and safety and environmental requirements, and without causing damage to components, tools or equipment 2.4 Brake assemblies' components are arranged, identified and inspected according to manufacturer specifications 2.5 Brake assemblies' inspection results are recorded
3. Replace brake assemblies	3.1 Brake assemblies are prepared for replacement 3.2 Brake assemblies are replaced according to workplace procedures, manufacturer specifications, and safety and environmental requirements, and without causing damage to components, tools or equipment 3.3 Brake assemblies are adjusted and bled
4. Complete work processes	4.1 Final inspection is made to ensure work meets task instruction and workplace standards, and vehicle is presented ready for use or storage according to workplace procedures 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures 4.3 Tools and equipment are checked and stored according to

ELEMENTS	PERFORMANCE CRITERIA
	workplace procedures, or tagged and reported where necessary 4.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of vehicle braking system information and brake assembly removal and replacement procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to safely remove and replace front and rear brake assemblies • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret numerical information in brake system component identification codes • use specialist tools and measuring equipment correctly, including verniers, and report and record the results correctly using relevant mathematical symbols and conventions (e.g. mm for millimeters) • use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate clearances.
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to remove and replace front and rear brake assemblies.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
	  • use of personal protective equipment, including safety glasses, ear protection and safety footwear
	  • use of hand tools and lifting equipment
	  • application of procedures for handling and disposing of used brake fluid, lubricants and asbestos-based products, including brake dust.

Brake assemblies must include:	• both front disc brake assemblies • both rear drum brake assemblies.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURTTB007 Remove and replace brake assemblies

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- correctly remove and replace the brake assemblies of at least two different vehicles.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
  - use of personal protective equipment, including safety glasses, ear protection and safety footwear
  - use of hand tools and lifting equipment
  - safety data sheets (SDS) and procedures for handling and disposing of waste brake fluid, lubricants and asbestos-based products, including brake dust
- types, application and basic operation of brake assembly, including:
  - disc brake systems
  - drum brake systems
  - hand brake systems
  - brake fluids
- brake assembly function and basic principles of operation
- brake assembly component names and their functions
- brake assembly dismantling procedures, including:
  - disc caliper, pad and disc removal
  - brake drum, shoes and wheel cylinder removal
- brake assembly inspection procedures, including:
  - brake hose serviceability
  - disc thickness
  - disc runout
  - brake shoe serviceability
  - brake drum wear
- brake assembly replacement procedures, including:
  - disc pad replacement
  - caliper pin lubrication
  - disc replacement
  - brake cylinder and shoe replacement
  - bleeding and adjustment procedures
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles where they have removed and replaced front and rear brake assemblies, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- two vehicles fitted with front and rear brake assemblies, including disc and drum brake assemblies
- tools and special equipment, including lifting equipment.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURTTC004 Remove and replace radiators

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to remove and replace the radiator of a vehicle. It requires the learner to plan and prepare the task; remove the radiator and inspect it and its associated components; replace the radiator; top up the cooling system and check for leaks; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical - Cooling Systems

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to remove and replace radiator	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and vehicle radiator to be worked on is identified 1.3 Manufacturer specifications and workplace procedures for radiator removal and replacement are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 Tools and equipment required for removing and replacing radiator are identified according to manufacturer specifications
2. Remove radiator	2.1 Tools, equipment and materials are selected and checked prior to use according to manufacturer specifications and safety requirements 2.2 Vehicle is prepared for radiator removal according to workplace procedures and safety and environmental requirements 2.3 ***Vehicle radiator*** is removed according to workplace procedures and manufacturer specifications, and without causing damage to components, tools or equipment 2.4 Radiator and associated components are inspected according to manufacturer specifications 2.5 Results of inspection of radiator and its associated components are recorded
3. Replace radiator	3.1 Radiator is prepared for replacement 3.2 Radiator is replaced according to workplace procedures, manufacturer specifications, and safety and environmental requirements, and without causing damage to components, tools or equipment 3.3 ***Cooling system is tested*** according to manufacturer specifications 3.4 Cooling system test results are recorded
4. Complete work processes	4.1 Final inspection is made to ensure work meets task instruction and workplace standards, and vehicle is presented ready for use or storage according to workplace procedures 4,2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures

ELEMENTS	PERFORMANCE CRITERIA
	4.3 Tools and equipment are checked and stored according to workplace procedures, or tagged and reported where necessary 4.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of information on vehicle cooling system and radiator removal and refitting procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to safely remove and replace radiators • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret numerical information in cooling system information • use specialist tools and measuring equipment correctly, including pressure testers, and report and record the results correctly using relevant mathematical symbols and conventions (e.g. kPa for kilopascals) • use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate ratios of coolant.
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to remove and replace radiators.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
	  • use of personal protective equipment, including safety glasses, ear protection and safety footwear
	  • use of automotive hand tools
	  • application of procedures for handling and disposing of used coolant.

Vehicle radiator must include:	• radiator for an engine with a liquid cooling system.
Cooling system is tested must include:	• pressure-testing the cooling system.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURTTC004 Remove and replace radiators

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- correctly and safely remove and replace the radiators of at least two different vehicles or engine assemblies.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS)and environmental requirements, including:
  - use of personal protective equipment, including safety glasses, ear protection and safety footwear
  - use of automotive hand tools and lifting equipment
  - safety data sheets (SDS) and procedures for handling and disposing of used coolant
- types, application and basic operation of radiators, including:
  - vertical flow radiators
  - cross flow radiators
  - cooling system coolants and additives
  - radiator hoses and clamps
- radiator removal procedures, including procedures for catching and storing engine coolant
- radiator and associated component inspection procedures
- radiator replacement procedures, including:
  - calculating coolant system filling and additive concentration
  - coolant system bleeding
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles where they have removed and replaced radiators, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- two motor vehicles or engine assemblies with engines with a liquid cooling system
- automotive hand tools and special equipment, including cooling system pressure tester.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURTTD006 Remove and replace vehicle front suspension springs

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to remove and replace the front suspension springs of a vehicle. It requires the learner to plan and prepare the task; remove the springs and inspect them and associated components; replace the springs and check the vehicle ride height; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical - Steering and Suspension

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to remove and replace vehicle front suspension springs	1.1 ***Safety requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and vehicle suspension to be worked on is identified 1.3 Manufacturer specifications and workplace procedures for removing and replacing suspension springs are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 Tools and equipment required for suspension spring removal and replacement are identified according to manufacturer specifications
2. Remove and inspect front suspension springs	2.1 ***Tools, equipment and materials*** are selected and checked prior to use according to manufacturer specifications and safety requirements 2.2 Vehicle is prepared for suspension springs removal according to workplace procedures and safety requirements 2.3 ***Front suspension springs*** are removed according to workplace procedures and safety requirements, and without causing damage to components, tools or equipment 2.4 Front suspension spring components are arranged, identified and inspected according to manufacturer specifications 2.5 Results of inspecting front suspension spring components are recorded
3. Replace front suspension springs	3.1 Front suspension components are prepared for assembly 3.2 Front suspension is assembled according to workplace procedures, manufacturer specifications and safety requirements, and without causing damage to components, tools and equipment 3.3 Vehicle ride height is checked according to manufacturer specifications
4. Complete work processes	4.1 Final inspection is made to ensure work meets task instruction and workplace standards, and vehicle is presented ready for use or storage according to workplace procedures 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures

ELEMENTS	PERFORMANCE CRITERIA
	4.3 Tools and equipment are checked and stored according to workplace procedures, or tagged and reported where necessary 4.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance criteria and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of vehicle suspension system information and suspension spring removal and replacement procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to safely remove and replace vehicle front suspension springs • select and interpret key information from workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret numerical information in suspension system information • use specialist tools and measuring equipment correctly, including tape measures, and report and record the results correctly using relevant mathematical symbols and conventions (e.g. mm for millimeters) • use basic mathematical operations, including addition and subtraction to calculate length.
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to remove and replace vehicle front suspension springs.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
	  • use of personal protective equipment, including safety glasses, ear protection and safety footwear
	  • use of hand tools and lifting equipment.

Tools, equipment and materials must include:	• automotive hand tools • lifting and supporting equipment • related special tools, including spring compressors.

Front suspension spring must include:	• front suspension springs from one of the following:
	  • passenger or light commercial vehicle
	  • motor cycle
	  • constructed vehicle.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURTTD006 Remove and replace vehicle front suspension springs

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- correctly remove and replace the front suspension springs of at least two different vehicles.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS) and occupational health and safety (OHS) requirements, including:
  - dangers of working with stored energy in suspension springs
  - use of personal protective equipment, including safety glasses, ear protection and safety footwear
  - use of hand tools and lifting and supporting equipment
- types, application and basic operation of front suspension springs, including:
  - MacPherson strut
  - coil springs
- suspension spring removal procedures, including procedures for compressing springs
- suspension spring and associated component inspection procedures
- suspension spring replacement procedures, including ride height measurement procedures
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles where they have removed and replaced front suspension springs, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- two vehicles with complete front suspension assemblies
- tools and special equipment, including lifting and supporting equipment.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURTTD007 Remove and replace steering assemblies

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to remove and replace the steering assemblies of a vehicle. It requires the learner to plan and prepare the task; remove the steering assembly and inspect it and its associated components; replace the steering assembly; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical - Steering and Suspension

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to remove and replace a steering assembly	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and vehicle steering assembly to be worked on is identified 1.3 Manufacturer specifications and workplace procedures for removing and replacing steering assembly are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 ***Tools and equipment*** required for removing and replacing steering assembly are identified according to manufacturer specifications
2. Remove and inspect steering assembly	2.1 Tools, equipment and materials are selected and checked prior to use according to manufacturer specifications and safety requirements 2.2 Vehicle is prepared for steering assembly removal according to workplace procedures and safety and environmental requirements 2.3 ***Vehicle steering assembly*** is removed according to workplace procedures and manufacturer specifications and safety and environmental requirements, and without causing damage to components, tools or equipment 2.4 Steering assembly components are arranged, identified and inspected according to manufacturer specifications 2.5 Results of inspecting steering system components are recorded
3. Replace steering assembly	3.1 Steering assembly components are prepared for assembly 3.2 Steering assemblies are replaced according to workplace procedures, manufacturer specifications and safety and environmental requirements, and without causing damage to components, tools or equipment 3.3 Front wheel toe-in is measured and adjusted according to manufacturer specifications
4. Complete work processes	4.1 Final inspection is made to ensure work meets task instruction and workplace standards, and vehicle steering assembly is presented ready for use or storage according to workplace procedures 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored

ELEMENTS	PERFORMANCE CRITERIA
	according to environmental requirements and workplace procedures 4.3 Tools and equipment are checked and stored according to workplace procedures, or tagged and reported where necessary 4.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance criteria and is not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of vehicle steering system information and steering assembly removal and replacement procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to safely remove and replace vehicle steering assemblies • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret numerical information in steering system information • use specialist tools and measuring equipment correctly, including tape measures, and report and record the results correctly using relevant mathematical symbols and conventions (e.g. mm for millimeters) • use basic mathematical operations, including addition and subtraction to calculate length.
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
	  • use of personal protective equipment, including safety glasses, ear protection and safety footwear
	  • use of hand tools and vehicle lifting equipment
	  • applying procedures for handling and disposing of used steering system fluids.

Tools and equipment must include:	• automotive hand tools • vehicle lifting equipment • product-related special tools, such as ball joint breakers.

Vehicle steering assemblies must include:	• assembly from one of the following:
	  • light vehicle
	  • light commercial vehicle
	  • motorcycle
	  • constructed vehicle.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURTTD007 Remove and replace steering assemblies

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- correctly remove and replace steering assemblies of at least two different vehicles.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements relating to the removal and replacement of steering assemblies, including:
  - use of personal protective equipment, including safety glasses, ear protection and safety footwear
  - use of hand tools and vehicle lifting equipment
  - procedures for handling and disposing of used steering system fluids
- types, application and basic operation of steering assemblies, including:
  - manual steering
  - power assisted steering
- steering assembly removal procedures
- steering assembly and associated component inspection procedures
- steering assembly replacement procedures, including front toe-in measuring and adjustment procedures
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles where they have removed and replaced steering assemblies, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- two vehicles fitted with steering assemblies
- tools and equipment, including lifting equipment.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURTTE006 Remove and replace conventional engine assemblies

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to remove and replace the conventional engine assembly of a vehicle. It requires the learner to plan and prepare the task; remove the engine and inspect the associated components; replace the engine and check its operation; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical - Engines

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Plan and prepare for engine removal and replacement	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and vehicle to be worked on is identified 1.3 Manufacturer specifications and workplace procedures for engine removal and replacement are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 ***Tools and equipment*** required for engine removal and replacement are identified according to manufacturer specifications
2. Remove engine assembly and inspect engine and associated components	2.1 Tools, equipment and materials are selected and checked prior to use according to manufacturer specifications and workplace safety procedures 2.2 Vehicle is prepared for engine removal according to workplace procedures and safety and environmental requirements 2.3 ***Engine and associated components*** are identified and inspected according to manufacturer specifications 2.4 ***Engine*** is removed according to workplace procedures, manufacturer specifications and safety requirements, and without causing damage to components, tools or equipment 2.5 Engine and associated component inspection results are recorded
3. Replace engine assembly	3.1 Engine and associated components are prepared for assembly 3.2 Engine is replaced according to workplace procedures, manufacturer specifications and safety requirements, and without causing damage to components, tools or equipment 3.3 Engine fluid levels are checked and topped up with the appropriate lubricant and coolant according to manufacturer specifications and procedures 3.4 Engine and vehicle is tested for correct operation

ELEMENTS	PERFORMANCE CRITERIA
4. Complete work processes	4.1 Final inspection is made to ensure work meets task instruction and workplace standards, and engine or vehicle is presented ready for use 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures 4.3 Tools and equipment are checked and stored in a condition ready for use according to workplace procedures, or tagged and reported where necessary 4.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance criteria and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of engine information and engine removal and replacement procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to safely remove and replace engines • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret numerical information in engine information • use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate ratios and volumes.
Planning and organising skills to:	• plan own work requirements and prioritise actions to complete engine removal and replacement.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to complete engine removal and replacement.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
	  • use of personal protective equipment, including safety glasses, ear protection and safety footwear
	  • use of hand tools and lifting equipment
	  • collection and disposal of used engine lubricants and coolant.

Tools and equipment must include:	• engine lifting equipment and related special tools.
Engine and associated components must include:	• cooling system components • electrical system components • exhaust system components • fuel system components.
Engine must include:	• an engine in a front engine, rear wheel drive vehicle.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURTTE006 Remove and replace conventional engine assemblies

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- remove and replace at least one engine assembly from a conventional rear wheel drive vehicle.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
  - use of safety glasses, ear protection and safety footwear
  - use of engine lifting equipment
  - collection and disposal of used engine lubricants and coolant
- types, application and basic operation of engines, including:
  - multi-cylinder configurations
  - petrol and diesel classifications
  - engine lubrication requirements, including types and classifications of engine lubricants
- engine assembly removal procedures
- engine assembly and associated component inspection procedures, including procedures for inspecting:
  - cooling system components
  - electrical system components
  - exhaust system components
  - fuel system components
- engine assembly replacement procedures, including pre-startup checks and post-startup checks
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles where they have removed and replaced the engine assembly, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- an operable vehicle with rear wheel drive
- automotive tools, engine assembly lifting equipment and attachments
- engine oil
- engine coolant.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURTTE007 Dismantle and assemble single cylinder four-stroke petrol engines

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to dismantle and reassemble a single cylinder four-stroke engine. It requires the learner to plan and prepare the task; dismantle the engine and inspect the components; reassemble the engine and check the engine operation; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical - Engines

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to dismantle and re-assemble a single cylinder four-stroke petrol engine	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and engine to be worked on is identified 1.3 Manufacturer specifications and workplace procedures for engine dismantle and assembly are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 ***Tools and equipment*** required for dismantling and assembling four-stroke petrol engine are identified according to manufacturer specifications
2. Dismantle engine and clean its components	2.1 Tools, equipment and materials are selected and checked prior to use according to manufacturer specifications and safety requirements 2.2 Engine is cleaned according to manufacturer specifications and workplace procedures 2.3 ***Engine*** is dismantled without causing damage to components, tools or equipment 2.4 Engine components are cleaned and arranged for identification according to workplace procedures
3. Identify, inspect and measure engine components	3.1 Measuring equipment and tools are selected and checked according to manufacturer specifications and workplace safety procedures 3.2 Engine components are measured and results compared against manufacturer specifications 3.3 Engine bearing information is sourced and interpreted, and engine bearing type and associated loads are identified 3.4 Information on engine seals, sealants and gaskets is sourced and interpreted, and engine seals, sealants and gaskets are identified 3.5 Engine component inspection results are recorded
4. Inspect engine cooling system and components and identify type	4.1 Information on the function, type, and components of cooling system is sourced and interpreted 4.2 Cooling system components are identified and inspected according to manufacturer specifications 4.3 Cooling system component inspection results are recorded
5. Re-assemble engine and	5.1 Engine components are prepared for assembly according to

ELEMENTS	PERFORMANCE CRITERIA
perform operational tests	manufacturer specifications and safety and environmental requirements 5.2 Engine is assembled according to manufacturer specifications, and without causing damage to components, tools and equipment 5.3 Engine is tested for correct assembly and operation 5.4 Engine assembly and testing procedures are recorded
6. Complete work processes	6.1 Final inspection is made to ensure work meets task instruction and workplace standards, and engine is presented ready for use or storage according to workplace procedures 6.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures 6.3 Tools and equipment are checked and stored in a condition ready for use according to workplace procedures, or tagged and reported where necessary 6.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of vehicle engine information and engine dismantle and reassembly procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to safely dismantle and assemble a single cylinder four-stroke engine • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret numerical information in engine information • use specialist tools and measuring equipment correctly, including verniers and micrometers, and report and record the results correctly using relevant mathematical symbols and conventions (e.g. mm for millimeters) • use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate clearances and ratios.
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
	  • use of safety glasses, ear protection and safety footwear
	  • use of engine dismantling and re-assembly equipment
	  • collection and disposal of used engine lubricants and coolant.

Tools and equipment must include:	• micrometers and other measurement instruments • torque wrench.
Engine must include one or more of the following:	• operational single cylinder four-stroke petrol engine with air/direct cooling • complete engine assembly with carburettor, manifold, ignition system and flywheel.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURTTE007 Dismantle and assemble single cylinder four-stroke petrol engines

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- dismantle and assemble at least two different single cylinder four-stroke petrol engines.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
  - use of safety glasses, ear protection and safety footwear
  - use of engine dismantling and re-assembly equipment
  - collection and disposal of used engine lubricants and coolant
- types of engines and engine operating principles for:
  - four and two-stroke engines
  - single and multi-cylinder configuration
- construction and operating principles of single cylinder four-stroke engine and functions of their major components
- functions of the lubricating system
- components of the lubricating system and their function
- functions of the cooling system
- components of the cooling system and their functions
- types and application of:
  - seals
  - gaskets
  - bearings
- dismantling procedures for engines, including:
  - bolt loosening sequences
  - procedures for noting component positions
- measurement and calculation methods for:
  - piston to bore and connecting rod bearing clearance
  - swept volume
  - clearance volume
  - compression ratio and engine capacity
- reassembly procedures for engines, including:
  - bolt tightening sequences and torque requirements
  - piston ring compression procedures
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the engines that they have dismantled and assembled, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- two different single cylinder four-stroke petrol engines
- tools and measuring instruments, including lifting equipment.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURTTE008 Dismantle and assemble multi-cylinder four-stroke petrol engines

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to dismantle and reassemble a multi-cylinder four-stroke engine. It requires the learner to plan and prepare the task; dismantle the engine and inspect the components; reassemble the engine and check the engine operation; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical - Engines

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to dismantle and re-assemble a multi-cylinder four-stroke petrol engine	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and engine to be worked on is identified 1.3 Manufacturer specifications and workplace procedures for engine dismantle and assembly are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 ***Tools and equipment*** required for dismantling and assembling multi-cylinder four-stroke petrol engine are identified according to manufacturer specifications
2. Dismantle engine and clean its components	2.1 Tools, equipment and materials are selected and checked prior to use according to manufacturer specifications and safety requirements 2.2 Engine is cleaned according to manufacturer specifications and workplace procedures 2.3 ***Engine*** is dismantled without causing damage to components, tools or equipment 2.4 Engine components are cleaned and arranged for identification according to workplace procedures
3. Identify, inspect and measure engine components	3.1 Measuring equipment and tools are selected and checked according to manufacturer specifications and workplace safety procedures 3.2 Engine and components are measured and results compared against manufacturer specifications 3.3 Engine bearing information is sourced and interpreted, and engine bearing type and associated loads are identified 3.4 Information on engine seals, sealants and gaskets is sourced and interpreted, and engine seals, sealants and gaskets are identified 3.5 Engine component inspection results are recorded
4. Inspect engine cooling system and components and identify type	4.1 Information on the function, type and components of cooling system is sourced and interpreted 4.2 Cooling system components are identified and inspected according to manufacturer specifications 4.3 Cooling system component inspection results are recorded
5. Re-assemble engine and	5.1 Information on engine seals, sealants and gaskets is sourced and

ELEMENTS	PERFORMANCE CRITERIA
perform operational tests	interpreted 5.2 Engine components are prepared for assembly according to manufacturer specifications and safety and environmental requirements 5.3 Engine is re-assembled according to manufacturer specifications, and without causing damage to components, tools and equipment 5.4 Engine is tested for correct assembly and operation 5.5 Engine re-assembly and testing procedures are recorded
6. Complete work processes	6.1 Final inspection is made to ensure work meets task instruction and workplace standards, and engine is presented ready for use or storage according to workplace procedures 6.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures 6.3 Tools and equipment are checked and stored in a condition ready for use according to workplace procedures, or tagged and reported where necessary 6.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of vehicle engine information and engine dismantle and reassembly procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to safely dismantle and assemble a multi-cylinder four-stroke engine • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret numerical information in engine information • use specialist tools and measuring equipment correctly, including verniers, micrometers and torque wrenches, and report and record the results correctly using relevant mathematical symbols and conventions (e.g. mm for millimeters) • use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate clearances and ratios.
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
	  • use of safety glasses, ear protection and safety footwear
	  • use of engine dismantling and re-assembly equipment
	  • collection and disposal of used engine lubricants and coolant.

Tools and equipment must include:	• micrometers and other measurement instruments • torque wrench.

Engine must include one or more of the following:	• operational multi-cylinder four-stroke petrol engine with:
	  • 2, 4, 6 or 8 cylinder configurations
	  • overhead valve with push rods or overhead camshaft
	• complete multi-cylinder four-stroke engine assembly with carburettor, manifold, ignition system and flywheel.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURTTE008 Dismantle and assemble multi-cylinder four-stroke petrol engines

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- dismantle and assemble at least two different multi-cylinder four-stroke petrol engines.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
  - use of safety glasses, ear protection and safety footwear
  - use of engine dismantling and re-assembly equipment
  - collection and disposal of used engine lubricants and coolant
- types of engines and engine operating principles for:
  - four and two-stroke engines
  - single and multi-cylinder configuration, including straight, vee and horizontally-opposed engine configurations
- construction and operating principles of multi-cylinder four-stroke engine and functions of their major components
- functions of the lubricating system
- components of the lubricating system and their function, including:
  - sump
  - oil pumps
  - oil filters
  - oil galleries
- functions of the cooling system
- components of the cooling system and their function, including:
  - engine cooling galleries
  - radiators and hoses
  - thermostats
- types and applications of:
  - seals
  - gaskets
  - bearings
- dismantling procedures for engines, including:
  - bolt loosening sequences
  - procedures for noting component positions and order
- measurement and calculation methods for:
  - piston to bore and connecting rod bearing clearance
  - swept volume
  - clearance volume
  - compression ratio and engine capacity
- reassembly procedures for engines, including:
  - bolt tightening sequences and torque requirements
  - piston ring compression procedures
  - procedures for fitting pistons in bores in pairs
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the engines they have dismantled and re-assembled, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- two different multi-cylinder four-stroke petrol engines
- tools and measuring instruments, including lifting equipment.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURTTE009 Remove and replace engine cylinder heads

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to remove and replace an engine cylinder head. It requires the learner to plan and prepare the task; remove and dismantle the cylinder head, inspect the components, and reassemble and replace the cylinder head; check the engine operation; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical - Engines

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to remove and replace an engine cylinder head	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and engine assembly to be worked on is identified 1.3 Manufacturer specifications and workplace procedures for engine cylinder head removal and replacement are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 ***Tools and equipment*** required for removing and replacing an engine cylinder head are identified according to manufacturer specifications
2. Remove engine cylinder head	2.1 Tools, equipment and materials are selected and checked according to manufacturer procedures 2.2 ***Engine cylinder head*** is removed according to safety and environmental requirements, and without causing damage to components, tools or equipment 2.3 Removal procedures are recorded
3. Clean, dismantle and inspect engine cylinder head	3.1 Cleaning methods and materials are selected and checked according to manufacturer specifications and workplace procedures 3.2 Engine cylinder head is cleaned according to safety and environmental requirements 3.3 ***Engine cylinder head is dismantled*** without causing damage to components, tools or equipment 3.4 Engine cylinder head and components are cleaned and arranged for identification 3.5 Engine cylinder head and components are measured and results compared against manufacturer specifications 3.6 Engine cylinder head and components inspection results are recorded
4. Reassemble and replace engine cylinder head	4.1 Engine cylinder head and components are prepared for assembly according to manufacturer specifications and safety requirements 4.2 Engine cylinder head is assembled according to manufacturer specifications and workplace procedures, and without causing damage to components, tools or equipment

ELEMENTS	PERFORMANCE CRITERIA
	4.3 ***Engine cylinder head is replaced*** onto engine assembly according to manufacturer specifications and workplace procedures, and without causing damage to components, tools or equipment 4.4 Engine is tested for correct assembly and operation
5. Complete work processes	5.1 Final inspection is made to ensure work meets task instruction and workplace standards, and engine is presented ready for use or storage according to workplace procedures 5.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures 5.3 Tools and equipment are checked and stored in a condition ready for use according to workplace procedures, or tagged and reported where necessary 5.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of vehicle engine information and engine cylinder head removal, dismantle, reassembly and replacement procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to safely remove and replace engine cylinder head • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret numerical information in engine information • use specialist tools and measuring equipment correctly, including feeler gauges, verniers, micrometers and torque wrenches, and report and record the results correctly using relevant mathematical symbols and conventions (e.g. mm for millimeters) • use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate length, volume, clearances and ratios.
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to remove and replace an engine cylinder head.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including: • use of safety glasses, ear protection and safety footwear • use of engine cylinder head removal, dismantling, reassembly and replacement equipment • collection and disposal of used engine lubricants and coolant.
Tools and equipment must include:	• automotive hand tools and cylinder head lifting equipment and attachments.
Engine cylinder head must include:	• the cylinder head of a multi-cylinder engine assembly, including all operational fitting attachments.
Engine cylinder head is dismantled must include:	• removing the valve operating mechanisms and valves from the cylinder head.
Engine cylinder head is replaced must include	• correctly torqueing cylinder head bolts and associated component retaining bolts

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURTTE009 Remove and replace engine cylinder heads

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- correctly remove and replace at least two different cylinder heads.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
  - use of safety glasses, ear protection and safety footwear
  - use of cylinder head removal and replacement equipment
  - collection and disposal of used engine lubricants and coolant
- types of engines and engine operating principles for:
  - four and two-stroke engines
  - single and multi-cylinder configuration
  - petrol and diesel classification
- construction, function and operating principles of major engine components
- component lubricating systems, including:
  - principles and function
  - splash and pressure systems, including system components
- engine cooling systems, including:
  - principles and function
  - air-cooled and water-cooled systems, including system components
- types and application of:
  - seals
  - gaskets
  - bearings
- measurement and calculation methods for:
  - swept volume
  - clearance volume
  - compression ratio and engine capacity
- engine cylinder head removal procedures
- engine cylinder head dismantling procedures
- engine cylinder head inspection procedures, including testing for warping
- engine cylinder reassembly procedures
- engine cylinder head replacement procedures, including methods for torqueing cylinder head to engine
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to having removed and replaced engine cylinder heads, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- two different vehicle or stand-mounted operable engines
- tools and measuring instruments
- cylinder head lifting equipment and attachments.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURTTJ003 Remove and replace wheel and tyre assemblies

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to remove and replace wheel and tyre assemblies. It requires the learner to plan and prepare the task; identify wheel and tyre assemblies; remove wheel and tyre assemblies; inspect components and identify their function; replace the wheel and tyre assembly; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical - Wheels and Tyres

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to remove and replace wheel and tyre assemblies	1.1 ***Safety requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and vehicle wheel and tyre assemblies to be worked on are identified 1.3 Manufacturer specifications and workplace procedures for removing and replacing wheel and tyre assembly are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 ***Tools and equipment*** required for wheel and tyre assembly removal and replacement are identified according to manufacturer specifications
2. Remove and inspect vehicle wheel and tyre assemblies	2.1 Tools, equipment and materials are selected and checked prior to use according to manufacturer specifications and safety requirements 2.2 ***Vehicle*** is prepared for wheel removal according to workplace procedures and safety requirements 2.3 ***Wheel and tyre assemblies*** are removed according to workplace procedures and manufacturer specifications, and without causing damage to components, tools or equipment 2.4 Wheel and tyre assemblies are identified and inspected according to manufacturer specifications 2.5 Wheel and tyre assembly inspection results are recorded
3. Replace wheel and tyre assemblies	3.1 Wheel and tyre assemblies are prepared for replacement 3.2 Wheel and tyre assemblies are replaced according to workplace procedures, manufacturer specifications and safety requirements without causing damage to components, tools or equipment 3.3 Wheel and tyre assembly on vehicle is checked for correct operation
4. Complete work processes	4.1 Final inspection is made to ensure work meets task instruction and workplace standards, and vehicle wheels and tyres are presented ready for use or storage according to workplace procedures 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according

ELEMENTS	PERFORMANCE CRITERIA
	to environmental requirements and workplace procedures 4.3 Tools and equipment are checked and stored according to workplace procedures, or tagged and reported where necessary 4.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of wheel and tyre assembly information and assembly removal and replacement procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to safely remove and replace wheel and tyre assemblies • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret metric and imperial systems of measurement • read and interpret numerical information in wheel and tyre identification codes • use specialist tools correctly, including pressure gauges, and report and record the results correctly using relevant mathematical symbols and conventions (e.g. kPa for kilopascals) • use basic mathematical operations, including addition and subtraction, to calculate length.
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to remove and replace wheel and tyre assemblies.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety requirements must include:	• information about key aspects of work health and safety (WHS) and occupational health and safety (OHS) requirements, including:
	  • use of personal protective equipment, including safety glasses, ear protection and safety footwear
	  • use of hand tools and lifting and supporting equipment
	  • application of procedures for handling wheel and tyre assemblies.

Tools and equipment must include:	• automotive hand tools • vehicle lifting and supporting equipment, including wheel chocks.
Vehicles must include one or more of the following:	• passenger motor vehicle • motor cycle • constructed vehicle.
Wheel and tyre assemblies must include:	• one vehicle fitted with steel wheels • one vehicle fitted with alloy wheels.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURTTJ003 Remove and replace wheel and tyre assemblies

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- correctly remove and replace the wheel and tyre assemblies of at least two different vehicles.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS) and occupational health and safety (OHS) requirements, including:
  - use of personal protective equipment, including safety glasses, ear protection and safety footwear
  - use of hand tools and lifting equipment
  - procedures for handling wheel and tyre assemblies
- types and application of wheel assemblies, including:
  - stamped or pressed steel wheels
  - alloy wheels
  - wheel studs and nuts
  - tyres, including cross-ply and radial tyres
- inspection procedures for tyre and wheel assemblies, including wheel inspection and tyre wear
- removal and replacement procedures and precautions
- tyre air pressure setting and test procedures
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles where they have removed and replaced wheel and tyre assemblies, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- a vehicle fitted with steel wheels
- a vehicle fitted with alloy wheels
- automotive hand tools and lifting equipment.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURTTX012 Dismantle and assemble conventional manual transmissions

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to dismantle and reassemble a conventional manual transmission. It requires the learner to plan and prepare the task; dismantle the transmission and inspect the components; reassemble the transmission and check the transmission operation; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical - Transmission

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to dismantle and assemble conventional manual transmission	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and transmission to be worked on is identified 1.3 Manufacturer specifications and workplace procedures for conventional manual transmission dismantle and assembly are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 ***Tools and equipment*** required for conventional manual transmission dismantle and reassembly are identified according to manufacturer specifications
2. Dismantle a conventional manual transmission	2.1 Tools, equipment and materials are selected and checked prior to use according to manufacturer specifications and safety requirements 2.2 ***Manual transmission*** is dismantled according to workplace procedures and safety and environmental requirements, and without causing damage to components, tools or equipment 2.3 Transmission components are cleaned and arranged for identification according to workplace procedures
3. Inspect and identify gears and bearings	3.1 Measuring equipment and tools are selected and checked according to manufacturer specifications and workplace safety procedures 3.2 Gears and bearings are inspected and measured, and measurements are compared against manufacturer specifications 3.3 Transmission bearing information is sourced and interpreted, and bearing type and associated loads are identified 3.4 Gear types are identified and gear ratios calculated and recorded
4. Inspect components and re-assemble transmission	4.1 Transmission seals, sealants and gasket information is sourced and interpreted; and seals, sealants and gaskets are identified 4.2 Transmission component's inspection results are recorded 4.3 Transmission components are prepared for assembly according to manufacturer specifications and safety and environmental requirements 4.4 Transmission is assembled according to manufacturer specifications and requirements

ELEMENTS	PERFORMANCE CRITERIA
5. Complete work processes	5.1 Final inspection is made to ensure work meets task instruction and workplace standards, and conventional manual transmission is presented ready for use or storage according to workplace procedures 5.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures 5.3 Tools and equipment are checked and stored according to workplace procedures, or tagged and reported where necessary 5.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of vehicle transmission information and transmission dismantle and reassembly procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to safely dismantle and assemble a conventional manual transmission • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret numerical information in transmission information • use specialist tools and measuring equipment correctly, including verniers, micrometers and torque wrenches, and report and record the results correctly using relevant mathematical symbols and conventions (e.g. mm for millimeters) • use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate clearances and ratios.
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to dismantle and assemble a conventional manual transmission.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• work health and safety (WHS) and occupational health and safety (OHS) requirements, including:
	  • use of personal protective equipment, including safety glasses, ear protection and safety footwear
	  • applying procedures for disposing of used oil, lubricants and coolants.

Tools and equipment must include:	• micrometers and other measurement instruments • torque wrench.
Manual transmission must include:	• a complete conventional manual transmission, with at least four gears.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURTTX012 Dismantle and assemble conventional manual transmissions

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- dismantle and re-assemble a minimum of two different conventional manual transmissions.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
  - use of personal protective equipment, including safety glasses, ear protection and safety footwear
  - procedures for disposing of used oil and lubricants
- types of manual transmissions, including:
  - conventional
  - transaxle
- transmission operating principles, including:
  - types of gears
  - gear ratios
  - transmission bearings, seals and gaskets
  - transmission oils
- construction and operation of transmissions, including:
  - power flows
  - gear selector mechanisms and interlocks
  - synchromesh units
- transmission dismantling procedures
- transmission inspection procedures
- transmission reassembly procedures
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to dismantling and re-assembling a conventional manual transmission e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- two different conventional manual transmissions with at least four gears
- tools and special equipment, including lifting equipment.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURTTX013 Remove and replace clutch assemblies

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to remove and replace the clutch assembly of a vehicle. It requires the learner to plan and prepare the task; remove the clutch assembly and inspect it and its associated components; replace the clutch assembly and check the clutch operation; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Mechanical Miscellaneous

Unit Sector

Technical - Transmission

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to remove and replace clutch assembly	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and clutch assembly to be worked on is identified 1.3 Manufacturer specifications and workplace procedures for clutch assembly removal and replacement are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 Tools and equipment required for removing and replacing clutch assembly are identified according to manufacturer specifications
2. Remove clutch assembly	2.1 ***Tools, equipment and materials*** are selected and checked prior to use according to manufacturer specifications and safety requirements 2.2 ***Clutch assembly*** is removed according to workplace procedures and safety and environmental requirements, and without causing damage to components, tools or equipment 2.3 Clutch components are identified and inspected according to manufacturer specifications 2.4 Clutch assembly component inspection results are recorded
3. Replace clutch assembly	3.1 Clutch assembly components are prepared for assembly 3.2 Clutch is replaced according to safety and environmental requirements, workplace procedures and manufacturer specifications, and without causing damage to components, tools or equipment 3.3 Clutch assembly finger height is measured and compared to manufacturer specifications
4. Complete work processes	4.1 Final inspection is made to ensure work meets task instruction and workplace standards, and clutch assembly is presented ready for use or storage according to workplace procedures 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures 4.3 Tools and equipment are checked and stored according to workplace procedures, or tagged and reported where necessary 4.4 Workplace documentation is processed according to workplace

ELEMENTS	PERFORMANCE CRITERIA
	procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of vehicle clutch assembly information and clutch assembly removal and replacement procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to safely remove and replace clutch assemblies • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret numerical information in clutch system information • use specialist tools and measuring equipment correctly, including verniers and torque wrenches, and report and record the results correctly using relevant mathematical symbols and conventions (e.g. mm for millimeters) • use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate length and clearances.
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to remove and replace a clutch assembly.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
	  • use of personal protective equipment, including safety glasses, ear protection and safety footwear
	  • use of hand tools and lifting equipment
	  • application of procedures for handling used transmission fluid and asbestos-based products, including brake dust.

Tools, equipment and materials must include:	• automotive hand tools • transmission lifting equipment • clutch aligning tool • cleaning agents.

Clutch assembly must include:	• the complete clutch assembly from one of the following:
	  • passenger or light commercial motor vehicle
	  • heavy vehicle
	  • motorcycle
	  • constructed vehicle.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURTTX013 Remove and replace clutch assemblies

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- correctly remove and replace a clutch assembly from an operating vehicle with a manual transmission.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS)and environmental requirements, including:
  - use of personal protective equipment, including safety glasses, ear protection and safety footwear
  - use of hand tools and lifting equipment
  - safety data sheets (SDS) and procedures for handling and disposing of waste brake fluid, lubricants and asbestos-based products, including brake dust
- clutch assembly types, application and basic operation, including:
  - diaphragm clutch
  - coil spring clutch
- clutch assembly removal procedures
- clutch assembly and associated component inspection procedures
- clutch assembly replacement procedures, including:
  - clutch aligning
  - clutch finger height measurement
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the clutch assemblies that they have removed and replaced, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- an appropriate vehicle fitted with a manual transmission and clutch assembly
- automotive hand tools
- transmission lifting machine
- clutch aligning tool
- cleaning agents.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURVLA001 Identify and report vehicle claim fraud indicators

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to identify and report fraud indicators associated with a vehicle insurance claim.
The unit applies to those who identify signs of fraudulent activity on inspection of vehicles; collecting and evaluating information, and providing a written assessment report. Work may relate to light vehicles, commercial vehicles, heavy vehicles, agricultural and plant equipment, recreational vehicles and motorcycles.
Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Vehicle Body

Unit Sector

Regulatory and Legal

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare for vehicle assessment	1.1 ***Assessment information*** is gathered 1.2 Assessment information is reviewed and interpreted 1.3 ***Safety requirements*** relating to vehicle claim fraud indicators are identified
2. Inspect the vehicle for fraud	2.1 ***Fraud indicators*** are identified and recorded 2.2 ***Workplace policies and procedures***, ***industry guidelines*** and ***legal requirements*** are read and interpreted 2.3 Vehicle is assessed in line with compliance requirements
3. Determine suitable action	3.3 Possible actions to deal with fraud indicators are determined 3.2 Action consistent with nature of claim, assessment made, and workplace and legal restraints is decided
4. Prepare assessment report	4.1 Comprehensive report is prepared specifying full results of identified fraud and vehicle assessment 4.2 Recommendations are documented, including actions and justifications 4.3 Report is submitted and filed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Reading skills to:	• interpret information relating to automotive insurance claims and assessment information.
Writing skills to:	• write a comprehensive assessment report integrating information from a range of sources and using appropriate support material, such as photographs and measurements.
Oral communication skills to:	• gather and interpret information from customers and others relating to a fraudulent vehicle insurance claim.
Numeracy skills to:	• use calculations of actual damage when reviewing vehicle claims to identify and report vehicle claim fraud indicators.
Problem-solving skills to:	• establish diagnostic processes relating to identifying and reporting vehicle claim fraud indicators.
Teamwork skills to:	• work effectively with customers, repairers and supervisors.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Assessment information must include:	• assessment notification detailing:
	  • claims handler
	  • insurance policy details where applicable
	  • vehicle owner details
	  • vehicle details
	  • driver details
	  • incident details
	  • vehicle inspection details, including assess without prejudice or assess and authorise
	• digital images
	• quote for repairs or total loss determination.

Safety requirements must include:	• first aid equipment • personal protective equipment and clothing • safety equipment.
Fraud indicators must include two of the following:	• claim report inconsistent with vehicle damage • manufactured damage • staged accidents.
Workplace policies and procedures must include:	• recording and reporting procedures • safe work procedures.
Industry guidelines must include:	• instructions issued by authorised organisation or external persons • industry codes of practice • verbal, written and graphical instructions.
Legal requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and must include:	• commercial-in-confidence practices • Competition and Consumer Act • confidentiality and privacy • Motor Vehicle Insurance and Repair Industry Code of Conduct • personal legal liability • relevant industry codes of practice • Written-Off Vehicles Register (WOVR) managed by each State and Territory.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURVLA001 Identify and report vehicle claim fraud indicators

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- assess vehicles to identify and report indicators of vehicle claim fraud, including a minimum of two of the following:
  - staged vehicle accidents
  - manufactured damage
  - damage inconsistent to claim report
- complete an assessment report relating to each claim.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- principles of fraud investigation
- procedures for identifying and reporting fraud indicators
- types of fraud indicators, including:
  - accidents in an industrial area late at night
  - claim report inconsistent with vehicle damage
  - consistent colour transfer
  - consistent striation or scratching of a car
  - damage consistent with weather conditions, such as rain, snow and sleet
  - damage to trim
  - forced entry
  - locks tampered with
  - manufactured damage
  - no independent witnesses
  - no police report
  - no signs of towing or tow truck driver
  - staged accidents
  - vehicle has a low value
- technical knowledge of motor vehicle mechanical, electrical, surface and structural damage and faults
- general insurance industry knowledge, including relevant sections of:
  - contract and insurance law
  - Insurance Contracts Act
  - Motor Vehicle Insurance and Repair Industry Code of Conduct
  - state or territory Fair Trading Act
- methods for sourcing manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory laws, regulations and standards relating to identifying and reporting vehicle claim fraud indicators, including:
  - commercial-in-confidence practices
  - Competition and Consumer Act
  - copyright law
  - environmental regulations
  - intellectual property
  - personal legal liability
  - Privacy Act
  - Workplace Health and Safety Act or Occupational Health and Safety Act
- workplace policies and procedures relating to identifying and reporting vehicle claim fraud indicators, including:
  - recording and reporting procedures
  - use of digital images.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles that they have assessed, e.g. assessment reports.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- a range of damaged vehicles, including damage consistent with fraudulent activity
- computer hardware and software, calculators and general office equipment
- fraudulent vehicle claim details and documentation
- industry codes of practice and other relevant documents
- internet access
- workplace procedures.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURVNA001 Provide vehicle loss assessments and identify repair requirements

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to provide a vehicle loss assessment and identify repair requirements. It involves determining vehicle damage and repair action and cost, preparing an assessment report, and completing post-assessment documentation.
The unit applies to those undertaking a vehicle loss assessment and identifying repair requirements of a damaged vehicle in the loss assessment environment. Loss assessments may relate to light vehicles, commercial vehicles, heavy vehicles, agricultural and plant equipment, recreational vehicles and motorcycles.
Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Vehicle Body

Unit Sector

Loss Assessment and Repair Quoting

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare for vehicle assessment	1.1 ***Assessment information*** is gathered 1.2 Assessment information is reviewed and interpreted 1.3 ***Materials, resources and safety equipment*** are located and checked for safe use
2. Inspect vehicle	2.1 Vehicle assessment process is determined and followed 2.2 Vehicle to be inspected is located 2.3 ***Safety requirements*** are read and complied with 2.4 Vehicle is inspected in line with insurance claim requirements and workplace policies and procedures 2.5 Preferred dismantling and inspection methods are determined that conform to workplace policies and procedures and vehicle manufacturer, component supplier, and legal requirements 2.6 Dismantling and inspection methods are negotiated and agreed with the repair estimator in a fair and transparent manner 2.7 Damage and faults to vehicle system and component are determined 2.8 Required outsourcing to specialist services is determined
3. Determine vehicle repair action	3.1 Preferred repair method for vehicle system and components is selected that conforms to workplace policies and procedures and vehicle manufacturer, component supplier, and legal requirements 3.2 Preferred repair methods for paint, trim and accessories are selected that conform to workplace policies and procedures and vehicle manufacturer, component supplier, and legal requirements 3.3 Job procedures are determined that use exchanged or recycled parts as appropriate 3.4 Repair methods are communicated and agreed to with repairer and/or specialist services 3.5 Estimated cost of repairs is calculated 3.6 ***Settlement action*** is decided and agreed to with repairer and/or specialist services
4. Prepare assessment report	4.1 Repairs are authorised where assess and authorise instructions are included in assessment information 4.2 Where assess without prejudice is included in assessment information a settlement amount is determined and documented

ELEMENTS	PERFORMANCE CRITERIA
	4.3 ***Recommendations*** are documented as required by industry and organisation 4.4 Assessment report is completed, including either authorised estimated cost of repairs or settlement amount
5. Complete post-assessment administration	5.1 Assessment report is submitted according to workplace policies and procedures 5.2 Repairer invoice is compared against authorised cost estimate 5.3 Discrepancies between invoice and authorised costs are investigated where applicable following industry codes and legislative requirements 5.4 Payment of invoice is validated where the invoice and authorised costs are confirmed

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Reading skills to:	• interpret assessment information • interpret technical information and specifications • analyse information relating to insurance claims and inspection requirements • understand safety procedures.
Writing skills to:	• use common industry terminology when completing vehicle assessment reports.
Oral communication skills to:	• engage with repairers and specialist providers • negotiate settlement action • obtain vehicle assessment information from others • report work outcomes and problems.
Numeracy skills to:	• calculate cost estimates • interpret technical measurements.

Digital literacy skills to:	• use communication devices and computerised equipment to:
	  • determine current values and costs
	  • prepare vehicle assessment reports
	  • search and gather supporting material, including digital images.

Planning and organising skills to:	• identify and avoid planning and scheduling problems.
Problem-solving skills to:	• identify technical and procedural problems and resolve within scope of own role • prevent time and material wastage.
Technology skills to:	• take digital images.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Assessment information must include:	• assessment notification detailing:
	  • claims handler
	  • driver details
	  • incident details
	  • insurance policy details where applicable
	  • report items
	  • vehicle details
	  • vehicle inspection details, including assess without prejudice or assess and authorise
	  • vehicle location
	  • vehicle owner details
	• digital images
	• quote for repairs.

Materials, resources and safety equipment must include:	• digital camera • electronic or paper-based information and reports • internet connection • personal computer, laptop or tablet • maps • personal protective equipment (PPE) kit.
Safety requirements must include:	• ensuring safe location of vehicle to be inspected • following workplace safety procedures • identifying potential safety hazards.
Settlement action must include one or more of the following:	• cash settlement • repair • total loss.
Recommendations must include one or more of the following:	• additional labour • additional parts • approved or denied report items • in-house specialist repair services • sublet specialist repair services.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURVNA001 Provide vehicle loss assessments and identify repair requirements

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- provide vehicle loss assessment and identify repair requirements on a minimum of two occasions, which involve:
  - one vehicle with paint damage
  - a further vehicle with mechanical damage
- prepare and submit vehicle assessment report relating to the above assessments.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- motor vehicle mechanical, electrical, paint, panel and structural:
  - extensive damage, which is damage that affects the safety and roadworthiness of a vehicle and includes:
    - body panel damage
    - bolt-on vehicle component damage
    - mechanical component damage
    - structural component damage
    - structural damage
    - welded or bonded key structural components, such as chassis rails damage
  - faults
  - dismantling and repair methods
  - minor damage, which is damage that does not affect the safety and roadworthiness of a vehicle and includes:
    - bumper bar graze
    - hail damage
    - panel damage
- types of specialist services, including:
  - air conditioning
  - automotive glaziers
  - battery electric vehicle (BEV)
  - brake systems
  - cooling systems
  - electrical and electronic systems
  - hybrids
  - liquid petroleum gas (LPG)
  - suspension and wheel alignments
  - transmission
  - trimming
- methods for sourcing current retail costs of vehicles and vehicle components and materials
- vehicle inspection and damage assessment procedures and methodologies, including repair set-up and dismantling procedures
- current assessing and quoting methodologies
- relevant automotive websites to locate information on current best practice and future trends in vehicle loss assessment
- general insurance industry knowledge, including relevant sections of:
  - contract and insurance law
  - Insurance Contracts Act
  - Motor Vehicle Insurance and Repair Industry Code of Conduct
  - state or territory Fair Trading Act
- methods for sourcing original equipment manufacturer (OEM) or authorised agencies' repair procedures and component supplier specifications, workshop manuals and repair guides

- applicable commonwealth, state or territory laws, regulations and standards relating to inspecting vehicles and determining vehicle damage, including:
  - commercial-in-confidence practices
  - environmental regulations
  - intellectual property
  - personal legal liability
  - applicable Workplace Health and Safety Act or Occupational Health and Safety Act
- workplace policies and procedures relating to inspecting vehicles and determining vehicle damage, including:
  - recording and reporting procedures
  - use of digital images.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles that they have assessed, e.g. assessment reports.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- a range of operational vehicles with both minor and extensive vehicle damage
- relevant information, including OEM or authorised agencies' repair specifications, workshop manuals and repair guides
- relevant materials, resources and safety equipment, including digital camera, paperwork and personal protective equipment kit
- relevant safety materials, including workplace safety procedures
- vehicle assessment information, including assessment notification, digital images and quote.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURVNA002 Provide vehicle total loss assessments

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to provide a vehicle total loss assessment. It involves determining vehicle damage and repair action and cost, calculating prior accident and salvage values, and completing post-assessment documentation.
The unit applies to those undertaking a total loss assessment of a damaged vehicle in the loss assessment environment. Loss assessment may relate to light vehicles, commercial vehicles, heavy vehicles, agricultural and plant equipment, recreational vehicles and motorcycles.
Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Vehicle Body

Unit Sector

Loss Assessment and Repair Quoting

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare for vehicle assessment	1.1 ***Assessment information*** is gathered 1.2 Assessment information is reviewed and interpreted 1.3 ***Materials, resources and safety equipment*** are located and checked for safe use
2. Inspect vehicle	2.1 Vehicle assessment process is determined and followed 2.2 Vehicle to be inspected is located 2.3 Workplace policies and procedures, ***safety requirements*** and workplace environmental practices and policies are read and complied with 2.4 Vehicle is inspected to ensure compliance with insurance claim requirements in line with compliance requirements 2.5 Preferred dismantling and inspection methods are determined that conform to workplace policies and procedures and vehicle manufacturer, component supplier, and legal requirements 2.6 Dismantling and inspection methods are communicated to repair estimator 2.7 Damage and faults to vehicle system and components are determined 2.8 Required outsourcing to specialist services is determined
3. Determine vehicle repair action	3.1 Preferred repair method for vehicle system and components is selected that conforms to vehicle workplace policies and procedures and vehicle manufacturer, component supplier, and legal requirements 3.2 Preferred repair methods for paint, trim and accessories are selected that conform to workplace policies and procedures and vehicle manufacturer, component supplier, and legal requirements 3.3 Job procedures are determined that use exchanged or recycled parts as appropriate 3.4 Repair methods are communicated and agreed with repairer and/or specialist services 3.5 Estimated cost of repairs is calculated 3.6 Settlement action is decided
4. Calculate total loss value	4.1 ***Valuation supporting documentation*** is compiled 4.2 Salvage value is determined

ELEMENTS	PERFORMANCE CRITERIA
	4.3 ***Total loss calculation*** is performed 4.4 ***Research and validation*** of vehicle prior accident values and salvage value are conducted
5. Complete post-assessment documentation	5.1 Written-Off Vehicles Register (WOVR) information is completed according to relevant state or territory regulations, and workplace policies and procedures 5.2 Vehicle assessment report is completed, including recommended settlement 5.3 WOVR entry information and vehicle assessment report are submitted according to workplace policies and procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Reading skills to:	• interpret assessment information • interpret technical information and specifications • interpret information relating to insurance claims and inspection requirements • understand safety procedures.
Writing skills to:	• accurately record WOVR information • use common industry terminology when completing vehicle assessment reports.
Oral communication skills to:	• engage with repairers and specialist providers • obtain vehicle assessment information from others • report work outcomes and problems • use common industry terminology.
Numeracy skills to:	• calculate cost estimates • calculate total loss • interpret technical measurements.

Digital literacy skills to:	• use communication devices and computerised equipment to:
	  • determine current values and costs
	  • prepare WOVR information and vehicle assessment report
	  • search and gather supporting material, including digital images.

Planning and organising skills to:	• identify and avoid planning and scheduling problems.
Problem-solving skills to:	• identify technical and procedural problems • prevent time and material wastage.
Technology skills to:	• take digital images.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Assessment information must include:	• assessment notification detailing:
	  • claims handler
	  • driver details
	  • incident details
	  • insurance policy details where applicable
	  • report items
	  • vehicle details
	  • vehicle inspection details, including assess without prejudice or assess and authorise
	  • vehicle location
	  • vehicle owner details
	• digital images.

Materials, resources and safety equipment must include:	• digital camera • electronic or paper-based information and reports • internet connection • personal computer, laptop or tablet • maps • personal protective equipment (PPE) kit.
Safety requirements must include:	• ensuring safe location of vehicle to be inspected • following workplace safety procedures • identifying potential safety hazards.

Valuation supporting documentation must include one or more of the following:	• web-based references, such as:
	  • dealer guides
	  • vehicle seller guides
	• published references
	• local sales documents.

Total loss calculation must include one or more of the following formulas:	• cost of repairs exceeds sum insured or market value • cost of repairs plus salvage value is greater than or equal to sum insured or market value.

Research and validation must include one or more of the following:	• subject matter experts, such as:
	  • auction yards
	  • salvage yards
	• web-based references, such as:
	  • dealer guides
	  • vehicle seller guides.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURVNA002 Provide vehicle total loss assessments

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- provide a vehicle total loss assessment on a minimum of two occasions, on different damaged vehicles
- complete and submit Written-Off Vehicles Register (WOVR) information and vehicle assessment report.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- motor vehicle mechanical, electrical, paint, panel and structural:
  - minor and extensive damage and faults
  - dismantling and repair methods
  - transferred damage and individual vehicle design
- methods for sourcing current retail costs of vehicles and vehicle components and materials
- vehicle inspection and damage assessment procedures and methodologies, including repair set-up and dismantling procedures
- current assessing and quoting methodologies, including total loss calculation
- relevant automotive websites to locate information on current best practice and future trends in vehicle loss assessment
- general insurance industry knowledge, including relevant sections of:
  - Insurance Contracts Act
  - state or territory Fair Trading Act
  - Motor Vehicle Insurance and Repair Industry Code of Conduct
  - contract and insurance law
- methods for sourcing manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory laws, regulations and standards relating to inspecting vehicles and determining vehicle damage, including:
  - commercial-in-confidence practices
  - Competition and Consumer Act
  - copyright law
  - intellectual property
  - personal legal liability
  - WOVR legislation
  - Workplace Health and Safety Act or Occupational Health and Safety Act
  - environmental regulations
- workplace policies and procedures relating to vehicle inspection and determining vehicle damage, including:
  - recording and reporting procedures
  - use of digital images.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles that they have assessed, e.g. assessment reports.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- a range of operational vehicles with both minor and extensive vehicle damage
- relevant information:
  - original equipment manufacturer (OEM)
  - recognised agency information
  - design specification
  - repair procedures
  - body repair manuals
- relevant materials, resources and safety equipment, including digital camera, paperwork and personal protective equipment kit
- relevant safety materials, including workplace safety procedures
- vehicle assessment information, including assessment notification, digital images and quote.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURVNA003 Review vehicle repair quotations

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to review a vehicle repair quotation. It involves reviewing cost and time requirements in the repairer's quote to ensure that they accurately represent the repair method to reinstate the vehicle to pre-damage condition, and to determine that the repair cost is fair and reasonable. It also involves ensuring that quotation figures are accurate and completing the required documentation.
The unit applies to those reviewing a body repair shop quotation to repair a damaged vehicle in the loss assessment environment. Vehicles to be repaired may include light vehicles, commercial vehicles, heavy vehicles, agricultural and plant equipment, recreational vehicles and motorcycles.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Vehicle Body

Unit Sector

Loss Assessment and Repair Quoting

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare for work	1.1 ***Quotation*** and workplace policies and procedures are located 1.2 Quotation information and supporting documents are collected
2. Review time requirements	2.1 Viable repair time requirements are estimated 2.2 Turn-around time for subcontracted specialist services is estimated 2.3 Total time for ***repair work*** is estimated 2.4 Time requirement estimations are documented
3. Review part requirements	3.1 Viability of replacement parts compared to repair is determined while meeting quality standards, ***legal requirements***, ***safety requirements***, and workplace practices 3.2 Relevance of identified parts for the repair is checked 3.3 Potential variations to the original parts costing is determined 3.4 Cost of parts and consumables is estimated using industry and workplace pricing standards 3.5 Findings relating to parts are documented
4. Review subcontract specialist services work	4.1 Nature and scope of subcontract testing, service and repair work are determined 4.2 Completed subcontracted repair work is checked 4.3 Potential variations to subcontract work costing are identified 4.4 Cost of subcontract testing, service and repair work is estimated using industry and workplace pricing standards 4.5 Subcontract testing, parts, service and repair work requirements are documented
5. Agree on quotation with repairer	5.1 Time requirements and costs are negotiated and agreed with repairer in a fair and transparent manner 5.2 Quotation adjustments are made if required 5.3 Quotation is agreed and finalised 5.4 Authorisation to proceed with the repair is provided as required to reinstate the vehicle to pre-damage condition following workplace policies and procedures
6. Finalise quotation review	6.1 Findings are documented using workplace-approved quotation format 6.2 Findings and repair authorisation documentation are reported to appropriate persons as required by workplace policies and

ELEMENTS	PERFORMANCE CRITERIA
	procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description

Reading skills to:	• review a vehicle repair quotation to:
	  • interpret technical information
	  • research information
	  • understand common industry terminology
	  • understand manufacturer and component specifications.

Oral communication skills to:	• discuss and finalise quotation with repairer • discuss quotation with supervisor, subcontractors and customers • report work outcomes and problems.
Numeracy skills to:	• estimate costs, time requirements and subcontract work.
Digital literacy skills to:	• access repair and time data • document and review quotation results.
Problem-solving skills to:	• identify technical and procedural problems • prevent time and material wastage problems.
Teamwork skills to:	• work effectively and cooperatively with others to optimise workflow and productivity.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Quotations must include:	• customer details • labour cost estimates • replacement parts required and their cost • subcontracted or specialist work • vehicle details • work to be performed.
Repair work must include:	• all vehicle damage, including minor and extensive damage.
Legal requirements are to be in accordance with applicable commonwealth, state, or territory legislation, regulations, certification requirements and codes of practice, and must include:	• environmental regulations • intellectual property.
Safety requirements are to be in accordance with applicable commonwealth, state or territory Workplace Health and Safety Act or Occupational Health and Safety Act and must include:	• ensuring safe location of vehicle to be inspected • following workplace safety procedures • identifying potential safety hazards.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURVNA003 Review vehicle repair quotations

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- review a minimum of two vehicle repair quotations for vehicle repair jobs, one relating to minor damage, the other to extensive damage.
- for each quotation:
  - agreeing on a final quotation with repairer
  - completing a vehicle assessment report.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- motor vehicle mechanical, electrical, paint, panel and structural:
  - extensive damage, which is damage that affects the safety and roadworthiness of a vehicle and includes:
    - body panel damage
    - bolt-on vehicle component damage
    - mechanical component damage
    - structural component damage
    - structural damage
    - welded or bonded key structural components, such as chassis rails damage
  - faults
  - dismantling and repair methods
  - minor damage, which is damage that does not affect the safety and roadworthiness of a vehicle and includes:
    - bumper bar graze
    - hail damage
    - panel damage
- types of specialist services, including:
  - air conditioning
  - automotive glaziers
  - battery electric vehicle (BEV)
  - brake systems
  - cooling systems
  - electrical and electronic systems
  - hybrids
  - liquid petroleum gas (LPG)
  - suspension and wheel alignments
  - transmission
  - trimming
- basic principles of estimating and costing
- methods for sourcing current retail costs of vehicles and vehicle components and materials
- current assessing and quoting methodologies
- relevant automotive websites to locate information on current best practice and future trends in the vehicle loss assessment environment
- general insurance industry knowledge, including relevant sections of:
  - contract and insurance law
  - Insurance Contracts Act
  - Motor Vehicle Insurance and Repair Industry Code of Conduct
  - state or territory fair Trading Act
- applicable commonwealth, state or territory laws, regulations and standards relating to reviewing a vehicle repair quotation, including:
  - commercial-in-confidence practices
  - environmental regulations
  - intellectual property

    - personal legal liability
    - applicable Workplace Health and Safety Act or Occupational Health and Safety Act
- workplace policies and procedures relating to reviewing a vehicle repair quotation, including:
    - recording and reporting procedures
    - use of digital images.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third party evidence, individuals must provide evidence that links them to the vehicle repair quotes that they have reviewed, e.g. assessment reports.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- a range of motor vehicles with both minor and extensive damage
- relevant information:
    - original equipment manufacturer (OEM)
    - recognised agency information
    - design specification
    - repair procedures
    - body repair manuals
- relevant materials, resources and safety equipment, including digital camera, paperwork and personal protective equipment kit
- relevant safety materials, including workplace safety procedures
- vehicle assessment information, including assessment notification, digital images and quotes
- Repair Times manuals.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURVNA004 Apply insurance industry knowledge to vehicle loss assessments

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to apply insurance industry knowledge to vehicle loss assessment. It involves using insurance industry terminology and trends; and applying policy, Acts and regulations to ensure the correct conduct of a vehicle loss assessment. .

It applies to those applying insurance industry knowledge to a vehicle loss assessment in the loss assessment environment. Loss assessment may relate to light vehicles, commercial vehicles, heavy vehicles, agricultural and plant equipment, recreational vehicles and motorcycles.

Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Vehicle Body

Unit Sector

Loss Assessment and Repair Quoting

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Develop and apply an understanding of the insurance industry	1.1 Sources of information on the structure and functions of the insurance industry are identified and accessed according to workplace policies and procedures 1.2 Broad structures of the insurance industry and their relationship with each other are identified and appropriately applied to day-to-day work 1.3 Insurance industry ***terminology and vocabulary*** are used in the correct context 1.4 ***Trends and technology*** in the insurance industry are monitored on an ongoing basis to inform personal work practices 1.5 Insurance organisation-specific policies, procedures and processes are identified, clarified where necessary, and applied
2. Develop and apply an understanding of government Acts and regulations relevant to the insurance industry	2.1 Statutory insurance industry ***principles, obligations and compliance requirements*** of a loss assessor are interpreted and complied with 2.2 ***Reporting requirements*** and procedures are identified 2.3 Requirements under privacy law are identified, clarified where necessary, and complied with
3. Develop and apply an understanding of loss assessment processes	3.1 Knowledge of ***loss assessment processes, procedures and policy*** is interpreted 3.2 ***Condition of vehicle*** compared to incident description is analysed to determine incident-related damage 3.3 Conflict resolution principles are applied 3.4 Statutory insurance industry principles, obligations and compliance requirements, and their relationship to identified vehicle damage are interpreted, clarified where necessary, and applied 3.5 Automotive industry technical knowledge and experience are applied to determine accuracy of vehicle damage estimate to return the vehicle to pre-damage condition that conforms to manufacturer guidelines and industry standards

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Reading skills to:	• apply loss assessment processes, procedures and policies • interpret and apply statutory insurance industry principles, obligations and compliance requirements • understand broad insurance industry structure, functions and relationships • apply organisation-specific policies, procedures and processes.
Writing skills to:	• use common industry terminology • compile reports, including vehicle assessment reports and Written-Off Vehicles Register (WOVR) information • complete templates and proformas.
Oral Communication skills to:	• use insurance industry terminology and vocabulary • engage with repairers and specialist providers • engage with vehicle owners.
Numeracy skills to:	• interpret technical measurements • determine accuracy of vehicle damage estimate.
Digital Literacy skills to:	• access insurance industry information.
Problem Solving skills to:	• clarify policy and privacy law discrepancies • compare and analyse condition of vehicle to incident description to determine incident-related damage.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Terminology and vocabulary must include:	• agreed value
	• assessments
	• certificates of insurance
	• claims
	• depreciation
	• excess
	• indemnity
	• market value
	• misrepresentation
	• mitigation
	• no claim:
	  • bonus
	  • discount
	  • rating
	• non-disclosure
	• policy book
	• pool of funds
	• premium
	• pre-accident condition
	• product disclosure statement (PDS)
	• reinsurance
	• renewals
	• subrogation
	• underwriting
	• unreasonable or capricious grounds.

Trends and technology must include the following:	• digital imaging
	• electronic-based researching and reporting
	• personal electronic devices, such as:
	  • laptop
	  • mobile phone
	  • tablet.

Principles, obligations and compliance requirements must include:	• Australian Prudential Regulatory Authority (APRA) regulations • Financial Services Reform (FSR) Act • General Insurance Code of Practice • Insurance Contracts Act, including: • duty of disclosure

	• utmost good faith • intellectual property principles and practice • Motor Vehicle Insurance and Repair Industry Code of Conduct • Commercial-In-Confidence practices • Competition and Consumer Act • privacy law • commonwealth, state or territory regulatory requirements • statutory changes to the criteria of the national WOVR.
Reporting requirements must include the following:	• assessment report • WOVR information for total loss assessment.
Loss assessment processes, procedures and policy must include at least three of the following:	• assessment report • WOVR • fraud indicator report • vehicle condition report.
Condition of vehicle must include the following:	• direction of impact (DOI) appropriate to incident description • old and inconsistent damage • pre-accident condition and potential contributing factors.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURVNA004 Apply insurance industry knowledge to vehicle loss assessments

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- apply insurance industry knowledge to vehicle loss assessment on a minimum of two occasions.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- current assessing and quoting methodologies
- relevant automotive websites to locate current best practice and future trends information
- general insurance industry knowledge, including relevant sections of:
  - Commercial-In-Confidence practices
  - contract and insurance law
  - Insurance Contracts Act
  - intellectual property
  - Motor Vehicle Insurance and Repair Industry Code of Conduct
  - personal legal liability
  - State or Territory Fair Trading Act
- applicable commonwealth, state or territory laws, regulations and standards relating to vehicle loss assessment, including:
  - environmental regulations
  - intellectual property
  - legislation
  - applicable Workplace Health and Safety Act or Occupational Health and Safety Act
- workplace processes, policies and procedures relating to vehicle loss assessment and reporting requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third party evidence, individuals must provide evidence that links them to the vehicles that they have assessed, e.g. assessment reports.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- relevant documentation, including incident description, applicable codes, acts, legislation, regulations and insurance industry policies
- relevant materials, resources and safety equipment, including digital camera, paperwork and personal protective equipment (PPE) kit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURVNA005 Inspect quality of vehicle repair work

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to inspect vehicle repair work to ensure that it is being undertaken as agreed by the insurer and repairer.
The unit applies to those involved in inspecting the technical quality of repair work in the vehicle loss assessment environment, at the request of either the customer or the repairer. Repair work may be to light vehicles, commercial vehicles, heavy vehicles, agricultural and plant equipment, recreational vehicles and motorcycles.
Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Vehicle Body

Unit Sector

Loss Assessment and Repair Quoting

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare for vehicle inspection	1.1 Vehicle information is accessed and reviewed 1.2 Vehicle to be inspected is identified and checked against vehicle information 1.3 Appropriate ***vehicle inspection method*** is determined 1.4 Materials and equipment required to conduct vehicle inspection are identified and prepared
2. Inspect vehicle	2.1 Original equipment manufacturer (OEM) or authorised agencies and ***component specifications*** are interpreted and applied 2.2 Vehicle is inspected to determine that repair has been undertaken to an acceptable industry standard in line with compliance requirements 2.3 Safety and workplace procedures are interpreted and complied with 2.4 Vehicle inspection personal protective equipment (PPE) is used 2.5 Repair faults are identified 2.6 Faults requiring ***rectification action*** are decided and repair work plan is prepared
3. Authorise further action	3.1 Repair faults and recommended repair methods are discussed with current or new repairer 3.2 Cost and quotation variations are agreed with current or new repairer 3.3 Corrective work process is authorised with current or new repairer
4. Complete work processes	4.1 Actions undertaken are documented as required under the relevant code of practice 4.2 Vehicle inspection report is completed and provided to appropriate person 4.3 Reports are processed as required by workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• identify workplace procedures relating to inspecting repair quality.
Reading skills to:	• interpret OEM or authorised agencies' repair procedures • interpret vehicle technical information and specifications, including vehicle inspection reports.
Oral communication skills to:	• communicate with customers, repairers and insurance organisations • confirm inspection requirements • question and listen to others regarding repair work • reach agreement on cost and quotation variations.
Numeracy skills to:	• interpret vehicle specifications • interpret pre- and post-repair measurements • identify OEM or authorised agencies' recommended repair measurements • identify cost variations.
Digital literacy skills to:	• interpret vehicle repair and diagnostic data • use communication devices and computerised equipment to document and report results.
Planning and organising skills to:	• coordinate communication between customer, repairers and insurance organisation.
Technology skills to:	• use electronic devices to inspect the quality of mechanical, body and paint repair work • use electronic vehicle repair measuring systems.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Vehicle inspection method must include at least one of the following:	• physically checking and inspecting damage to vehicle and components • referring to reports, publications and OEM or authorised agencies' specifications • using digital images of damage to vehicle and components.
Component specifications must include at least one of the following:	• vehicle design specifications and drawings • repair instructions and procedures • component replacement instructions and procedures.
Rectification action must include one or more of the following:	• repairing the vehicle at the original repairer • repairing the vehicle at a new repairer and seeking recovery from the original repairer • declaring the vehicle a total loss and disposing of the vehicle at auction • declaring the vehicle a total loss and selling vehicle in its present condition back to the original repairer.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURVNA005 Inspect quality of vehicle repair work

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- inspect vehicle repair work on a minimum of two occasions, where:
  - one repair involves rectification action undertaken at the original repairer
  - the other repair involves rectification action undertaken at a new repairer.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- type and use of personal protection equipment (PPE) required when inspecting repair work
- types of rectification action and process, including:
  - repairing the vehicle at original repairer
  - repairing the vehicle at a new repairer and seeking recovery from the original repairer
  - declaring the vehicle a total loss and disposing of the vehicle at auction
  - declaring the vehicle a total loss and selling the vehicle in its present condition back to the original repairer
- motor vehicle mechanical, electrical, paint, panel and structural repairs, including:
  - damage and faults
  - dismantling and repair methods
- current assessing and quoting methodologies
- vehicle inspection and damage assessment procedures and methodologies, including repair set-up and dismantling procedures
- general insurance industry knowledge, including relevant sections of:
  - contract and insurance law
  - Insurance Contracts Act
  - Motor Vehicle Insurance and Repair Industry Code of Conduct
  - state or territory Fair Trading Act
- methods for sourcing original equipment manufacturer (OEM) or authorised agencies' repair procedures and component supplier specifications, workshop manuals and repair guides
- applicable commonwealth, state or territory laws, regulations and standards relating to inspecting quality of vehicle repair work, including:
  - commercial-in-confidence practices
  - environmental regulations
  - intellectual property
  - personal legal liability
  - applicable Workplace Health and Safety Act or Occupational Health and Safety Act
- workplace procedures relating to inspecting the quality of vehicle repair work, including:
  - recording and reporting procedures
  - use of digital images.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles that they have inspected, e.g. reports.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive repair workplace location or simulated workplace
- a range of vehicles with both satisfactory and unsatisfactory repair work
- relevant materials, resources and safety equipment, including digital camera, paperwork and PPE kit
- relevant information, including OEM or authorised agencies' repair specifications, workshop manuals and repair guides
- vehicle details.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide -
http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURVNA006 Identify and value vehicle salvage

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to identify and value vehicle and component salvage. It involves inspecting a vehicle to identify and cost saleable items.
The unit applies to those identifying and valuing saleable salvage and components on a damaged vehicle in the loss assessment environment. Vehicles and components may include light vehicles, commercial vehicles, heavy vehicles, agricultural and plant equipment, recreational vehicles and motorcycles.
Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Vehicle Body

Unit Sector

Loss Assessment and Repair Quoting

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare for work	1.1 Work instructions are used to determine job requirements 1.2 Vehicle to be inspected is located 1.3 ***Workplace policies and procedures***, ***legal requirements***, and ***component specifications*** are read and interpreted 1.4 Workplace requirements, ***safety requirements*** and ***workplace environmental practices*** and policies are identified 1.5 Safety equipment and tooling equipment are selected and checked 1.6 ***Vehicle inspection methods*** are determined to minimise waste material and components
2. Inspect vehicle to identify saleable systems and components	2.1 Vehicle systems and components are dismantled and inspected without causing damage 2.2 Serviceable vehicle systems and components are identified 2.3 Saleable ***vehicle salvage***, or vehicle systems and components, are determined and documented following legal requirements
3. Determine vehicle and component retail price	3.1 Value of identified saleable salvage, or vehicle systems and components is determined 3.2 ***Category of vehicle salvage*** is determined 3.3 Retail price of each saleable system and component is estimated 3.4 Details of total loss vehicle are reported to the relevant statutory body according to workplace policies and procedures
4. Clean up work area	4.1 Reusable material is collected and stored 4.2 Waste and scrap are removed according to workplace policies and procedures 4.3 Equipment and work area are cleaned and inspected to serviceable condition according to workplace procedures 4.4 Faults in unsaleable equipment are determined and tagged according to workplace policies and procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Reading skills to:	• interpret manufacturer specifications • analyse information relating to workplace policies and procedures • understand common industry terminology, plans and safety procedures and follow Written-Off Vehicles Register (WOVR) requirements.
Writing skills to:	• report on vehicle salvage saleable items and their value.
Numeracy skills to:	• use sources of information to work out value of saleable items, correctly entering data into salvage report • decide and check on estimation of retail prices.
Digital literacy skills to:	• use computerised technology and communications devices to research and report on vehicle salvage saleable items and their value.
Planning and organising skills to:	• identify and avoid planning and scheduling problems.
Problem-solving skills to:	• avoid time and material wastage • identify technical and procedural problems.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Workplace policies and procedures must include:	• recording and reporting procedures • safe work procedures.
Legal requirements are to be in accordance with applicable commonwealth, state, or territory legislation, regulations, certification requirements and codes of practice, and must include:	• environmental regulations • intellectual property.
Component specifications must include at least one of the following:	• vehicle design specifications and drawings • repair instructions and procedures • component replacement instructions and procedures • inspecting vehicles for saleable components.
Safety requirements are to be in accordance with applicable commonwealth, state or territory Workplace Health and Safety Act or Occupational Health and Safety Act and must include:	• ensuring safe location of vehicle to be inspected • following workplace safety procedures • identifying potential safety hazards.
Workplace environmental practices must include:	• managing clean-up • managing waste • minimising dust and noise.
Vehicle inspection methods must include at least one of the following:	• aural, visual and operational checking of damage to vehicle and components • visually examining digital images of damage to vehicle and components.
Vehicle salvage must include at least one of the following:	• bumper bar • saleable items as listed on the policy • tow bar • vehicle components • vehicle system.
Category of vehicle salvage must include at least one of	• repairable write-off • statutory write-off.

the following:	

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURVNA006 Identify and value vehicle salvage

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria and foundation skills:

- identify and value vehicle salvage on a minimum of two occasions, including:
  - accurately calculating vehicle salvage value
  - correctly identifying vehicle salvage category.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- motor vehicle mechanical, electrical, paint, panel and structural:
  - dismantling and repair methods
  - loss recovery methods and costs
  - inspection methods and procedures
- general insurance industry knowledge, including relevant sections of:
  - contract and insurance law
  - Insurance Contracts Act
  - Motor Vehicle Insurance and Repair Industry Code of Conduct
  - state or territory Fair Trading Act
- methods for sourcing original equipment manufacturer (OEM) or authorised agencies' repair procedures, and component supplier specifications, workshop manuals and repair guides
- methods for sourcing current retail costs of vehicles, vehicle components and materials
- methods for accessing independent sources with the required skills to value vehicle salvage
- salvage disposal contractors and auction houses
- applicable commonwealth, state or territory laws, regulations and standards relating to identifying vehicle salvage saleable items and determining their value, including:
  - commercial-in-confidence practices
  - environmental regulations
  - intellectual property
  - personal legal liability
  - applicable Workplace Health and Safety Act or Occupational Health and Safety Act
- workplace policies and procedures relating to identifying vehicle salvage saleable items and determining their value, including:
  - recording and reporting procedures
  - work organisation and planning processes.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicle salvage that they have valued, e.g. assessment reports.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- work instructions
- a range of total loss vehicles
- computer hardware and software, calculators and general office equipment
- internet access.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURVNA007 Apply automotive mechanical and electrical knowledge to vehicle loss assessments

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to apply automotive mechanical and electrical knowledge to identify mechanical and electrical damage resulting from a vehicular accident.
It applies to those applying specialist automotive knowledge to a vehicle loss assessment in the loss assessment environment. Loss assessment may relate to light vehicles, commercial vehicles, heavy vehicles, agricultural and plant equipment, recreational vehicles and motorcycles.
Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Vehicle Body

Unit Sector

Loss Assessment and Repair Quoting

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Develop and apply an understanding of automotive mechanical knowledge	1.1 Knowledge of the operating principles of ***suspension and steering systems, brake systems, transmission and driveline assembly***, and ***engine and fuel systems*** is developed 1.2 Knowledge of suspension and steering systems, brake systems, transmission and driveline assembly, and engine and fuel systems is applied to loss assessment processes, procedures and policies 1.3 Mechanical damage is identified
2. Develop and apply an understanding of automotive electrical knowledge	2.1 Knowledge of the operating principles of ***electrical and electronic systems*** is developed 2.2 Knowledge of electrical and electronic systems is applied to loss assessment processes, procedures and policies 2.3 Electrical damage is identified
3. Develop and apply an understanding of advanced specialist vehicle knowledge	3.1 Knowledge of specific vehicle types is developed, clarified where necessary, and applied to loss assessment processes, procedures and policies 3.2 Knowledge of ***latest technology*** relating to automotive mechanical and electrical systems is developed, clarified where necessary, and applied to loss assessment processes, procedures and policies 3.3 ***Research techniques*** and advanced specialist knowledge are employed to identify vehicle damage

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Reading skills to:	• apply loss assessment processes, procedures and policies • research, interpret and apply automotive mechanical, electrical and advanced specialist vehicle knowledge.
Oral Communication skills to:	• engage with repairers and specialist providers.
Numeracy skills to:	• interpret technical measurements.
Digital Literacy skills to:	• use communication devices and computerised equipment to research advanced specialist vehicle information.

Problem Solving skills to:	• clarify problems relating to:
	  • brake systems
	  • engine and fuel systems
	  • electrical and electronic systems
	  • latest automotive technology
	  • specific vehicle types
	  • suspension and steering systems
	  • transmission and driveline assembly
	• clarify knowledge of specific vehicle types and latest technology relating to automotive mechanical and electrical problems.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Suspension and steering systems must include at least two of the following:	• dependant suspension • double wishbone suspension • independent suspension • McPherson strut suspension.
Brake systems must include at least two of the following:	• air braking system • anti-lock braking system (ABS) • autonomous braking system • hydraulic braking system • stability control.
Transmission and driveline assembly must include:	• automatic and manual transmission • clutch assembly • driveline • final drive assembly.
Engine and fuel systems must include:	• cooling system • emission control system • engine components • fuel system.
Electrical and electronic systems must include:	• batteries • charging systems • electrical circuits • electronic body management systems • electronic drive management systems • electronic spark ignition engine management system • ignition systems • lights • starting systems • vehicle sensors.
Latest technology must include:	• battery electric vehicle • hybrid vehicle.

Research techniques must include:	• internet
	• reference material, including:
	  • original equipment manufacturer (OEM) or authorised agencies repair guides
	  • repair guides
	  • workshop manuals

	• subject matter experts.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURVNA007 Apply automotive mechanical and electrical knowledge to vehicle loss assessments

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria and foundation skills:

- apply automotive mechanical and electrical knowledge to vehicle loss assessment processes, procedures and policies
- apply latest automotive technology knowledge and knowledge of specific vehicle types to vehicle loss assessment processes, procedures and policies
- identify vehicle mechanical and electrical damage.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- motor vehicle:
  - mechanical systems and components:
    - damage and faults
    - dismantling and repair methods
  - operating principles of electrical and electronic systems and components, including:
    - damage and faults
    - dismantling and repair methods
  - operating principles of mechanical systems and components, including:
    - brake systems
    - engine and fuel systems
    - suspension and steering systems
    - transmission and driveline assembly
- technical knowledge relating to a specific vehicle type, including light vehicles, heavy vehicles, agricultural and plant equipment, recreational vehicles and motorcycles
- technical knowledge of latest technology relating to mechanical, electrical and electronic motor vehicle repair, including repair of battery electric vehicles (BEV) and hybrid vehicles
- vehicle inspection and damage assessment procedures and methodologies, including repair set-ups and dismantling procedures
- current assessing and quoting methodologies
- relevant automotive websites to locate current best practice and future trends information
- methods of sourcing OEM or authorised agencies repair procedures, component supplier specifications and repair guides
- applicable commonwealth, state or territory laws, regulations and standards relating to vehicle loss assessment and reporting requirements, including:
  - environmental regulations
  - intellectual property
  - legislation
  - applicable Workplace Health and Safety Act or Occupational Health and Safety Act
- workplace policies and procedures relating to vehicle loss assessment and reporting requirements, including:
  - recording and reporting procedures
  - use of digital images.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third party evidence, individuals must provide evidence that links them to the vehicles that they have assessed, e.g. assessment reports.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- a range of vehicles with mechanical and electrical damage
- relevant information including OEM or authorised agencies repair procedures, component supplier specifications and repair guides
- relevant materials and resources.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURVNA008 Apply automotive body and paint knowledge to vehicle loss assessments

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to apply automotive body and paintwork knowledge to identify body and paint damage.
The unit applies to those applying specialist body and paint knowledge to a vehicle loss assessment in the loss assessment environment. Vehicles and components may include light vehicles, commercial vehicle, heavy vehicles, agricultural and plant equipment, recreational vehicles and motorcycles.
Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Vehicle Body

Unit Sector

Loss Assessment and Repair Quoting

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Develop and apply an understanding of automotive paintwork knowledge	1.1 Knowledge of operating principles of ***paint preparation, application***, and refinishing process and techniques, including ***paint products*** and imperfection identification is developed 1.2 Knowledge of paint preparation and paint product is applied to loss assessment processes 1.3 Paintwork damage is identified using ***colour matching techniques***
2. Develop and apply an understanding of automotive body knowledge	2.1 Knowledge of operating principles of ***vehicle structure*** is developed 2.2 knowledge of operating principles of vehicle ***supplementary restraint systems*** (SRS***)*** is developed 2.3 Knowledge of operating principles of ***vehicle body repair procedures*** is developed 2.4 Knowledge of vehicle structure, SRS and body repair procedures is applied to loss assessment processes, procedures and policies 2.5 Bodywork damage is identified
3. Develop and apply an understanding of advanced specialist vehicle information	3.1 Knowledge of ***specific vehicle types*** is developed, clarified where necessary, and applied to loss assessment processes, procedures and policies 3.2 Knowledge of ***latest technology*** relating to automotive paint and bodywork is developed, clarified where necessary, and applied to loss assessment processes, procedures and policies 3.3 ***Research techniques*** and advanced specialist vehicle knowledge are employed in order to identify vehicle damage

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• source information on loss assessment processes, procedures and policies.
Reading skills to:	• research and interpret automotive paintwork, body, and advanced specialist vehicle information.

Oral communication skills to:	• discuss with repairers and specialist providers problems relating to:
	  • latest automotive technology
	  • specific vehicle types
	  • vehicle body
	  • vehicle paintwork.

Numeracy skills to:	• interpret technical measurements in order to determine extent of damage.
Digital literacy skills to:	• use communication devices and computerised equipment to research advanced specialist vehicle information.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Paint preparation and application must include:	• colour matching
	• paint film thickness gauge
	• paint code list
	• paint mixing
	• masking
	• surface preparation, including:
	  • sanding
	  • degreasing.

Paint products must include:	• acrylic enamel • air dry enamel • clear over base (COB) • multi-layer • pearls • polyurethane • primers and fillers • special effects • two-pack paint • waterborne paint.
Colour matching techniques must include at least one of the following:	• eye • formula • colour cards • colour spectrometer.
Vehicle structure must include:	• alloys • collision energy management • composite materials • foams structural and non-structural • glass components • metals • plastics • vehicle structural integrity and component interrelationship.

Supplementary restraint systems must include:	• airbag systems, including:
	  • console
	  • curtain
	  • dash
	  • knee
	  • pillar

	• seat • side • steering wheel • seat belt tensioners • sensors, actuators and control modules.
Vehicle body repair procedures must include:	• alignment systems • panel repair, including the application of filler • measuring systems • methods and types of: • bonding • fastening • riveting • welding.
Specific vehicle types must include at least one of the following:	• agricultural and plant equipment • heavy vehicles • commercial vehicles • light vehicles • motorcycles • recreational vehicles.
Latest technology must include:	• alloy steel technology • aluminium technology • composite materials • electrical and electronic systems • high strength steels • painting preparation and procedures.
Research techniques must include:	• internet • reference material, including: • original equipment manufacturer (OEM) or authorised agency repair guides • paint code list • repair guides • subject matter experts.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURVNA008 Apply automotive body and paint knowledge to vehicle loss assessments

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria and foundation skills:

- apply specialist automotive knowledge to vehicle loss assessment processes and procedures on a minimum of two occasions, including:
  - automotive paintwork and body knowledge
  - latest automotive technology knowledge
  - specific vehicle type knowledge
  - identification of vehicle body and paint damage.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- operating principles of paint preparation and refinishing process and techniques, including:
  - colour matching
  - imperfection identification
  - paint products
- operating principles of supplementary restraint systems (SRS)
- operating principles of vehicle structural repair and procedures, including:
  - measuring and alignment systems
  - welding, bonding and fastening methods and types
- operating principles of vehicle structure, including:
  - alloys
  - metals
  - other materials
- paintwork and body:
  - damage and faults
  - dismantling and repair methods
  - technical knowledge relating to a specific vehicle type
- technical knowledge of latest technology relating to vehicle paintwork and body repair, including:
  - composite materials
  - high-strength steels
  - waterborne paints
  - painting preparation and procedures
  - SRS
- vehicle inspection and damage assessment procedures and methodologies, including repair set-up and dismantling procedures
- current assessing and quoting methodologies
- relevant automotive websites to locate information on current best practice and future trends in vehicle loss assessment
- methods for sourcing original equipment manufacturer (OEM) or authorised agencies' repair procedures, component supplier specifications and repair guides
- applicable commonwealth, state or territory laws, regulations and standards relating to vehicle loss assessment and reporting requirements, including:
  - environmental regulations
  - intellectual property
  - applicable Workplace Health and Safety Act or Occupational Health and Safety Act
- workplace policies and procedures relating to vehicle loss assessment and reporting requirements, including:
  - recording and reporting procedures
  - use of digital images.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles that they have assessed, e.g. assessment reports.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- a range of vehicles with paint and body damage
- relevant information, including OEM or authorised agencies' repair procedures, component supplier specifications and repair guides
- relevant materials and resources.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURVNN001 Evaluate vehicle bodywork for damage and identify repair requirements

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to evaluate the bodywork of a vehicle for damage and to identify the materials, equipment and processes required to repair it. It involves using vehicle paint, body and mechanical technical knowledge; and locating, evaluating and documenting relevant information when selecting materials, equipment and processes.

The unit applies to those evaluating the bodywork of a vehicle for damage and selecting materials, equipment and processes to repair the vehicle in a vehicle repair or vehicle loss assessment environment. Vehicles may include light vehicles, commercial vehicles, heavy vehicles, agricultural and plant equipment, recreational vehicles and motorcycles.

Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Vehicle Body

Unit Sector

Loss Assessment and Repair Quoting - Body

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare for work	1.1 Work instructions are used to determine job requirements 1.2 Workplace and workplace ***safety requirements*** are read and complied with 1.3 ***Workplace policies and procedures, legal requirements***, and ***component supplier specifications*** are read and interpreted 1.4 Safety equipment, tooling equipment, and ***materials and equipment*** are selected and checked
2. Assess vehicle bodywork for damage	2.1 Vehicle to be inspected is located 2.2 Preferred dismantling and inspection methods are determined that conform to workplace policies and procedures, legal requirements, and vehicle manufacturer and component supplier specifications 2.3 Vehicle system and components are dismantled and inspected to determine ***vehicle damage*** and faults 2.4 Vehicle is inspected in line with workplace policies and procedures, legal requirements, vehicle manufacturer and component supplier specifications, safety requirements and workplace environmental practices 2.5 Suitability of vehicle for insurance is determined according to workplace policies and procedures
3. Gather data and specifications	3.1 Bodywork process specifications are identified and documented 3.2 Staff and management are consulted to identify additional or altered specifications 3.3 Existing materials and equipment are evaluated 3.4 Data and specifications are compiled and documented
4. Evaluate and select materials, equipment and processes	4.1 Materials and equipment options are determined 4.2 Materials and equipment are assessed for quality finish and conformity to standards 4.3 Specifications of materials and equipment are compared for performance and cost 4.4 Commercial, environmental and safety impact of materials and equipment selection are determined 4.5 Materials, equipment and processes are selected based on performance, cost, specifications and impact comparison 4.6 Evaluation process is documented as required by organisational policies and procedures, and legal requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Reading skills to:	• interpret technical specifications • analyse information relating to bodywork materials and equipment • analyse regulatory, environmental and safety procedures, best practice and future trends • research evaluation results.
Oral communication skills to:	• consult with staff and management to inform research and data gathering.
Planning and organising skills to:	• organise activities • systematically identify, research and evaluate options.
Problem-solving skills to:	• identify potential technical and procedural problems and variables.
Teamwork skills to:	• work effectively and cooperatively with others in identifying specifications that contribute to evaluation of vehicle repair requirements.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety requirements are to be in accordance with applicable commonwealth, state or territory Workplace Health and Safety Act or Occupational Health and Safety Act and must include:	• ensuring safe location of vehicle to be inspected • following workplace safety procedures • identifying potential safety hazards.
Workplace policies and procedures must include:	• environment and sustainability • job specifications • manufacturer specifications and industry codes of practice • quality policies and procedures, including Australian standards • reporting and recording procedures • safe work procedures.
Legal requirements are to be in accordance with applicable commonwealth, state, or territory legislation, regulations, certification requirements and codes of practice, and must include:	• environmental regulations • intellectual property.
Component supplier specifications must include at least one of the following:	• vehicle design specifications and drawings • repair instructions and procedures • component replacement instructions and procedures.
Materials and equipment must include:	• digital camera • electronic or paper-based information and reports • elcometer • hoist • internet connection • maps • personal computer, laptop or tablet • personal protective equipment (PPE) kit • portable light • protective covers.

Vehicle damage must include:	• all vehicle damage, including minor and extensive damage.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURVNN001 Evaluate vehicle bodywork for damage and identify repair requirements

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria and foundation skills:

- evaluate the damage on bodywork of a minimum of two vehicles and identify repair requirements, with at least one evaluation relating to minor damage and the other relating to extensive damage
- for each evaluation:
  - determine the impact of decisions in terms of commercial and safety risks
  - document bodywork materials, equipment and processes.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- motor vehicle mechanical, electrical, paint, panel and structural:
  - extensive damage, which is damage that affects the safety and roadworthiness of a vehicle and includes:
    - body panel damage
    - bolt-on vehicle component damage
    - mechanical component damage
    - structural component damage
    - structural damage
    - welded or bonded key structural components, such as chassis rails damage
  - faults
  - dismantling and repair methods
  - minor damage, which is damage that does not affect the safety and roadworthiness of a vehicle and includes:
    - bumper bar graze
    - hail damage
    - panel damage
- methods for sourcing current retail costs of vehicles and vehicle components and materials
- vehicle inspection and damage assessment procedures and methodologies, including repair set-up and dismantling procedures
- current assessing and quoting methodologies
- vehicle testing machines and procedures
- current vehicle materials and retail costs
- relevant automotive websites to locate information on current best practice and future trends in the vehicle loss assessment environment
- general insurance industry knowledge, including relevant sections of:
  - contract and insurance law
  - Insurance Contracts Act
  - intellectual property
  - Motor Vehicle Insurance and Repair Industry Code of Conduct
  - state or territory Fair Trading Act
- methods for sourcing original equipment manufacturer (OEM) or recognised agency information, component supplier specifications, workshop manuals and repair guides
- applicable commonwealth, state or territory laws, regulations and standards relating to evaluating vehicle damage, and suggesting repair materials, equipment and processes, including:
  - commercial-in-confidence practices
  - environmental regulations
  - intellectual property
  - personal legal liability
  - applicable Workplace Health and Safety Act or Occupational Health and Safety Act
- workplace policies and procedures relating to evaluating vehicle damage, and suggesting repair materials, equipment and processes, including:
  - recording and reporting procedures

- use of digital images.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles that they have assessed, e.g. assessment reports
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- a range of vehicles with both minor and extensive vehicle damage
- computer hardware, software and calculators
- internet access
- necessary tools and equipment
- relevant information, including OEM or recognised agency information and repair procedures, workshop and body repair manuals
- workplace technology.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURVNP001 Evaluate vehicle paintwork for damage and identify refinish requirements

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to evaluate vehicle paintwork for damage and identify the paint refinish required to repair a vehicle. It involves using technical understanding of paint applications and procedures; and locating, evaluating and documenting relevant information.

The unit applies to those evaluating the paintwork on a vehicle for damage and identifying appropriate paint refinish to repair the vehicle in a vehicle repair or vehicle loss assessment environment. Vehicles may include light vehicles, commercial vehicles, heavy vehicles, agricultural and plant equipment, recreational vehicles and motorcycles.

Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Competency Field

Vehicle Body

Unit Sector

Loss Assessment and Repair Quoting - Paint

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare for work	1.1 Work instructions are used to determine job requirements 1.2 Workplace ***safety requirements*** and ***workplace environmental practices*** and policies are read and complied with 1.3 ***Workplace policies and procedures, legal requirements***, and ***component supplier specifications*** are read and interpreted 1.4 Safety equipment, ***tools***, ***materials and other equipment*** are selected and checked
2. Assess vehicle paintwork for damage	2.1 Vehicle to be inspected is located 2.2 Preferred inspection method is determined that conforms to workplace policies and procedures, legal requirements, and specifications of vehicle manufacturer or component suppliers 2.3 Paintwork is inspected to identify ***vehicle paintwork damage*** and potential ***paint problems*** 2.4 Vehicle is inspected in line with workplace policies and procedures, legal requirements, specification of vehicle manufacturer or component suppliers, safety requirements and workplace environmental practices
3. Gather data and specifications	3.1 Painting specifications are identified and documented 3.2 Staff and management are consulted to identify additional or altered specifications 3.3 Existing paint refinish materials and equipment are evaluated 3.4 Data and specifications are compiled and documented
4. Evaluate and select materials, equipment and processes	4.1 Materials and equipment options are determined 4.2 Materials and equipment are assessed for quality finish and conformity to standards 4.3 Specifications of materials and equipment are compared for performance and cost 4.4 Commercial, environmental and safety impact of materials and equipment selected is determined 4.5 Materials, equipment and processes are selected based on performance, cost, specifications and impact comparison 4.6 Evaluation report detailing required specifications and repair process is completed according to workplace policies and procedures, and legal requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Reading skills to:	• analyse information relating to paintwork materials and equipment • interpret technical specifications • analyse regulatory, environmental and safety procedures, best practice and future trends • research evaluation results.
Oral communication skills to:	• consult with staff and management to inform research and data gathering.
Planning and organising skills to:	• organise activities • systematically identify, research and evaluate options.
Problem-solving skills to:	• identify and resolve potential technical and procedural problems and variables within scope of own responsibility.
Teamwork skills to:	• work effectively and cooperatively with others in identifying specifications that contribute to evaluation of paintwork repair requirements.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety requirements are to be in accordance with applicable commonwealth, state or territory Workplace Health and Safety Act or Occupational Health and Safety Act and must include:	• ensuring safe location of vehicle to be inspected • following workplace safety procedures • identifying potential safety hazards.
Workplace policies and procedures must include:	• environment and sustainability • job specifications • manufacturer specifications and industry codes of practice • quality policies and procedures, including Australian standards • reporting and recording procedures • safe work procedures.
Legal requirements are to be in accordance with applicable commonwealth, state, or territory legislation, regulations, certification requirements and codes of practice, and must include:	• environmental regulations • intellectual property.
Component supplier specifications must include at least one of the following:	• vehicle design specifications and drawings • repair instructions and procedures • component replacement instructions and procedures.

Tools, materials and other equipment must include:	• calculators and general office equipment
	• computer hardware and software
	• digital camera
	• paint code list
	• portable light
	• recording equipment, such as a laptop or notebook
	• specialist tools, including:
	  • colour spectrometer
	  • paint film thickness gauge.

Vehicle paintwork damage	• bolt-on vehicle painted components

must include:	• paint blend • welded vehicle painted components.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURVNP001 Evaluate vehicle paintwork for damage and identify refinish requirements

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria and foundation skills:

- evaluate vehicle paintwork for damage and identify refinish requirements on a minimum of two different damaged vehicles
- determine the impact of decisions in terms of commercial, environmental and safety risks
- document refinish materials, equipment and processes.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- motor vehicle paintwork damage and refinishing techniques, including:
  - damage and faults
  - paint problems, including:
    - blistering
    - delaminating
    - flaking
    - humidity bubbles
    - inclusions
    - incorrect:
    - colour
    - film build
    - mottle
    - orange peel
    - poor cover or hiding
  - paint types:
    - acrylic enamel
    - air dry enamel
    - clear over base (COB)
    - fillers
    - multi-layer
    - pearls
    - polyurethane
    - special effects
    - waterborne paint
    - two-pack paint
- current assessing and quoting methodologies
- vehicle paint testing equipment and procedures
- current vehicle material allowances
- relevant automotive websites to locate information on current best practice and future trends in the vehicle loss assessment environment
- general insurance industry knowledge, including relevant sections of:
  - contract and insurance law
  - Insurance Contracts Act
  - intellectual property
  - Motor Vehicle Insurance and Repair Industry Code of Conduct
  - state or territory Fair Trading Act
- methods for sourcing paint manufacturer specifications
- applicable commonwealth, state or territory laws, regulations and standards relating to evaluating the paintwork of a damaged vehicle, and suggesting repair materials, equipment and processes, including:
  - commercial-in-confidence practices
  - environmental regulations
  - intellectual property

  - personal legal liability
  - applicable Workplace Health and Safety Act or Occupational Health and Safety Act
- workplace policies and procedures relating to evaluating paintwork of a damaged vehicle, and suggesting refinish materials, equipment and processes, including:
  - recording and reporting procedures.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles that they have evaluated, e.g. evaluation reports.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- a range of vehicles with both minor and extensive paint damage
- computer hardware, software and calculators
- internet access
- paint testing equipment
- relevant information, including paint manufacturer specifications
- workplace technology.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURVTA005 Clean vehicles

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to clean a vehicle. It requires the learner to plan and prepare the task; clean the vehicle interior, exterior and engine bay; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Vehicle Body

Unit Sector

Technical

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to clean vehicle	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 ***Vehicle*** to be worked on is identified and manufacturer specifications and workplace procedures for vehicle cleaning are sourced and interpreted 1.3 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.4 ***Tools and equipment*** required for vehicle cleaning are identified according to manufacturer specifications
2. Clean vehicle interior and fittings	2.1 Tools, equipment and materials are selected and checked according to manufacturer specifications and workplace procedures 2.2 Vehicle is prepared prior to cleaning interior and fittings according to safety and environmental requirements 2.3 ***Interior surfaces*** are cleaned and vacuumed using correct cleaning materials and equipment, without causing damage to components, tools or equipment
3. Clean vehicle exterior and fittings	3.1 Tools, equipment and materials are selected and checked according to manufacturer specifications 3.2 Vehicle is prepared prior to cleaning exterior and fittings according to safety and environmental requirements 3.3 Vehicle exterior and fittings are cleaned using correct techniques and without causing damage to components, tools or equipment
4. Clean engine bay	4.1 Tools, equipment and materials are selected and checked according to manufacturer specifications and workplace procedures 4.2 Vehicle is prepared prior to cleaning engine bay according to safety and environmental requirements 4.3 Electronic components and electrical connections are protected from water ingress 4.4 Engine bay is cleaned without causing damage to components, tools or equipment
5. Complete work processes	5.1 Final inspection is made to ensure work is to workplace standards and vehicle is presented ready for use or storage according to

ELEMENTS	PERFORMANCE CRITERIA
	workplace procedures 5.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures 5.3 Tools and equipment are checked and stored according to workplace procedures, or tagged and reported where necessary 5.4 Problems with cleaning equipment or tools are reported according to workplace procedures 5.5 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures for cleaning a vehicle • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate ratios and amounts of cleaning products.
Planning and organising skills to:	• plan own work requirements and prioritise actions to complete the vehicle cleaning task.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to clean a vehicle.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
	  • use of personal protective equipment, including safety glasses, ear protection, gloves and safety footwear
	  • applying procedures for preventing waste water from entering storm water systems.

Vehicle must include one or more of the following:	• passenger motor vehicle • light commercial • heavy vehicle • motor cycle • constructed vehicle.
Tools and equipment must include:	• hoses and washing equipment • chemicals and cleaning solutions • polishing equipment.
Interior surfaces must include:	• cloth • glass • leather.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURVTA005 Clean vehicles

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standard defined in this unit's elements, performance criteria and foundation skills:

- safely and correctly clean a minimum of two different vehicles.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
  - personal protective equipment, including safety glasses, gloves, ear protection and safety footwear
  - operation of equipment and tools, including pressurised hoses
  - safety data sheets (SDS) and types, use and location of cleaning products
  - procedures for preventing waste water from entering storm water system
  - disposal of chemicals, oil and rubbish
- identification and location of vehicle components, including:
  - engine bay
  - engine electrical components
  - interior and exterior fittings
- types of vehicle body finishes
- vehicle cleaning procedures, including:
  - types, application and use of vehicle cleaning areas and vehicle bays
  - types, application and use of cleaning equipment and materials
  - component protection procedures, including:
    - protection of engine bay air intake and electrical and electronic components
    - protection of body electrical components
  - vehicle interior, exterior, fitting and engine bay cleaning procedures
  - cloth and leather interior surfaces cleaning procedures
  - chrome and polished alloy wheels cleaning procedures
- clean-up and maintenance requirements for vehicle cleaning area.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the vehicles that they have cleaned, e.g. job card.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- a minimum of two different vehicles with cloth, glass and leather interior components, requiring cleaning
- vehicle cleaning tools, equipment and materials, including:
  - hoses and washing equipment
  - chemicals and cleaning solutions
  - polishing equipment
- vehicle cleaning area.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURVTP029 Prepare surface and prime repaired body panels

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to prepare and prime a repaired body panel of a vehicle. It requires the learner to plan and prepare the task; identify types of automotive abrasives; remove protective waxes and surface contaminants; feather paint edges; apply filler; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Vehicle Body

Unit Sector

Technical - Paint

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1.1 Prepare to prime a repaired body panel	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and vehicle body panel to be worked on is identified 1.3 Manufacturer specifications and workplace procedures for removing paint and preparing surface are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor 1.5 Tools and equipment required for priming body panel are identified according to manufacturer specifications
2. Prepare body panel for priming	2.1 ***Tools, equipment and materials*** for priming body panel are selected and checked prior to use according to manufacturer specifications and safety requirements 2.2 ***Vehicle body panel*** is prepared for priming according to workplace procedures and safety and environmental requirements, and without causing damage to components, tools or equipment 2.3 Body panel is inspected according to manufacturer specifications 2.4 Body panel inspection results are recorded
3. Apply primer to body panel	3.1 Primer is prepared for application according to manufacturer specifications and safety and environmental requirements 3.2 Primer is applied according to workplace procedures, manufacturer specifications, and safety and environmental requirements 3.3 Primer is applied to body panel without causing damage to body panel, components, tools or equipment 3.4 Body panel is inspected to ensure correct application of primer to body panel 3.5 Body panel inspection results are recorded
4. Complete work processes	4.1 Final inspection is made to ensure work meets task instruction and workplace standards, and body panels are primed ready for use or storage according to workplace procedures 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures 4.3 Tools and equipment are checked and stored according to

ELEMENTS	PERFORMANCE CRITERIA
	workplace procedures, or tagged and reported where necessary 4.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of vehicle panel and priming information and procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures for priming a repaired body panel • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• read and interpret numerical information in paint information • use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate volumes and ratios.
Planning and organising skills to:	• plan own work requirements and prioritise actions to achieve required outcomes.
Self-management skills to:	• recognise own limitations when selecting and using tools and equipment and seek timely advice.
Problem-solving skills to:	• identify potential or actual hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to prime repaired body panels.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
	  • use of personal protective equipment, including safety glasses, ear protection and safety footwear
	  • use of hand tools
	  • procedures for handling and disposing of used primer, emulsions and solvents
	  • procedures for extracting fumes.

Tools, equipment and materials must include:	• preparation and spray areas with fume extraction
	• spray gun equipment
	• wet and dry paper
	• spray gun equipment
	• sanding discs
	• emulsion materials
	• filler
	• primers, including:
	  • etch primer
	  • primer surfacer.

Vehicle body panel must include:	• a major body panel from one of the following:
	  • passenger vehicle
	  • light commercial vehicle
	  • heavy vehicle
	  • constructed vehicle.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURVTP029 Prepare surface and prime repaired body panels

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standard defined in this unit's elements, performance criteria and foundation skills:

- correctly surface prepare and prime a minimum of two major vehicle body panels.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
  - use of personal protective equipment, including safety glasses, ear protection and safety footwear
  - use of hand tools, including air and electric sanders
  - safety data sheets (SDS) and procedures for handling and disposing of used primer, emulsions and solvents
  - procedures for extraction of fumes
- types, grades and uses of abrasives and sandpaper
- workplace procedures for:
  - wet and dry sanding
  - surface preparation
  - paint feather edging and precautions
- types of filler and primers and their use
- filler and primer application procedures
- work area clean-up and maintenance requirements.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.

Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the repaired body panels that they have surface prepared and primed, e.g. repair orders.

Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.

The following resources must be made available:

- automotive workplace or simulated workplace
- personal protective equipment appropriate to the workplace
- two major vehicle body panels
- tools, equipment and materials, including:
  - preparation and spray areas with fume extraction
  - spray gun equipment
  - wet and dry paper
  - spray gun equipment
  - sanding discs
  - emulsion materials
  - filler
  - primers, including:
    - etch primer
    - primer surfacer
  - solvents.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AURVTW010 Set up and use welding equipment

Modification History

Release	Comment
Release 1	New unit of competency

Application

This unit describes the performance outcomes required to set up and use welding equipment to weld a range of materials. It requires the learner to plan and prepare the task; select and set up the correct welding equipment; weld using different welding techniques; and maintain the work area, tools and equipment.
It applies to those undertaking a Vocational Education and Training in Schools (VETiS) or pre-vocational qualification as preparation to entering the automotive service and repair or automotive manufacturing industry.
The unit is designed for use in a highly supervised context and is not suitable for use in a vocational qualification.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Vehicle Body

Unit Sector

Technical - Welding, Grinding, Machining and Soldering

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Prepare to set up and use welding equipment	1.1 ***Safety and environmental requirements*** are sourced and interpreted 1.2 Task instruction is interpreted and welding equipment, tools and materials needed to complete the task are determined 1.3 Manufacturer specifications and workplace procedures for use of welding equipment and associated materials are sourced and interpreted 1.4 Potential hazards and risks associated with task are identified and reported to workplace supervisor
2. Set up welding equipment and materials	2.1 Identified ***welding equipment, tools and materials*** are sourced and checked according to manufacturer specifications, workplace procedures and safety requirements 2.2 ***Welding equipment is set up*** according to manufacturer specifications, workplace procedures and safety requirements 2.3 Materials to be welded are identified and sourced
3. Use welding equipment	3.1 Welding equipment and materials set up for the task are checked prior to use according to manufacturer specifications, workplace procedures and safety requirements 3.2 Welding method and precautions outlined in the task instruction are interpreted and followed 3.3 ***Welding task and demonstration*** are carried out correctly according to manufacturer specifications, workplace procedures and safety requirements
4. Complete work processes	4.1 Final inspection is made to ensure work is completed according to task instruction and workplace standards 4.2 Welding equipment and tools are checked and stored in a condition ready for use according to workplace procedures, or tagged and reported where necessary 4.3 Problems with welding equipment or tools are reported according to workplace procedures 4.4 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored according to environmental requirements and workplace procedures

ELEMENTS	PERFORMANCE CRITERIA
	4.5 Workplace documentation is processed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance and are not explicit in the performance criteria.

Skills	Description
Learning skills to:	• locate appropriate sources of welding information and procedures.
Reading skills to:	• select and interpret key information from manufacturer specifications, safety requirements and workplace procedures to set up and safely operate welding equipment • select and interpret key information from environmental requirements and workplace procedures to ensure a clean and safe work site.
Writing skills to:	• legibly and accurately fill out workplace documentation using correct industry terminology and conventions.
Oral communication skills to:	• participate effectively in verbal exchanges using questioning and active listening to request, clarify and clearly convey information.
Numeracy skills to:	• use basic mathematical operations, including addition, subtraction, multiplication, division to calculate percentages, and to calculate, calibrate and set equipment settings • read and interpret numerical information in welding equipment identification figures.
Planning and organising skills to:	• plan own work and prioritise actions to set up, undertake and complete the welding task.
Self-management skills to:	• recognise own limitations when selecting and using tools and welding equipment and seek timely advice.
Problem-solving skills to:	• identify hazards or potential hazards and take action to minimise risk • refer problems that cannot be readily resolved and seek assistance from workplace supervisor.
Technology skills to:	• set up and operate equipment and tools required to complete the welding task.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Safety and environmental requirements must include:	• information about key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
	  • use of personal protective equipment, including safety glasses and welding helmets, ear protections and safety footwear
	  • use of fume extraction system and welding bay
	  • disposal of welding material and wastes.

Welding equipment, tools and materials must include:	• one of the following welders: • metal arc welder • gas metal arc (MIG) welder • welding bay, curtains and fume extraction • fluxes, gases, welding rods and wire.
Setting up welding equipment must include:	• checking for leaks from gas bottles • checking and adjusting gas pressures • checking gas plant earth straps and clamps.

Welding task and demonstration must include:	• producing the following types of welds:
	  • butt weld
	  • lap weld
	  • bead run

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

Assessment Requirements for AURVTW010 Set up and use welding equipment

Modification History

Release	Comment
Release 1	New unit of competency

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standard defined in this unit's elements, performance criteria and foundation skills:

- set up and use welding equipment on at least two occasions.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- key aspects of work health and safety (WHS), occupational health and safety (OHS) and environmental requirements, including:
  - safety data sheets (SDS) and toxic chemicals and gases used and produced in welding
  - potential hazards and risks relating to welding, including fire hazards and ultraviolet skin and eye damage
  - use of personal protective equipment, including safety glasses and welding helmets, ear protections and safety footwear
  - use of fume extraction system and welding bay
  - disposal of welding material and wastes
- types of welding equipment, including:
  - metal arc
  - gas metal arc
- types of fluxes and gases used in welding
- welding equipment set-up procedures
- types and purposes of different welding techniques
- key steps in different welding techniques.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to welding activities, e.g. repair orders.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application
The following resources must be made available:

- automotive workplace or simulated workplace
- welding equipment and tools, including at least one of the following:
- metal arc welder
- MIG welder
- welding bay, curtains and fume extraction
- fluxes, gases, welding rods and wire.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide
Assessment Strategies Guide - http://www.asacompanionvolumes.com.au/aur-assessment-guide

AUMAQA001 Apply quality assurance techniques

Modification History

Release	Comment
Release 1	Unit updated to reflect the new standards for Training Packages Replaces AUMAQA4001 Apply quality assurance techniques

Application

This unit describes the performance outcomes required to apply quality assurance techniques required in an automotive manufacturing environment.
It involves the application of skills and knowledge during the design, development and production of automotive plant, tools, equipment and systems at a production worker level.
No licensing, legislative or certification requirements apply to this unit at the time of publication.

Competency Field

Manufacturing - Common

Unit Sector

Quality

Elements and Performance Criteria

Elements Elements describe the essential outcomes	**Performance Criteria** Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section
1. Interpret and apply workplace quality standards	1.1 ***Instructions*** and plans are interpreted to identify processes and materials to complete work tasks 1.2 Workplace quality standards are interpreted and applied to work tasks 1.3 Process improvement tools are used either individually or in a team to identify design, development and production quality problems
2. Monitor and report on quality	2.1 Finished materials and products are checked for quality against workplace quality standards and according to ***workplace procedures*** 2.2 Non-conforming materials and products are identified and reported 2.3 Quality problems are analysed to identify the root cause using analytical tools 2.4 Strategies to improve quality are developed and recommended according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Skills	Description
Reading skills to:	• identify and review quality improvement plans • interpret instructions and plans, relevant legislation, regulations, standards, codes of practice, safe work practices and workplace procedures.
Writing skills to:	• legibly record and report quality improvement progress.
Oral communication skills to:	• communicate between production and quality team members • discuss quality improvement plans with team leader and clarify quality assurance requirements.
Numeracy skills to:	• use analytical tools, instructions and plans • calculate materials to complete work tasks.
Digital literacy skills to:	• use computers and computer software, such as email, databases, spreadsheets and word processing.
Teamwork skills to:	• work effectively with diverse team members.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Instructions must include:	• engineering specifications and drawings • operator instruction systems (OIS) or workplace equivalent • process control plans (PCPs) or workplace equivalent • standard operating procedures (SOPs) or workplace equivalent.
Workplace procedures must include:	• quality standards • use of tools and equipment • work health and safety (WHS) requirements • workplace recording and reporting.

Unit Mapping Information

No equivalent unit.

Links

Implementation Guide -
http://www.asacompanionvolumes.com.au/aum-implementation-guide

Assessment Requirements for AUMAQA001 Apply quality assurance techniques

Modification History

Release	Comment
Release 1	Unit updated to reflect the new standards for Training Packages Replaces AUMAQA4001 Apply quality assurance techniques

Performance Evidence

Before competency can be determined, individuals must have competently applied quality standards on a minimum of three occasions.
Individuals must demonstrate they can:

- comply with workplace production standards and quality assurance techniques
- apply workplace procedures relating to quality assurance techniques
- communicate effectively with team leaders and team members to ensure quality assurance
- document quality improvement activity and techniques
- complete quality improvement reports.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- quality processes
- workplace procedures relating to quality assurance techniques
- process improvement tools
- processes and procedures for implementing quality improvement activities, including:
  - processes and required resources from a quality improvement plan
  - identifying and allocating tasks from the quality improvement plan
  - recording and reporting procedures for monitoring progress of quality improvement plan activities
- types, layout and application of quality improvement activity reports.

Assessment Conditions

Assessors must satisfy SNR/AQTF assessor requirements.
Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.
Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the application of quality assurance techniques.
Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.
The following resources must be made available:

- automotive manufacturing workplace or simulated workplace
- tools, equipment and machinery required when producing motor vehicles
- workplace procedures relating to quality assurance techniques
- quality improvement plan
- process control plans (PCPs) or workplace equivalent.

Links

Implementation Guide -
http://www.asacompanionvolumes.com.au/aum-implementation-guide
Assessment Strategies Guide -
http://www.asacompanionvolumes.com.au/aum-assessment-guide

AURACA3002 Establish customer requirements of a complex nature

Modification History

Release	Comment
Release 1	Replaces AURC362721A Establish customer requirements of a complex nature Unit code updated to meet policy requirements. Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the competence to establish customer requirements for sales, parts, administration, finance or services which are more complex. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Confirm customer requirements	1.1. Questioning and active listening techniques are used to clarify customer needs 1.2. Customer requirements are elicited professionally, courteously, with tact and without presumptions 1.3. Customer requirements are fed back accurately and concisely to the customer for confirmation 1.4. Customer requirements are documented accurately in language that can be understood by the customer and by staff 1.5. Customer requirements are documented in accordance with industry, legal and/or enterprise standards and procedures 1.6. Customer acknowledgement and confirmation of the documented requirements are obtained
2. Advise customer of available options	2.1. Viable options to customer needs are generated by the employee 2.2. Viable options that conform to industry, legal and/or enterprise policies and procedures are generated by the employee 2.3. Suppliers are contacted to research options 2.4. Options are explained and discussed with the customer to facilitate customer understanding 2.5. Supporting information is made available to the customer, to facilitate customer understanding 2.6. Benefits and approximate costs of each option are explained to the customer to facilitate informed decision making
3. Inform customer of costs	3.1. Customer is provided with estimated costs and timeframes of selected option 3.2. Costs and timeframes are communicated verbally or in writing, in accordance with enterprise standards and procedures 3.3. Sale or service conditions are explained to customer
4. Agree action plan with customer	4.1. Customer's preferred option, including agreed delivery timeframe, is detailed in action plan 4.2. Agreed action plan is documented 4.3. Customer commitment to agreed action plan is gained, in accordance with enterprise requirements 4.4. Assistance with paperwork requiring completion by customer is provided 4.5. Customer feedback is sought on services provided

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to collating and analysing customer requirements and information
- communication skills in relation to dealing with customers, difficult customers and managing conflict and negotiation
- literacy skills in regard to message taking in person or by telephone and completing written or computer documents of customer requirements and action plans
- plan and organise activities to select and follow processes/procedures to ensure desired outcome
- work with others and in a team by requesting and using information/assistance from colleagues
- use mathematical ideas and techniques to include numerical skills in relation to calculating/modelling various financial and/or insurance arrangements
- establish diagnostic processes which include operational skills and techniques in customer service and problem-solving skills
- use workplace technology related to technical skills in operating enterprise telephone systems and other communication equipment

Required knowledge

Knowledge of:

- industry/enterprise policies and procedures in regard to:
  - customer service
  - customer requirements/needs documentation
  - allocated duties/responsibilities
- the range of enterprise merchandise and services, location of departments/sections and telephone extensions of departments/sections, suppliers, finance and insurance
- legislation and statutory requirements, including workplace health and safety (WHS), consumer law, trade practices and fair trading legislation
- industry/workplace codes of practice in relation to customer service

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • identifying customer requirements professionally, courteously, with tact and without presumptions • generating and advising customer of viable options to meet customer needs • calculating and informing customer of detailed costs and timeframes of agreed option • proposing and gaining agreement by customer to an action plan to satisfy customer needs.

Context of and specific resources for assessment	• This unit may be assessed in conjunction with other units that form part of the job role or function.
	• Elements of competence contain both knowledge and practical components. Knowledge components may be assessed off the job. Practical components should be assessed on the job or in a simulated work environment.
	• Evidence is best gathered using the products, processes and procedures of the individual workplace as the means by which the candidate achieves industry competencies.
	• The following should be made available:
	  • a workplace or simulated workplace
	  • documentation, such as enterprise policy and procedure manuals relating to customer service, enterprise telephone directory, legislation and codes of practice
	  • a range of customers with different complex requirements (real or simulated)
	  • a communication system or a range of communication equipment
	  • real or simulated customer documents or database
	  • a qualified workplace assessor.

Method of assessment	It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover the varying circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed

EVIDENCE GUIDE	
	authentication arrangements.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Unit scope	Enterprises may vary in size, type and location, in the range of merchandise and services provided and in delivery policies
Customers	Customers may: • be regular or new • have special or unusual requests • be from a range of social, cultural or ethnic backgrounds and with different physical and mental abilities
Staff	Staff may be: • full-time, part-time or casual and vary in terms of training, product knowledge and staffing levels • operating in routine or busy trading conditions
Complex customer requirements	Complex customer requirements may include, but are not limited to: • unusual or out of the ordinary problems, requirements of special or high importance customers, complex technical problems, matters involving more than one solution or area of service, needs of customers who have not been happy with some aspect of product or service provided or complex financial or insurance arrangements, such as lease, fleet or warranty extension arrangements
Information/documents	Information/documents may include: • enterprise policies and procedures relating to customer service, equipment and product manufacturer/component supplier specifications, enterprise operating procedures, legislative and regulatory requirements, industry/workplace codes of practice and customer requirements

Unit Sector(s)

Unit sector	Sales and Marketing

Co-requisite units

Not applicable.

Competency field

Competency field	Common

AURAEA2002 Apply environmental and sustainability best practice in an automotive workplace

Modification History

Release	Comment
Release 1	Replaces AURC272003A Apply environmental regulations and best practice in a workplace or business Performance Criteria updated to reflect sustainability

Unit Descriptor

Unit Descriptor	This unit describes the performance outcomes required to identify and apply environmental regulations and sustainability best practice to work safely and avoid potential environmental hazards in an automotive workplace. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the Unit	Work involves the theory, knowledge and application of skills related to environmental regulations and sustainability best practice in a general automotive workplace. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in undertaking environmentally sound work practices.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability Skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify and apply environment regulations	1.1. Reasons for ***ethical environmental practice*** in an automotive workplace are identified 1.2. Environmental responsibilities and penalties for individual breaches of legislation and regulations are identified 1.3. ***Documents and procedures*** relevant to environmental safety and ***hazards*** are applied 1.4. ***Safety equipment and other material*** necessary to support environmentally sound practices are identified and sourced
2. Identify and avoid contamination to water systems and land	2.1. Wastewater and ***contaminants*** are identified and prevented from entering water systems or contaminating land 2.2. Parts and components containing hazardous materials are drained and stored in a sealed container 2.3. Liquid wastes are put into storage or recycling containers and placed in an undercover bunded area 2.4. Spill kit is located and used to prevent water or land contamination 2.5. Spills are cleaned immediately and workplace is kept clean to prevent unintentional water or land contamination
3. Identify and avoid hazards to air quality	3.1. Hazardous airborne particles are identified, prevented, reduced and contained 3.2. Hazardous gases and fumes are identified, prevented, reduced and contained
4. Identify and avoid noise hazards	4.1. Hazardous noise activities are identified, prevented, reduced and contained 4.2. Hazardous noise activities are carried out within approved operating hours and regulations
5. Identify and apply sustainability best practice	5.1. ***Sustainability best practice*** is identified and applied to minimise waste and potential damage to the environment according to workplace policies and procedures 5.2. Methods to reduce resource consumption (water, electricity, fossil fuels, chemicals) are identified and applied 5.3. Environmental damage and breaches of environmental regulations are reported

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow oral instructions
  - communicate verbal and written ideas and information as they relate to environmental regulations and sustainability best practice of an automotive workplace
- initiative and enterprise to identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- literacy skills to:
  - understand workplace environmental procedures
  - read and apply environmental regulations for an automotive workplace
- numeracy skills to measure and calculate length, area and volume
- planning and organising skills to:
  - identify risk factors and actions to minimise risk
  - identify planning, checking and inspection techniques to avoid environmental contamination and wastage
- problem-solving skills to:
  - recognise a workplace problem or a potential problem
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - identify processes which contribute to improvements for sustainability best practice
- self-management skills to:
  - identify appropriate safety and environmental response equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
- teamwork skills to collaborate and cooperate with other team members
- technical skills to:
  - collect, organise and interpret technical information related to recognising workplace situations that are potentially harmful to the environment
  - use spill kits
- technology skills to use workplace environmental safety-related technology to assist with clean and safe work practices

Required knowledge

- effects of pollution and methods to minimise it
- environmental regulations and their implications for work being undertaken in an automotive workplace
- characteristics and potential environmental impact of products, equipment and machinery used

REQUIRED SKILLS AND KNOWLEDGE
in the automotive workplace • philosophy of prevention, reuse, reduce, recycle • procedures for use of spill kit • reporting procedures for environmental damage and breaches of environmental regulations

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • apply environmental regulations and sustainability best practice in an automotive workplace • identify materials used in an automotive workplace and assess their potential environmental impact • use a spill kit • report environmental damage and breaches of environmental regulations.
Context of and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • access to environmental legislation, regulations and best practice models • access to an automotive workplace or simulated environment that accurately reflects automotive workshop working conditions • access to workplace documents and reference images • access to personal protective equipment of the type intended to

EVIDENCE GUIDE	
	be used in response to an environmental incident or accident.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Ethical environmental practice may include:	• legislative obligations • environmental legislation • health regulations • hazardous materials handling procedures • organisation insurance requirements • discretion, judgement and problem-solving skills in undertaking environmentally sound work practices.
Documents and procedures may include:	• material safety data sheets (MSDS) • hazardous substances register • workplace environmental procedures and safety instructions • dangerous goods code safe operating procedures.
Hazards may include:	• toxic fumes and substances • flammable materials and fire hazards • spillages • waste and debris especially on floors, ladders, trolleys • electricity and water • toxic substances • damaged packing material or containers • broken or damaged equipment • unsafe lifting practices.

Safety equipment and other material may include:	• personal protective equipment (PPE) including:
	  • eye protection
	  • hearing protection
	  • gloves
	  • other suitable protective clothing
	  • safety footwear
	• spill kit
	• absorbent materials
	• drip and catchment trays
	• waste bags
	• waste segregation systems.

RANGE STATEMENT	
Contaminants may include:	• solid or liquid wastes • oil, fuel and grease • hydrocarbon based degreasing agents and solvents • acids • alkaline wastes • paint, lacquer, varnish • glues and adhesive compounds • household chemicals and pesticides.
Sustainability best practice may include:	• recycling waste • energy conservation practices • natural resources (water, etc.) conservation practices • reusing • environmental (green) purchasing practices • noise minimisation.

Unit Sector(s)

Field of Competency	Common
Unit Sector	Environment

Custom Content Section

Not applicable.

AURAEA3003 Monitor environmental and sustainability best practice in the automotive mechanical industry

Modification History

Release	Comment
Release 1	Replaces AURT271781A Implement and monitor environmental regulations in the automotive mechanical industry Performance Criteria updated to reflect sustainability

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to apply and monitor environmental regulations and sustainability best practice whilst undertaking mechanical service or repair of light or heavy vehicles, motorcycles, outdoor power equipment or their components in the automotive mechanical industry. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work involves the theory, knowledge and application of skills related to environmental regulations and sustainability best practice in the automotive mechanical industry.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Apply and monitor environment regulations	1.1. Reasons for ethical environmental practice in an automotive workplace are identified 1.2. Environmental responsibilities and penalties for individual breaches of legislation and regulations are identified 1.3. Documents and procedures relevant to environmental safety and hazards are applied 1.4. Safety equipment and other material necessary to support environmentally sound practices are identified and sourced
2. Monitor and avoid contamination to water systems and land	2.1. Wastewater and contaminants are identified and prevented from entering water systems or contaminating land 2.2. Surface cleaning, engine degreasing and preparation is undertaken in an impervious paved area and does not contaminate water systems or land 2.3. Parts and components containing hazardous materials are drained and stored in a sealed container 2.4. Liquid wastes are put into storage or recycling containers and placed in an undercover bunded area 2.5. Parts washing is undertaken in an approved parts washer that does not cause contamination of water systems or land 2.6. Spill kit is located and used to prevent water or land contamination 2.7. Drip trays are used under vehicles to minimise spills 2.8. Spills are cleaned immediately and workplace is kept clean to prevent unintentional water or land contamination 2.9. Hands are cleaned over drains connected to an oil/water separator or drums for collection of liquid waste
3. Monitor and avoid hazards to air quality	3.1. Vehicle exhausts and emissions are minimised and prevented from collection in the workplace 3.2. Welding is conducted in a well ventilated area 3.3. Hazardous airborne particles are monitored, prevented, reduced and contained 3.4. Hazardous gases and fumes are monitored, prevented, reduced and contained
4. Monitor and avoid noise hazards	4.1. Hazardous noise activities are monitored, prevented, reduced and contained 4.2. Hazardous noise activities are carried out within approved operating hours and regulations
5. Monitor and apply sustainability best	5.1. Sustainability best practice is monitored and applied to minimise waste and potential damage to the environment

practice	according to workplace policies and procedures 5.2. Methods to reduce resource consumption (water, electricity, fossil fuels, chemicals) are monitored and applied 5.3. Environmental damage and breaches of environmental regulations are monitored and recorded

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow oral instructions
  - communicate ideas and information (verbal and written) as they relate to environmental regulations and sustainability best practice for an automotive mechanical workplace
- initiative and enterprise to identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- literacy skills to:
  - understand automotive mechanical workplace environmental procedures
  - read and apply environmental regulations for an automotive workplace
  - record environmental damage and breaches of environmental regulations
- numeracy skills to:
  - interpret instruments, gauges and other recording equipment
  - measure and calculate length, area and volume
- planning and organising skills to:
  - identify risk factors and actions to minimise risk
  - identify planning, checking and inspection techniques to avoid environmental contamination and wastage
- problem-solving skills to:
  - recognise a workplace problem or a potential problem
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - identify processes which contribute to improvements for sustainability best practice
- self-management skills to:
  - identify appropriate safety and environmental response equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
  - teamwork skills to work with others and in a team by cooperating with team members
- technical skills to:
  - collect, organise and interpret technical information related to recognising automotive mechanical workplace situations that are potentially harmful to the environment
  - use spill kits
- technology skills to use workplace environmental safety-related technology to assist with clean and safe work practices

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

- aspects of environmental regulations and its implications for work being undertaken in an automotive workplace
- characteristics and potential environmental impact of products, equipment and machinery used in the automotive workplace
- philosophy of prevention, reuse, reduce, recycle
- procedures for use of spill kit
- effects of pollution and methods to minimise it
- actions to be undertaken in case of significant environmental threat in the automotive mechanical workplace
- monitoring and recording procedures for environmental damage and breaches of environmental regulations

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • monitor and apply environmental regulations and sustainability best practice as they apply in an automotive mechanical workplace • identify materials used in an automotive mechanical workplace and assess their potential environmental impact • monitor and record environmental damage and breaches to environmental regulations.
Context of and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • access to environmental legislation, regulations and best practice models • access to an automotive workplace or simulated environment that accurately reflects automotive workshop working conditions • access to workplace documents and reference images • access to personal protective equipment of the type intended to

EVIDENCE GUIDE	
	be used in response to an environmental incident or accident.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Ethical environmental practice may include:	• legislative obligations • environmental legislation • health regulations • hazardous materials handling procedures • organisation insurance requirements • discretion, judgement and problem-solving skills in undertaking environmentally sound work practices.
Documents and procedures may include:	• material safety data sheets (MSDS) • hazardous substances register • workplace environmental procedures and safety instructions • dangerous goods code safe operating procedures.
Hazards may include:	• toxic fumes and substances • flammable materials and fire hazards • spillages • waste and debris especially on floors, ladders, trolleys • electricity and water • toxic substances • damaged packing material or containers • broken or damaged equipment • unsafe lifting practices.

Safety equipment and other material may include:	• personal protective equipment (PPE) including:
	  • eye protection
	  • hearing protection
	  • gloves
	  • other suitable protective clothing
	  • safety footwear
	• spill kit
	• absorbent materials
	• drip and catchment trays
	• waste bags
	• waste segregation systems

Contaminants may include:	• solid or liquid wastes • oil, fuel and grease

RANGE STATEMENT	
	• hydrocarbon based degreasing agents and solvents • acids • alkaline wastes • paint, lacquer, varnish • glues and adhesive compounds • household chemicals and pesticides.
Sustainability best practice may include:	• recycling waste • energy conservation practices • natural resources (water, etc.) conservation practices • reusing • environmental (green) purchasing practices • noise minimisation.

Unit Sector(s)

Field of Competency	Common
Unit Sector	Environment

Custom Content Section

Not applicable.

AURAEA4004 Manage environmental compliance in an automotive workplace

Modification History

Release	Comment
Release 1	Replaces AURC472082A Plan and manage compliance with environmental regulations in a workplace or business Unit code updated to meet policy requirements. Minor changes to unit title Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency covers the competence to plan and implement management system that ensures the protection of the environment in a workplace or business. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work involves the activities of an automotive business, including the planning and management of the occupations of glazing, accessory fitting, window tinting, trimming, and bicycles. This unit is applicable to qualifications at both the Certificate IV and V level. In recreational boating, vehicle body and some technical areas involving the removal of components containing oils or other fluids, specific environmental units of competency should be used. Work requires individuals to demonstrate discretion, judgement and problem-solving skills to improve environmental performance by reducing environmental risk and waste. Competence may be demonstrated in any automotive business excluding, body repair, marine and mechanical involving the removal of components containing oils or other fluids.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and manage compliance with environmental regulations	1.1. Reasons for ethical environmental practice in a workplace or business are identified 1.2. Environmental responsibilities of employers and employees in an automotive workplace or business are identified 1.3. Penalties for enterprise and individual breaches of the legislation are identified 1.4. Waste products are minimised and facilities provided for waste materials to be stored in bins for recycling or disposal 1.5. Collection and recycling arrangements are implemented for liquids, sludge, solids and other waste 1.6. Suppliers with minimal excess packaging on goods received are sourced and packaging on goods received is sorted and disposed of appropriately 1.7. Waste and energy conservation strategies are identified and implemented
2. Manage potential hazards to stormwater system to avoid contamination	2.1. Systems are in place to ensure wastewater does not enter the stormwater system 2.2. All drains and flows are identified on a worksite map directly indicating where they flow 2.3. Trade waste permits are in place 2.4. Undercover and bunded or drained areas are provided and used for the storage of all materials containing environmentally hazardous substances 2.5. Spill kit is provided and used to prevent stormwater contamination 2.6. Workplace is kept clean to prevent unintentional stormwater pollution
3. Manage potential hazards to air quality to avoid contamination	3.1. Hazards of airborne particles are identified, minimised and contained 3.2. Hazards of gases and fumes are identified, minimised and contained 3.3. A well-ventilated area is provided for any welding activities
4. Minimisation of noise hazards is planned and managed	4.1. Noise creating activities are minimised and carried out within approved operating hours 4.2. Fixed machinery is fitted with silencers or surrounded by noise containment material
5. Management systems	5.1. An environmental policy and contingency plan suitable to the needs of the business is developed and implemented 5.2. Waste to landfill is calculated and possible savings through

ELEMENT	PERFORMANCE CRITERIA
	reuse and recycling are calculated 5.3. Payback period on environmental equipment is calculated 5.4. Manage staff adherence to environmental responsibilities 5.5. Environmental documents are maintained and stored securely in a form accessible for reporting procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to environmental procedures from legislation, regulations, policies, guidelines, standards and workplace best practices in an automotive business
- communicate ideas and information to ensure all work undertaken is in accordance with environmental best practice, support from stakeholders is actively sought for implementing suitable innovation and continuous improvement
- plan and organise activities including the preparation of equipment and materials recycling and waste management systems and the selection of worksite to avoid environmental contamination, back tracking, workflow interruptions or wastage
- promote work with others and in a team by recognising dependencies and using cooperative approaches to minimise wastage, optimise workflow and productivity
- use mathematical ideas and techniques to complete measurements and estimate material requirements required for the work and calculate wastage rates of various methods
- use planning, checking and inspection techniques to avoid environmental contamination and wastage
- use the workplace technology related to environmental protection and recycling equipment

Required knowledge

Knowledge of:

- aspects of environmental legislation and its relationship with workplace health and safety (WHS), finance and risk management
- requirements for trade waste permits
- spill clean-up procedures
- characteristics and potential environmental impact of products used in the business
- philosophy of sustainability through prevention, reuse, reduce and recycle
- procedures for rectifying machinery faults and material defects
- actions to be taken in case of environmental threat in the workplace
- reporting procedures for environmental damage occurring in the workplace
- cleaner production and eco-efficient strategies to avoid the production of waste

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	• Plan and manage safe handling requirements for equipment, products and materials, including use of personal protective equipment
	• Plan and mange environmental protection procedures
	• Identify materials used in the business and assess and manage their environmental impact
	• Plan and manage work instructions, operating procedures and inspection processes to:
	  • minimise the risk of injury to self or others
	  • maintain a clean workplace
	  • prevent damage and wastage of goods, equipment and products
	  • dispose of waste in accordance with legislative requirements and best practice
	  • maintain production output, and product and service quality
	• Report environmental damage or spills
	• Plan and manage operator maintenance on equipment to ensure environmental efficiency
	• Manage effective planning and teamwork related to environmental best practice
	• Develop/implement or audit an existing business environmental policy which covers at a minimum: waste, recycling, hazards to stormwater, air quality, noise, energy minimisation and costs
	• Modify activities to cater for variations in workplace context and environment.

Context of and specific resources for assessment	• Assessment may occur on the job or in a workplace simulated facility with process equipment, materials, work instructions and deadlines
	• The following should be made available:
	  • access to an automotive business which includes waste materials of various types, recycling bins, liquid, sludge and solid wastes
	  • resources may include pressure washing and facilities for the use of recycled water.

EVIDENCE GUIDE	
Method of assessment	• Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts. • Assessment should be by direct observation of tasks and questioning on underpinning knowledge. • Assessment should be conducted over time and should be in conjunction with assessment of other units of competence. • Assessment of this unit of competence is most likely to be project related under real or simulated conditions and require portfolios or other forms of indirect evidence of process. Direct evidence may include certification of compliance of the final outcome/product or authorisation for use by a component authority. • Assessment must confirm the inference that competence is able not only to be satisfied under the particular circumstances, but is able to be transferred to other circumstances.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Automotive business	Any automotive business excluding body repair, marine and mechanical involving the removal of components containing oils or other fluids
Work procedures	Work is carried out in accordance with: • WHS legislation, material safety data sheets (MSDS), hazardous substances and dangerous goods code and local safe operating procedures • legislative obligations, environmental legislation, health regulations, and manual handling procedures and organisation insurance requirements
Tools and equipment	Tools and equipment are to include: • spill kits, recycling bins and drums
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation, regulations and enterprise policies and practices
Information/documents	Information/documents may include: • environmental legislation, regulations and advice • workplace procedures relating to the use of tools and equipment • work instructions and procedures • worksite environmental policy • workplace procedures relating to reporting and communication • manufacturer/component supplier specifications and operational procedures • local council and waterways regulations • MSDS, environmental documents, manufacturer/component supplier specifications, costing of equipment and waste removal • staff environmental induction material

Unit Sector(s)

Unit sector	Common

Co-requisite units

Not applicable.

Competency field

Competency field	Environment

AURAFA2001 Use numbers in an automotive workplace

Modification History

Release	Comment
Release 1	Replaces AURC251677A Use numbers in the workplace Performance Criteria updated to reflect the automotive workplace

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to make simple calculations and numerical estimations relating to vehicle repairs, parts and labour quotations and preparatory calculations for workplace documentation. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	Work requires individuals to demonstrate entry level proficiency with numerically orientated problem-solving skills as they relate to vehicle repairs or workplace administrative documentation in an automotive workplace or setting. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Collect and organise numerical information	1.1. Relevant ***examples of numerical information*** are sourced 1.2. Numerical information is extracted from automotive workplace documents and compared to job requirements 1.3. Automotive mechanical text and related numerical information collected from other sources is checked and identified as relevant to task
2. Interpret and present automotive numerical information	2.1. Procedures are established for the interpretation of numerical information 2.2. Numerical information is identified and interpreted 2.3. ***Calculations*** are carried out to establish comparable numerical information 2.4. Calculations are checked for accuracy against numerical information 2.5. Numerical and related information is applied to inspection or repair activity 2.6. Evidence for interpretation of results is presented
3. Prepare and present other workplace numerical and related information	3.1. ***Information and workplace documents*** that support automotive workplace administrative functions are sourced 3.2. Quantities/resources required in the workplace are estimated 3.3. The time required to complete the task is estimated 3.4. Settings for equipment and machinery are estimated and adjusted 3.5. Estimates or calculations are documented according to workplace documentation procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to communicate ideas and information using calculations in reports and repair quotations
- initiative and enterprise to identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- literacy skills to:
  - understand written numerical workplace procedures and documents
  - read and follow numerical information on written instructions, specifications, standard operating procedures, manuals, lists, mechanical drawings and other applicable reference documents
- numeracy skills to:
  - use mathematical ideas and techniques to count and measure
  - select and apply mathematical processes, including at a minimum; addition, subtraction, multiplication and division
- planning and organising skills to:
  - plan and organise activities using numbers/calculations in plans and work requirements
  - plan and organise activities relating to the reading of automotive specific text
- problem-solving skills to:
  - identifying suitable mathematical principles to solve numerical problems
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
- self-management skills to:
  - select and use appropriate written materials, processes and procedures
  - recognise limitations and seek timely advice
  - follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to work with others and in a team by seeing and conveying information relating to the calculating, planning, sequencing and completion of the task
- technical skills to collect, organise and understand information relating to collating figures, calculation and analysis
- technology skills to:
- use available workplace technology relating to using numbers in an automotive workplace
- use workplace technology to assist with information transfer

Required knowledge

- knowledge of workplace policies and procedures relating to the collection, storage and application of numerical information
- basic mathematical concepts

REQUIRED SKILLS AND KNOWLEDGE

- metric and non-metric systems of measurement as they relate to numerical calculations for vehicle repairs
- calculations including addition, multiplication, subtraction, division and percentages
- calculations involving whole numbers and fractions

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • identify and source relevant technical information • gather and evaluate mathematical information relating to the problem or job requirement • devise and implement mathematical and numerical solutions for a minimum of three key vehicle or workplace functions • demonstrate mathematical and numerical solutions in workplace documentation.
Context of and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice The following resources should be made available: • a workplace or simulated workplace • documentation, such as workshop manuals, vehicle repair information, enterprise or sample documents, invoices, statements, stock records, job cards, repair quotations, personnel records, time sheets and supply quotations • equipment for calculations, such as calculators or computers.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of

EVIDENCE GUIDE	
	this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Examples of numerical information may include:	• manufacturer/component supplier specifications • vehicle workshop / repair manuals • equipment / component specifications • automotive texts • information sourced from enterprise-specific documents • equipment or material supply quotations.
Calculations may include:	• using simple mathematical equations with or without assistance of a calculator, relating to automotive oriented data and equipment, involving the use of: • counting • measurement • addition • subtraction • multiplication • division • whole numbers • fractions • using metric and non-metric measurement systems • using measuring devices.
Information and workplace documents may include:	• repair quotations • numerical invoices • statements • stock records • job cards • personal records • time sheets • computer records, • supplier invoices or statements.

Unit Sector(s)

Field of Competency	Common
Unit Sector	Foundation Skills

Custom Content Section

Not applicable.

AURAFA2002 Read in an automotive workplace

Modification History

Release	Comment
Release 1	Replaces AURC251356A Read in the workplace Performance Criteria updated to reflect the automotive workplace

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to read automotive workplace documents, such as safety procedures and workshop manuals, in order to perform routine tasks in an automotive or workshop setting. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	Work requires individuals to demonstrate entry-level proficiency to read automotive-specific texts and manuals so that decisions can be made regarding mechanical service and repair requirements. Work applies to the application of technical information gained from reading automotive text and should be contextualised to the service and repair of vehicles in an automotive workplace.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Read text that contains specialist information in a variety of formats	1.1. ***Specialist text*** is understood and correctly applied 1.2. Main points identified while ***reading*** are presented and applied as solutions or ideas 1.3. Meaning of new technical words is determined 1.4. Meaning of key words and phrases is determined 1.5. Text information of relevance to own role and responsibilities is identified and communicated to others as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to communicate ideas and information to others relating to automotive-specific text in the workplace
- initiative and enterprise skills to identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- literacy skills to:
  - understand written workplace specialist text relating to automotive service and repair tasks
  - read and follow information in specialist text, including specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
- numeracy skills to understand numbers and mathematical units
- problem-solving skills to:
  - recognise a workplace problem or a potential problem
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
- self-management skills to:
  - select and use appropriate written materials, processes and procedures
  - recognise limitations and seek timely advice
- technology skills to use workplace technology to:
  - read in an automotive workplace
  - assist with accessing and transferring information

Required knowledge

- techniques for understanding key ideas in specialist workplace text and documents
- common automotive workplace terminology
- procedures for accessing and reviewing workplace texts and documents

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • read automotive-related or business text and take appropriate action • read equipment manuals to assist in operation and maintenance schedules • apply information from written specialist texts • extract key information and communicate it to others as required.
Context of and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources should be made available: • written automotive text and repair information • equipment and materials relevant to task • workplace-specific documents, such as stock records, job cards, repair quotations, personnel records, time sheets and meeting notes • operational forms, memos, messages and faxes • equipment manuals

	• service bulletins • dictionaries and other language aids.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Specialist text may include:	• workplace standard operating procedures • product manufacturer and component supplier specifications • instructions in vehicle workshop manuals • service and repair bulletins • industry codes of practice • automotive text.
Reading includes:	• reading and understanding text • reading and interpreting specific business details and documents (e.g. service manuals and work or job orders) for own use and passing on to others • reading and interpreting internal and external correspondence and taking action • reading and interpreting manufacturers' installation and fitting instructions for ancillary equipment • interpreting written text to enable action to be taken.

Unit Sector(s)

Competency field	Common
Unit sector	Foundation Skills

Custom Content Section

Not applicable.

AURAFA2003 Communicate effectively in an automotive workplace

Modification History

Release	Comment
Release 1	Replaces AURC270789A Communicate effectively in the workplace Performance Criteria updated to reflect the automotive workplace

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes to communicate in an automotive workplace by oral and written means, including the use of automotive technical terminology and vehicle and component descriptions as they pertain to modern motor vehicles. Work requires individuals to communicate effectively with other persons in an automotive workshop or setting and includes communicating specific technical information. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	Work applies to day-to-day workplace communications and workplace correspondence relating to vehicle servicing and repair, technical workplace information, as well as general workplace communication procedures and instructions.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for communication activities	1.1. ***Documents, forms or other relevant sources of technical information*** are sourced 1.2. Items of stationery, documents or instructions appropriate to the method of communication are sourced 1.3. Communication procedures are determined to minimise task time
2. Read routine documents	2.1. Purpose of the text is understood and described 2.2. Main points or ideas identified by reading are presented and described 2.3. Meaning of new technical words are comprehended and applied 2.4. Meaning of key words and phrases is identified
3. Write routine texts	3.1. Routine texts of one or more sentences are composed according to workplace requirements 3.2. Routine forms are completed according to workplace requirements 3.3. Spelling, punctuation and grammar rules are followed 3.4. Texts are self-checked for accuracy and presented for progress checks by relevant persons
4. Contribute to workplace communications	4.1. Information is conveyed by appropriate means to ensure ***effective communication*** when sending or receiving information 4.2. Assistance is provided to colleagues in the workplace to foster common understanding 4.3. Requests for information from colleagues are determined and responded to
5. Operate workplace communication systems	5.1. ***Communication system functions*** are used according to communication requirements and workplace policy 5.2. Communication by telephone is carried out using customer relation practices according to workplace policy and procedures 5.3. Communication by computer is carried out according to workplace policy and procedures 5.4. Messages are responded to promptly and returned if required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - communicate ideas and information utilising plain English literacy and communication skills in relation to writing, reading and understanding workplace documents
  - oral communication skills in relation to conveying and receiving workplace information
- initiative and enterprise to identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- literacy skills to:
  - understand written workplace procedures
  - read, interpret and follow information on written instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
- numeracy skills to understand numbers and mathematical units
- planning and organising skills to:
  - plan and organise activities which communicate standard procedures
  - plan and organise activities to take or leave a telephone message
- problem-solving skills to:
  - recognise a workplace problem or a potential problem
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
- self-management skills to:
  - select and use appropriate written materials, processes and procedures
  - recognise limitations and seek timely advice
  - follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to work with others and in a team by distributing information to team members
- technical skills to collect, organise and understand information relating to technical automotive workplace information
- technology skills to use relevant workplace technology related to communicating effectively in an automotive workplace by written or oral means

Required knowledge

- workplace forms, documents and stationery
- common automotive terminology
- manufacturers repair manuals
- enterprise policies and procedures including:
  - workplace document style, format and layout

REQUIRED SKILLS AND KNOWLEDGE
• workplace communication procedures • workplace documents • telephone protocols and operating procedures • worksite reporting procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • write short routine texts using correct spelling, punctuation and grammar • read, interpret and apply routine texts in the workplace • interpret and convey workplace information • apply and demonstrate workplace procedures for incoming and outgoing telephone calls • maintain workplace communications, including documents.
Context of and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice The following resources should be made available: • a workplace or simulated workplace • documentation, such as enterprise sample policies and procedures manuals relating to workplace communication procedures • workplace documents, telephone protocols and operating procedures • enterprise or sample stationery, documents and forms

EVIDENCE GUIDE	
	• access to workplace or similar communication systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Documents, forms or other relevant sources of technical information may include:	• manufacturers repair manuals • enterprise policies and procedures • job cards • work instructions • workplace forms, documents or stationery • telephone operating procedure.
Effective communication **may include:**	• communicating by most appropriate means including face to face, telephone, written or electronic means • speaking clearly • writing legibly • using eye contact • using appropriate body language.

Communication system functions may include:	• telephone use and system operating procedures such as:
	  • transferring calls
	  • calls on hold
	  • messaging
	• computer
	  • emails
	  • file transfers
	  • document distribution.

Unit Sector(s)

Competency field	Common
Unit sector	Foundation Skills

Custom Content Section

Not applicable.

AURAFA2004 Solve routine problems in an automotive workplace

Modification History

Release	Comment
Release 1	Replaces AURC252327A Identify, clarify and resolve problems Performance Criteria updated to reflect the automotive workplace

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to identify and clarify the nature of routine problems commonly encountered in an automotive workplace as they relate to automotive vehicle repair. It involves deciding on the best solution, implementing and evaluating solutions and assisting others to identify and resolve problems. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	Work applies to the process implemented when addressing a problem in relation to vehicle or equipment repair. This unit has application throughout all sectors of the automotive industry and can be applied to resource, equipment, job function, workplace environment or process related problems.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify and clarify nature of the problem	1.1. Signs of ***problems*** are identified or anticipated 1.2. ***Information and evidence*** is gathered from a variety of sources 1.3. Detailed analysis of the information is prepared, listing all options 1.4. Relevant and irrelevant components of the problem are distinguished within the available timeframe
2. Determine criteria for optimal solution and implement solution	2.1. Range of possible ***solution methods*** are defined 2.2. Options and strategies are identified or devised 2.3. Strengths and weaknesses of each option and strategy are considered against determined criteria 2.4. The optimal solution is determined 2.5. An implementation strategy is prepared and presented to designated persons for approval 2.6. The chosen solution is implemented within available timeframe
3. Evaluate and report on effectiveness of solutions and outcomes	3.1. Criteria are established to determine if chosen solutions resolve the problem 3.2. The chosen solution is evaluated against the determined criteria 3.3. Follow-up procedures are implemented by investigating things that have gone wrong and developing ***contingency arrangements*** 3.4. The effectiveness of the solution is reported to the workgroup or designated persons
4. Assist others to identify, clarify and resolve problems in the workplace	4.1. Others are assisted to anticipate or identify the indicators of a problem 4.2. Others are assisted to investigate the problem 4.3. Others are assisted to devise and evaluate alternative options and strategies 4.4. Others are assisted to implement the chosen solution

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to communicate ideas and information relating to reading and understanding workplace documents
- initiative and enterprise to identify sources of information, assistance and expert knowledge to assist with problem solving
- literacy skills to:
  - understand written workplace procedures and documents
  - read and follow information in written instructions, specifications, standard operating procedures, charts and other applicable reference documents
- numeracy skills to use mathematical ideas and techniques where required for solution options
- planning and organising skills to plan and organise activities for a plan of action developed to solve problems
- problem-solving skills to:
  - recognise a workplace problem or a potential problem
  - adopt strategic approaches to routine problem solving
  - establish diagnostic processes that use basic analytical and problem-solving skills relating to identifying, evaluating and resolving work-related problems
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
- self-management skills to:
  - select and use appropriate written materials, processes and procedures
  - recognise limitations and seek timely advice
- teamwork skills to work with others and in a team by using basic communication and teamwork skills to assist others to solve problems
- technical skills to collect, organise and understand information relating to collating information to define problems
- technology skills to use workplace technology for research and to report on effectiveness

Required knowledge

- workplace policies and work procedures in relation to problem identification and problem solving
- problem identification, evaluation and reporting procedures
- problem identification, evaluation and reporting practices and strategies

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • communicate effectively with others involved in or affected by the work • identify indicators of problems or potential problems • gather and evaluate information relating to the problem • devise solutions • implement solutions as they relate to mechanical or electrical faults or problems in an automotive workplace.
Context of and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • documentation, such as workplace or sample policies and procedures, vehicle workshop or repair manuals related to work procedures and problem solving • vehicles with mechanical or electrical faults or problems requiring resolution.

EVIDENCE GUIDE	
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Problems may include:	• problems relating to normal work activities within the responsibility of the individual or workgroup • problems that arise relating to additional or non-standard work activities • problems caused by internal or external changes in work conditions or the environment.
Information and evidence may include:	• equipment or product manufacturer and component supplier specifications • workplace policies and procedures • customer requirements • repair quotations • legislation and regulations • industry and workplace codes of practice.
Solution methods may include:	• personal problem solving • mathematical problem solving • root cause analysis • brainstorming • lateral thinking • trial and error • substitution.
Contingency arrangements may include:	• technical evaluation • physical evaluation • formulating or revising plans • strategy development • evaluating procedures • time management • cpmmunication strategies.

Unit Sector(s)

Competency field	Common
Unit sector	Foundation Skills

Custom Content Section

Not applicable.

AURAFA2005 Write routine texts in an automotive workplace

Modification History

Release	Comment
Release 1	Replaces AURC251179A Write routine texts in the workplace and complete automotive documentation Unit code updated to meet policy requirements. Minor changes to unit title Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the competence to write routine texts, ensuring correct grammar and punctuation are used, and to complete standard automotive forms. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit of competency applies to the following and should be contextualised to the qualification to which it is being applied. • retail, service and repair administration/sales. Methods include: • documenting details of a telephone message • completing and lodging various forms. Specific requirements include: • information on routine operational matters • writing to persons who are familiar with subject matter • using correct grammar/punctuation.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Write routine texts	1.1. A text of one or two sentences is documented 1.2. A factual statement of one or two sentences is composed 1.3. Spelling, punctuation and grammar are accurate 1.4. Information is self-checked and presented for frequent progress checks by designated officer
2. Complete industry form	2.1. Identify correct form for purpose 2.2. Collect information for completion of form 2.3. Complete relevant sections of form 2.4. Organise for other sections of form to be completed by relevant persons 2.5. Gather supporting documentation or information 2.6. Determine signatory requirements and complete
3. Lodge form	3.1. Determine body for lodging form, due date and method of lodgement 3.2. Copy form and store in accordance with enterprise procedure 3.3. Lodge form with body with necessary supporting documents or payments
4. Follow up	4.1. Follow-up dates for action are noted in accordance with company procedure

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to writing routine texts and completing automotive forms in the workplace
- communicate ideas and information related to writing routine texts and completing automotive forms in the workplace
- plan and organise activities related to writing routine texts and completing automotive forms in the workplace
- work with others and in a team by seeking and conveying information related to the planning, sequencing and completion of the task
- use mathematical ideas and techniques to count and measure
- utilise processes that identify methods to gather information and resolve questions related to writing routine texts and completing automotive forms in the workplace
- use workplace technology related to writing routine texts, completing automotive forms, sourcing information and lodgement of forms in the workplace
-

Required knowledge

- written communication techniques
- routine enterprise texts/stationery
- enterprise policies and procedures for preparing written texts
- sources of information required on standard forms
- purpose of forms

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • writing short routine texts using correct grammar and punctuation • use of correct form for the requirement • correct completion of all aspects of the form • correct lodgement procedure.

Context of and specific resources for assessment	• Underpinning knowledge and skills may be assessed on or off the job.
	• Assessment of practical skills must take place only after a period of supervised practice and repetitive experience. If workplace conditions are not available, assessment in simulated workplace conditions is acceptable.
	• Prescribed outcome must be able to be achieved without direct supervision.
	• The following should be made available:
	  • forms from government departments or agencies
	  • car hire agreements
	  • writing equipment and materials
	  • enterprise-specific documents (e.g. time cards, leave application forms and requisitions)
	  • telephones, faxes, email and internet
	  • dictionaries and other written language aids.

Method of assessment	Practical assessments: • complete routine business texts • use correct grammar and punctuation • identification and completion of form.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Forms	Forms may include: • vehicle registration, change of ownership, insurance policies or car hire agreements
Lodgement	Lodgement may be by: • post, hand, electronically or facsimile

Information/documents	Information/documents may include:
	• information related to forms and requirements from government departments or agencies
	• information related to completion and supporting documentation from government department or agencies
	• information related to:
	  • car hire agreements
	  • manufacturer/component supplier specifications
	  • enterprise operating procedures
	  • product manufacturer/component supplier specifications
	  • customer requirements
	  • industry/workplace codes of practice

Workplace health and safety (WHS)	WHS requirements may include: • state/territory WHS legislation • award provisions

Unit Sector(s)

Unit sector	Common

Co-requisite units

Not applicable.

Competency field

Competency field	Foundation Skills

AURAKA2001 Use information technology systems

Modification History

Release	Comment
Release 1	ReplacesAURA254180A Operate information technology systems Unit code updated to meet policy requirements. Minor changes to unit title Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the competence involved in the use and application of enterprise information technology systems. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit requires knowledge of the hardware and software in use, and the ability to enter, retrieve and use information. This unit of competency applies to the following and should be contextualised to the qualification to which it is being applied: retail, service and repair.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Use enterprise information technology systems	1.1. Knowledge of enterprise information technology systems is accurately demonstrated and conveyed to other staff members 1.2. Hardware is accurately identified and operated according to manufacturer/component supplier instructions and enterprise procedures 1.3. Software, including databases, menus and electronic data interchange (EDI), is accurately identified and used according to manufacturer/component supplier instructions and enterprise procedures 1.4. Application and uses of available software is accurately identified and used according to enterprise procedures 1.5. Data is transmitted according to EDI procedures 1.6. Keyboard skills are used accurately to enter information according to enterprise policies 1.7. Back-up procedures are regularly performed according to enterprise procedures
2. Edit/update information	2.1. Information to be edited/updated is correctly identified according to enterprise procedures 2.2. Information on system is accurately edited/updated according to enterprise procedures
3. Solve problems	3.1. Equipment/hardware/software faults are identified and rectified where possible or expert assistance sought without delay 3.2. Maintenance programs for hardware and software systems are monitored and implemented according to manufacturer/component supplier specifications and enterprise procedures 3.3. Routine problems are handled using appropriate problem-solving techniques and referred to appropriate persons 3.4. Assistance is positively and actively provided to staff as problems arise

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- plain English literacy skills in regard to interpreting documentation and completing reports or documents
- information is provided according to enterprise policies and procedures
- back up procedures are planned for data
- involve staff in dealing with information technology issues
- enterprise version control procedures are followed
- establish diagnostic processes which develop problem-solving skills related to hardware and software problems
- technical skills in the operation of enterprise information technology hardware and software and the use, application and operation of databases, menus and EDI

Required knowledge

- operational knowledge of enterprise policies and procedures in regard to use of enterprise information technology systems, including:
  - use and maintenance of hardware and software systems
  - solutions to problems/breakdowns
  - operation of equipment
- operational knowledge of legislation for WHS, including use of screen-based equipment

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies the ability to transfer the competence to changing circumstances and to respond to unusual circumstances in critical aspects of: • consistently applying enterprise policies and procedures in regard to information technology systems, including resolution of systems faults and accessing/entering information on enterprise systems • following requirements of legislation.

Context of and specific resources for assessment	• This unit should be assessed in conjunction with other units that form part of the job role or function.
	• Elements of competence contain both knowledge and practical components. Knowledge components may be assessed off the job. Practical components should be assessed on the job or in a simulated work environment.
	• Evidence is best gathered using products, processes and procedures of the individual workplace context as the means by which the candidate achieves industry competencies.
	• The following are required:
	  • a workplace or simulated workplace
	  • documentation, such as enterprise policies and procedures manuals relating to information technology systems, legislation requirements, industry codes of practice, and hardware and software manuals
	  • information technology systems
	  • a qualified workplace assessor.

Method of assessment	It is preferable that assessment reflects a process rather than an event and that it occurs over a period of time to cover varying circumstances. Evidence of performance may be provided by customers, team leaders/members or other appropriate persons subject to agreed authentication arrangements.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Enterprise	Enterprises may vary in size, type and location and in their range of products and services
Information technology systems	Information technology systems used may be centrally based, location-based or networked. Communications may be by network or by the internet
Software	Types of software may include: • menus, databases or EDI
System problems	System problems: • may relate to hardware faults, breakdowns, software faults or staff abilities/training • may be solved by routine procedures, manufacturer/component supplier recommendations, lateral thinking or referral to a specialist/expert
Staff	• Staff may be full time, part time or casual and vary in terms of staff training, in staffing levels, e.g. staff shortages and in the range of responsibilities for information technology systems. • Staff may be operating in routine or busy trading conditions
Information	Information to be entered may include: • staffing information, customer details/records, including names, addresses and profiles, stock records, stock transfers, orders and delivery details
Equipment	Equipment may include: • a range of personal computers and computer terminals, which may be stand-alone or networked • information technology equipment such as scanning equipment, bar-coding equipment, point of sale terminals and pricing equipment
Information/documents	Sources of information/documents may include: • enterprise policies and procedures in regard to information technology systems • legislative requirements for WHS, particularly in regard to use

RANGE STATEMENT	
	of screen-based equipment, and may also include industry codes of practice

Unit Sector(s)

Unit sector	Common

Co-requisite units

Not applicable.

Competency field

Competency field	Information Technology

AURAKA3002 Adapt work processes to new technologies

Modification History

Release	Comment
Release 1	Replaces AURC361101A Adapt work processes to new technology Unit code updated to meet policy requirements. Minor changes to unit title Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the competence required to investigate the nature of new technologies and modify existing work processes and procedures to incorporate new technologies into the workplace. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Investigate the nature of the new technology	1.1. Training/information sessions are attended, to gain a full understanding of new technology 1.2. Technical sources are consulted to gain a full understanding of new technology 1.3. New technologies are analysed to determine their importance and value to the enterprise 1.4. Impact of new technologies on existing processes is analysed 1.5. Information about additional materials and equipment required to adopt the technology is communicated to staff
2. Modify existing work processes and procedures	2.1. Processes are modified to incorporate new technologies 2.2. Impact on workflow and productivity is minimised through effective planning and communication with staff 2.3. Staff are provided with training/information in the use of new technologies

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to adapting work processes to new technologies
- communicate ideas and information to supervisors related to adapting work processes to new technologies
- plan and organise activities adapting work processes to new technologies
- work with others and in a team by seeing and conveying information related to the planning, sequencing and completion of the task
- use mathematical ideas and techniques to count and measure
- establish diagnostic processes which adapts work processes to new technologies
- use the workplace technology related to adapting work processes to new technologies

Required knowledge

Knowledge of:

- enterprise existing activity, processes and procedures relevant to application
- cost-benefit analysis principles
- analytical skills, processes and procedures
- planning, communication and management skills, processes and procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • investigating the nature of new technologies and modifying existing work processes and procedures to incorporate new technologies into the workplace.
Context of and specific resources for assessment	• Underpinning knowledge and skills may be assessed on or off the job. • Assessment of practical skills must take place only after a period of supervised practice and repetitive experience. If workplace conditions are not available, assessment in simulated workplace conditions is acceptable. • Prescribed outcome must be able to be achieved without direct supervision. • The following should be made available: • technical information, hand tooling, specialised tooling and equipment.
Method of assessment	Practical assessments: • research and adapt a process to a previously unknown technology • train staff in use of a new technology • compare costs and benefits of a current process and one which incorporates a new technology • make a recommendation as to whether a given technology should be introduced to the workplace, taking into consideration the value to the enterprise of the change • plan and implement the introduction of a new technology into the workplace, with provision to minimise the impact on workflow and productivity.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Methods	Methods include: • analysis of existing work practices • planning • communication • research
Processes which may be modified	Processes which may be modified could include: • work/repair sequence • WHS practices • administration and/or documentation • stock control
New technologies	New technologies which could be incorporated into the workplace include: • new equipment or tooling, base materials or automotive systems
Unit context	Workplace example: • a body repair involving a multi-layer paint system is encountered for the first time in the workshop. The technician contacts the paint supplier to gather information on the paint system. Other persons might also need to be contacted to gain an understanding of how to effect the repair, such as the paint manufacturer or industry contacts who may have encountered such a paint system before and/or employer bodies. Because normal 'blending' is not possible, alternative methods for colour matching need to be determined after gathering information
Information/documents	Information/documents may include: • manufacturer/component supplier specifications • technical journals, including workshop • manuals, tune-up manuals • enterprise operating procedures • customer requirements • industry codes of practice • legislation

RANGE STATEMENT	
WHS requirements	WHS requirements may include: • state/territory WHS legislation • award provisions

Unit Sector(s)

Unit sector	Common

Co-requisite units

Not applicable.

Competency field

Competency field	Information Technology

AURAMA2001 Work effectively with others

Modification History

Release	Comment
Release 1	Replaces AURC270688A Work effectively with others Unit code updated to meet policy requirements. Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the competence to organise self, perform tasks, behave responsibly and work effectively as a member of a work group or team. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Contribute to determination of work roles	1.1. Work roles for each group or team member are identified based on information and instructions about objectives, performance requirements and procedures 1.2. Contributions are made to assist in the determination of the roles and responsibilities for the successful completion of work activities
2. Contribute to planning of activities	2.1. Suggestions and information are provided to contribute to the planning of work activities and associated procedures
3. Organise and accept responsibility for own workload	3.1. Priorities and deadlines are established and documented in consultation with others 3.2. Work activities are planned and progress of work is communicated to others whose personal work plans and timeframes may be affected 3.3. Work is completed to the standard expected in the workplace in accordance with guidelines, directions and instructions 3.4. Variations and difficulties affecting work requirements are identified through regular reviews and action is taken to report these issues to appropriate persons 3.5. Additional support to improve work is communicated clearly to appropriate persons
4. Maintain enterprise dress and grooming standards	4.1. Enterprise and/or industry dress standards and requirements are maintained 4.2. Enterprise and/or industry grooming standards are maintained
5. Work with others	5.1. Forms of communication appropriate to the work activities are used 5.2. Assistance in the completion of activities is requested 5.3. Support is provided to colleagues to ensure designated team goals are achieved 5.4. Contributions to the achievement of a required outcome are made 5.5. Work is undertaken in accordance with procedures on an individual and shared basis 5.6. Problems are discussed and resolved where possible through agreed and accepted processes 5.7. Suggestions for improvements to process are made and discussed within the team
6. Participate in identifying	6.1. Competencies for the workplace are identified

ELEMENT	PERFORMANCE CRITERIA
and meeting own development needs	6.2. Organisational structure, career paths and development opportunities are identified 6.3. Steps are taken, in consultation with appropriate persons, to identify own learning needs through assessment and planning for future work requirements 6.4. Opportunities to learn and develop required competencies are undertaken, including establishing networks and working relationships with others
7. Work effectively and responsibly	7.1. Notification of shift/work availability or non-attendance for shift/work is given without undue delay and according to enterprise policies and procedures 7.2. Staff rosters are interpreted 7.3. Non-discriminatory attitudes are displayed when interacting with customers, staff and management 7.4. Non-discriminatory language is used consistently 7.5. Awards/enterprise agreements are identified and interpreted

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information to follow routine procedures and directions
- communicate ideas and information to plain English literacy and communication skills in relation to reading and understanding workplace documents
- plan and organise activities to carry out routine tasks with limited supervision
- work with others and in a team by informing supervisor of issues which will affect timeframes and goals
- use mathematical ideas and techniques to estimate requirements of tasks
- establish diagnostic processes which use basic analytical, problem-solving, negotiation and conflict management skills in relation to working with others
- use workplace technology related to documenting work progress on computers/information systems

Required knowledge

General knowledge of:

- enterprise work procedures
- group dynamics and the impact of working effectively with others on individual and group performance
- enterprise work systems, equipment, management and facility operating systems
- enterprise policies and procedures and legislative requirements in regard to:
  - workplace ethics
  - work availability or non-attendance
  - staff rosters
  - dress and grooming
  - discriminatory behaviour
  - harassment
  - equal opportunity
  - staff counselling and disciplinary procedures
- industry awards or enterprise/ workplace agreements

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • organising and accepting responsibility for own workload • following the designated work plan for the job • contributing to collective planning, cooperative work and effective outcomes • cooperating with others to complete work-oriented activities • participating in identifying and meeting own development needs • consistently applying enterprise and/or industry standards of dress and grooming • consistently and responsibly applying enterprise policies and procedures in regard to workplace ethics, including interpretation of staff rosters, notification of availability for work and allocated duties/job description • consistently applying enterprise policies and procedures and legislative requirements regarding non-discriminatory language and attitudes • knowing own rights and responsibilities regarding awards/enterprise agreements.

Context of and specific resources for assessment	• This unit may be assessed in conjunction with other units that form part of the job role or function.
	• Elements of competence contain both knowledge and practical components. Knowledge components may be assessed off the job. Practical components should be assessed on the job or in a simulated work environment.
	• Evidence is best gathered using the products, processes and procedures of the individual workplace as the means by which the candidate achieves industry competencies.
	• The following should be made available:
	  • a workplace or simulated workplace
	  • documentation, such as enterprise or sample policies and procedures manuals related to ethics, employee and employer rights and responsibilities, dress and grooming,

EVIDENCE GUIDE	
	discrimination, job descriptions and organisation charts • legislation, such as equal employment opportunity, equal opportunity and anti-discrimination • enterprise or sample awards and/or enterprise/ workplace agreements • a qualified workplace assessor.
Method of assessment	It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons, subject to agreed authentication arrangements.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Business types	Enterprise may vary in size, type and location, the range of work activities conducted, hours of operation and the number and type of staff
Staff	Staff may: • be full-time, part-time or casual and vary in terms of staff training and in staffing levels • be operating in routine or busy trading and may include persons from a range of social, cultural or ethnic backgrounds and physical and mental abilities • work in teams or groups of varying size and structure
Staff activities	Activities may include: • normal or routine work requirements or non-routine work requirements
Communication	Communication may include: • face to face, telephone, written or electronic means
Legislative requirements	Legislative requirements may include: • legislation or regulations in relation to WHS, equal opportunity, anti-discrimination, consumer law, trade practices and fair trading, industrial relations, and industry codes of practice • awards/agreements may include state/territory and federal industry awards and enterprise or workplace agreements
Policies and procedures	Enterprise policies and procedures may relate to: • organisational structure, work roles and responsibilities, career paths, work standards, dress and grooming standards, work objectives and performance requirements

Unit Sector(s)

Unit sector	Common

Co-requisite units

Not applicable.

Competency field

Competency field	Management, Leadership and Supervision

AURAMA2002 Communicate business information

Modification History

Release	Comment
Release 1	Replaces AURC270889A Communicate business information Unit code updated to meet policy requirements. Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the competence to communicate effectively with other persons in the automotive industry. This includes communicating verbally and in written form, participating in meetings, making presentations and conducting negotiations. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit of competence has application in: • day-to-day workplace communications • workplace correspondence • attending/conducting internal and external meetings • making a presentation to others, either formally or informally • conducting complex negotiations with a customer or supplier. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Communicate information orally	1.1. The purpose of oral communication is clarified with either the speaker or the listeners 1.2. A suitable oral communication style is selected to match the communication purpose and audience 1.3. Oral information given to others is delivered clearly, succinctly and unambiguously 1.4. Where oral information has been given to others, the received information is checked with the listeners to ensure it has been received and understood 1.5. Oral information received from others is listened to carefully and intently 1.6. Where oral information has been received from others, its meaning is checked with the speaker to ensure it has been received and understood 1.7. Where an oral communication has been received inaccurately, it is repeated and/or clarified with further detail
2. Communicate information in writing	2.1. The purpose of the written communication is clarified with either the writer or the reader 2.2. A suitable written communication style is selected to match the communication purpose and audience 2.3. Written information given to others is delivered clearly, succinctly and unambiguously 2.4. Where written information has been provided to others, the received information is checked with the readers to ensure it has been received and understood 2.5. Written information received from others is read carefully and intently 2.6. Where written information has been received from another, it is checked with the writer to ensure it has been read and understood 2.7. Where a written communication has been read inaccurately, further detail is sought to clarify the message
3. Achieve meeting outcomes	3.1. Purpose of a meeting is clarified with those participating 3.2. When a meeting is chaired, it is well-planned with a clear agenda, time and place of meeting, and the meeting is conducted efficiently in accordance with official law and procedures of meetings and constitution or requirements of the organisation concerned 3.3. Outcomes of a meeting are documented and official minutes of the meeting are promptly provided to all participants

ELEMENT	PERFORMANCE CRITERIA
	3.4. Required action flowing from decisions reached at a meeting is documented 3.5. Persons responsible for implementing action from decisions at a meeting are promptly notified and details of the required action confirmed in writing 3.6. Follow-up action is taken to ensure all decisions of a meeting are acted upon
4. Make a presentation	4.1. Purpose of a presentation is identified and clarified with organisers and confirmed with the intended audience 4.2. Information to be communicated in a presentation is suitably organised and structured in accordance with company requirements 4.3. Resources available for the presentation are discussed with the organisers and suitable media selected for use in the presentation 4.4. Presentation aids, such as overhead projector transparencies, handouts, speech notes and demonstrations, are organised and prepared in advance, in accordance with recognised standards of good practice 4.5. Resources such as projectors, microphones and amplifiers are checked prior to the presentation to ensure they are functioning properly 4.6. Presentation is made as planned with attention to the reactions and feedback provided by the audience 4.7. Outcomes of the presentation are evaluated and acted upon in accordance with company procedures
5. Negotiate a solution	5.1. Preparation is made for the negotiation in accordance with company procedures, including consideration of subject matter, significance of outcomes for parties involved, facts, issues and options, and perceived positions of the parties involved 5.2. A suitable negotiation strategy is selected in accordance with company requirements, including the location, time and approach to be taken 5.3. Negotiations are conducted in accordance with planned approach 5.4. Negotiation outcomes are reviewed in terms of desired outcomes of both parties and suitable action initiated according to company requirements 5.5. Follow-up action to the negotiations is carried out, including discussions with other parties 5.6. Outcomes of the negotiation are documented in accordance

ELEMENT	PERFORMANCE CRITERIA
	with company requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• collect, organise and understand information related to the communication of business information to customers, supervisors and other staff or relevant persons • communicate ideas and information to plain English speaking and communication skills in relation to oral communications with customers, supervisors and other staff both informally and in making formal presentations • writing skills to allow effective written communications in the workplace • effective listening and interpersonal skills to enable effective communication in meetings and negotiations • plan and organise activities to plan a presentation and an approach for the negotiation of an issue • work with others and in a team by communicating with and involve team members in presentations • use mathematical ideas and techniques to ensure meetings and presentations meet planned timeframes • establish diagnostic processes which negotiate a solution to an issue • use the workplace technology related to ensure the use of business technology to make a presentation
Required knowledge
Knowledge of: • common automotive and enterprise terminology • the activities, procedures and policies of the enterprise • the requirements for oral communication • conventions and requirements for written communications • preparation, conduct of and follow-up from meetings • preparing for and conducting a presentation • negotiating techniques and their application

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • conducting oral communication in the workplace • communicating in writing • achieving meeting outcomes • conducting presentations • negotiating issues in the workplace.

Context of and specific resources for assessment	• This unit may be assessed in conjunction with other units that form part of a job role or function.
	• Elements of competence contain both knowledge and practical components. Knowledge components may be assessed off the job. Practical components should be assessed on the job or in a simulated work environment.
	• Evidence is best gathered using the products, processes and procedures of the individual workplace as the means by which the candidate achieves industry competencies.
	• The following should be made available:
	  • a workplace or simulated workplace
	  • documentation, such as enterprise or sample policies and procedures related to work processes
	  • real or simulated business information to be communicated
	  • access to communication partners
	  • a qualified workplace assessor.

Method of assessment	It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Customers	Customers may be: • internal or external

Unit context	• work may be undertaken at any enterprise involved in the automotive industry
	• communication will occur within and between work groups and external to the enterprise at all levels
	• customer and supplier contact and coordination are a requirement of these operations
	• work may involve 24 hour operation at workplace or external locations
	• environment may be internal or external, administrative or industrial and may include movement of persons, equipment, goods, materials and vehicular traffic
	• the employee may work under general supervision, but may have some leadership/supervisory responsibilities
	• judgement and discretion in conducting workplace communication is required
	• conditions of service, legislation and industrial agreements may include workplace agreements and awards
	• WHS, including federal and state/territory legislation
	• consultative processes may include:
	  • other staff and supervisors
	  • management
	  • employee representatives
	  • customers
	• communications may be face to face, in writing, by telephone or other electronic means and may be formal or informal
	• documenting and reporting of information is in accordance with enterprise procedures and policies

Information/documents	Sources of information/documents may include: • operation manuals • quality or enterprise work specifications and procedures • manufacturer/customer requirements/issues

RANGE STATEMENT	
	• workplace operating procedures and policies • material safety data sheets • personal and work area work procedures and practices • federal/state/territory legislation and codes of practice relating to the industry, dangerous and hazardous goods, environmental protection and WHS • enterprise communications, management and inventory systems • conditions of service and workplace agreements • enterprise quality assurance procedures • emergency procedures

Unit Sector(s)

Unit sector	Common

Co-requisite units

Not applicable.

Competency field

Competency field	Management, Leadership and Supervision

AURAMA3003 Conduct information sessions

Modification History

Release	Comment
Release 1	Replaces AURC359350A Conduct information sessions Unit code updated to meet policy requirements. Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the competence required to present technical and other information in structured sessions. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit of competency applies to the following and should be contextualised to the qualification to which it is being applied: • retail, service and repair.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for session	1.1. Specific need to be met by the information session is confirmed 1.2. Arrangements are made for the time, place and duration of the session 1.3. Equipment, tooling and/or other resources required are organised to be available 1.4. Information is planned to be presented in a logical sequence
2. Present session	2.1. Participants are made aware of the reason for the session and relevance of information being presented 2.2. Information is presented clearly, with demonstration
3. Follow up outcomes of session	3.1. Participants are encouraged to raise questions on any aspect of the information session 3.2. Participant reactions to the session are sought and feedback is used to guide future presentation 3.3. Actions required as a result of the session are carried out

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to a presentation
- communicate ideas and information to conducting an information session
- plan and organise activities for an information session
- work with others and in a team by involving team members in the information session
- use mathematical ideas and techniques to ensure times are allocated and followed in the information session
- establish diagnostic processes which analyse issues raised and recommend solutions during the information session
- use workplace technology related to conducting information session

Required knowledge

Knowledge of:

- adult learning principles
- effective presentation techniques
- information session planning procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • presentation of technical and other information in structured sessions.

Context of and specific resources for assessment	• The underpinning knowledge and skills may be assessed on or off the job.
	• The assessment of practical skills must take place only after a period of supervised practice and repetitive experience. If workplace conditions are not available, assessment in simulated workplace conditions is acceptable.
	• The prescribed outcome must be achieved without direct supervision.
	• The following should be made available:
	  • a workplace or simulated workplace
	  • situations requiring information sessions
	  • group of persons for the presentation
	  • equipment, information, materials, and tooling
	  • a qualified workplace assessor
	  • technical training information.

Method of assessment	Practical assessments: • plan and conduct information sessions on a range of topics, and include demonstration.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Methods	Methods include: • mentoring and training
Information sessions	Information sessions may relate to: • technical information, WHS and enterprise policies or procedures
Information/documents	Information/documents may include: • enterprise operating procedures • product manufacturer/component supplier specifications • customer requirements • industry/workplace codes of practice
WHS practices	WHS practices must comply with: • state/territory WHS legislation • award provisions

Unit Sector(s)

Unit sector	Common

Co-requisite units

Not applicable.

Competency field

Competency field	Management, Leadership and Supervision

AURAMA3004 Maintain business image

Modification History

Release	Comment
Release 1	Replaces AURC363337A Maintain business image Unit code updated to meet policy requirements. Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the competence required to maintain staff dress and grooming standards, maintain the physical appearance of the workplace, implement waste disposal processes, and promote business products and services. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit of competency applies to the following and should be contextualised to the qualification to which it is being applied: • retail, service and repair.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Maintain physical appearance of the workplace	1.1. Cleanliness and tidiness of the workplace is maintained in accordance with industry and/or enterprise standards of workplace health and safety (WHS) 1.2. Workplace is free of rubbish and waste in accordance with industry, WHS and enterprise requirements 1.3. Standards of cleanliness are communicated to staff in accordance with enterprise procedures 1.4. Customer reception area is maintained to enterprise standards 1.5. Defined areas for specific tasks are created and maintained to enterprise requirements 1.6. Facilities and equipment maintenance is planned and regularly carried out 1.7. Enterprise image and signage is displayed consistently throughout the organisation
2. Maintain enterprise dress and grooming standards	2.1. Expectations regarding dress and grooming are communicated to staff on a regular basis 2.2. Standards are updated as needs arise according to enterprise requirements 2.3. Dress and grooming of staff are monitored to ensure standards are met 2.4. Breaches of standards are identified and corrected
3. Implement waste disposal processes	3.1. Waste disposal is monitored to ensure compliance with environmental, WHS, industry and enterprise requirements 3.2. Recycling opportunities are identified and implemented in accordance with environmental legislative, industry and enterprise standards 3.3. Environment Protection Authority documents are maintained
4. Promote products and services provided by the business	4.1. Promotional activities are implemented as planned according to enterprise policies and industry and legal requirements 4.2. Products/services are sold to highest quality level according to enterprise policies, manufacturer/component supplier specifications, industry and legal requirements 4.3. Sales promotions/campaigns are actively supported

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to enterprise expectations
- communicate ideas and information to ensure staff are advised of enterprise requirements
- plan and organise activities for waste disposal processes
- work with others and in a team by using a team approach to maintain workplace appearance
- use mathematical ideas and techniques to budgets associated with sales campaigns
- establish diagnostic processes to resolve environmental issues
- use the workplace technology related to promote products and services

Required knowledge

Knowledge of:

- WHS requirements within the state/territory of operation
- industry and enterprise standards and requirements regarding physical appearance of the workplace, dress and grooming
- industry and enterprise standards regarding waste disposal processes
- enterprise standards regarding promotion of services and products
- environmental protection authority regulations and guidelines
- advertising codes and requirements for ethical advertising practices
- legal obligations and requirements

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • maintaining staff dress and grooming standards • maintaining the physical appearance of the workplace • implementing waste disposal processes • promoting business products and services.

Context of and specific resources for assessment	• The underpinning knowledge and skills may be assessed on or off the job.
	• The assessment of practical skills must take place only after a period of supervised practice and repetitive experience. If workplace conditions are not available, assessment in simulated workplace conditions is acceptable.
	• The prescribed outcome must be able to be achieved without direct supervision.
	• The following should be made available:
	  • a workplace or simulated workplace
	  • enterprise or equivalent policy and procedures
	  • enterprise stationery, forms/business documents
	  • a qualified workplace assessor.

Method of assessment	Practical assessments: • address staff breaches of dress and grooming standards • complete Environmental Protection Authority (EPA) paperwork • maintain the physical appearance of the worksite • maintain enterprise dress and grooming standard • implement waste disposal processes • promote products and services provided by the business.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Methods	Methods include: • written and verbal communication
Defined areas for specific tasks	Defined areas for specific tasks may include: • lunchrooms • work areas for specific tasks (e.g. paint, electrical, transmission and wheel alignment) • warehouse areas • office/administration areas • workshop bays
Waste	Waste may include: • materials • products • parts • consumables
Corrective actions	Corrective action to breaches of dress and grooming standards may include: • individual or group staff counselling, notices or memos
Standard clothing	Standard clothing may include: • overalls • shirts • jacket • trousers • work safety or waterproof footwear • ear plugs/muffs • safety goggles • other personal protection equipment
Information/documents	Information/documents may include: • enterprise operating procedures • product manufacturer/component supplier specifications • customer requirements

RANGE STATEMENT	
	• industry/workplace codes of practice
WHS requirements	WHS requirements may include: • state/territory industry WHS legislation • award provisions

Unit Sector(s)

Unit sector	Common

Co-requisite units

Not applicable.

Competency field

Competency field	Management, Leadership and Supervision

AURAMA4005 Manage complex customer issues

Modification History

Release	Comment
Release 1	Replaces AURC463238B Manage complex customer issues Unit code updated to meet policy requirements. Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to resolve complex customer complaints or issues. It requires the ability to communicate effectively and make an informed judgement. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who are required to manage and resolve complex customer issues in an automotive environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Examine the nature of the issue	1.1. Ascertain all facts relating to the issue 1.2. Use effective communication to understand customer feelings and opinions 1.3. Determine enterprise and/or supplier policies relating to the issue
2. Exercise judgement to resolve the issue	2.1. Determine implications of the issue for the customer and organisation 2.2. Analyse and negotiate options for resolution with the customer in accordance with legislative requirements and enterprise policies 2.3. Refer matters for which a solution cannot be negotiated to management
3. Document issue and outcome	3.1. Report outcome of the issue to management 3.2. Incorporate issue and outcome into customer feedback system

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology to manage, resolve and record customer issue
- communication skills to the level required to listen effectively to a customer complaint, negotiate effectively to resolve the issue and communicate effectively with the supervisor and other workers, and to relate to people from a range of social, cultural and ethnic backgrounds, and of varying physical and mental abilities
- literacy skills to the level required to identify and understand information related to the issue, the enterprise procedures to resolve issues, and to prepare a report on the issue and outcome
- numeracy skills to the level required to undertake any calculations related to the complex issue management
- problem-solving skills to the level required to undertake diagnostic processes that lead to a solution to the complex customer complaint
- team skills to the level required to seek advice from others to lead to a solution to the complex customer issues

Required knowledge

Required knowledge includes:

- negotiation and problem-solving strategies
- industry codes of conduct
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including workplace health and safety (WHS), personal safety and environment, relevant to resolving complex customer complaints
- organisational policies and procedures, including quality requirements, reporting and recording procedures, and work organisation and planning processes, related to resolving complex customer complaints

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • understand and follow enterprise procedures to resolve customer complaints • use a planned approach to resolve the complaint • determine the facts and implications of the issue for both the customer and the organisation • resolve the customer complaint to the satisfaction of both the customer and the enterprise • document the resolved issue according to workplace procedures.

Context of and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • details of a range of complex customer complaints
	  • workplace procedures related to customer service
	  • legislation and codes of practice
	  • computer hardware and software, calculators and general office equipment.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of

EVIDENCE GUIDE	
	performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Complex issues	Complex issues may include: • cost issues • warranty issues • policy matters • commercial decisions taken • code of practice adherence • work standards • time taken or time expected to repair • selection of parts
Options for resolution	Options for resolution may include: • rework • reduced fee for work completed/agreed • additional services for free/reduced fee • referrals to other suppliers
Workplace procedures	Workplace procedures may include: • customers issue resolution process and procedures • industry and workplace codes of practice • product manufacturer and component supplier specifications • industry and workplace codes of practice
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment

RANGE STATEMENT	
	• equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Common

Co-requisite units

Not applicable.

Competency field

Competency field	Management, Leadership and Supervision

AURAQA2001 Contribute to quality work outcomes

Modification History

Release	Comment
Release 1	Replaces AURC261314A Contribute to quality work outcomes Unit code updated to meet policy requirements. Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the competence for the individual to be involved in the achievement of quality work outcomes and environmental compliance throughout work activities. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare for quality work outcomes	1.1. Quality procedures are identified from worksite/enterprise and team quality requirements 1.2. Performance indicators for individual work are identified and agreed with the appropriate persons 1.3. Work plans and processes which facilitate the achievement of quality work outcomes are adopted
2. Comply with environmental requirements	2.1. Environmental requirements for the work are interpreted and considered as a factor in work planning/preparation 2.2. Environmental monitoring and control procedures are implemented during the work processes 2.3. Environmental incidents and potential problems are identified and responded to or referred to others in accordance with worksite requirements
3. Achieve and maintain quality work outcomes	3.1. Responsibility for monitoring quality of outputs is accepted and changes implemented by the individual, in accordance with worksite procedures 3.2. Performance indicators are monitored, adjusted and agreed to meet changing circumstances 3.3. Loss and damage incidents are minimised by monitoring work processes, reporting incidents and applying local risk control processes 3.4. Procedural improvements and/or recommendations are communicated to relevant persons

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to researching and interpretive skills to locate, interpret and apply operational quality and environmental information
- questioning and active listening skills, e.g. when obtaining information on quality and environmental working practices
- plain English literacy and communication skills in relation to dealing with others involved in the work
- technical literacy and communication skills sufficient to interpret and apply common industry terminology, and interpret symbols used for quality and environmental signage
- plan and organise activities to plan performance indicators for individuals
- work with others and in a team by involving team members in recommendations for improvement
- use mathematical ideas and techniques to estimate value of improvements or costs of continuing with present procedures
- establish diagnostic processes which include basic problem-solving skills to assess quality and environmental issues
- use workplace technology related to the use of business technology

Required knowledge

General knowledge of

- quality systems in a workplace
- typical loss and damage control systems
- environmental legislative framework and licence provisions
- work planning processes
- workplace health and safety (WHS) regulations/requirements, equipment, material and personal safety requirements
- enterprise quality systems and processes
- worksite environmental procedures and key constraints
- worksite environment control measures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • identifying quality procedures and needs • identifying individual performance indicators • monitoring and adjusting performance indicators to meet changing circumstances • satisfying performance indicators • applying environmental control systems • processing recommendations for change • communicating effectively with others involved in or affected by the work.

Context of and specific resources for assessment	• This unit may be assessed in conjunction with other units which form part of a work role
	• Assessment of this unit may be completed on the job or in a simulated work environment which reflects a range of quality processes and procedures
	• The following should be made available:
	  • a workplace or simulated workplace
	  • situations requiring quality and environmental working practices
	  • worksite or equivalent instructions on quality and environmental working practices
	  • hazardous chemicals and/or dangerous goods information
	  • materials, tooling and equipment and may include stationery, forms, business documents, job cards, internal memoranda and file notes.

Method of assessment	It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying work process circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Quality procedures	Quality procedures may be contained in: • worksite quality system documentation, work instructions, safe work procedures, product specifications, equipment maintenance schedules, technical procedures and adopted or specifically prepared standards
Performance indicators	Performance indicators are to account for issues of time, quantity, quality and cost factors and may include: • establishing time targets for own work, identifying reasonable criteria for evaluating own work outcomes, identifying measures to avoid wastage, identifying reasonable criteria to judge internal and/or external customer satisfaction and identifying processes to ensure a 'right first time' approach
Legislative requirements	Legislative requirements include: • state/territory legislation related to WHS and Australian Design Rules
Environmental requirements	Environmental requirements are those established under law and by the enterprise, and coverage may include: • dust control, water quality, wastewater management, chemicals handling, noise/vibration, fuel/oil handling and disposal, waste management and rehabilitation
Environmental control measures	Environmental control measures may include: • chemical management, dust suppression, water treatment, waste water processes, application of materials, compliance with noise/vibration standards and application of waste disposal procedures
Environmental reports and documents	Environmental reports and documents may include: • complaints register and incidental reporting procedures
Loss and damage incidents	Loss and damage incidents may include: • personal injury, loss and damage of plant, equipment and materials

RANGE STATEMENT	
Communications	Communications may be: • verbal, written, by telephone or by other means
Information/documents	Information/documents may include: • manufacturer/component supplier specifications, enterprise operating procedures, supplier directories, parts catalogues, customer orders and industry/workplace codes of practice, material safety data sheets (MSDS) and HAZCHEM specifications

Unit Sector(s)

Unit sector	Common

Co-requisite units

Not applicable.

Competency field

Competency field	Quality

AURAQA3002 Inspect technical quality of work

Modification History

Release	Comment
Release 1	Replaces AURC361230A Inspect technical quality of work Unit code updated to meet policy requirements. Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the competence to inspect work done by other staff, apply quality standards to work, and protect customer property and interests. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Gather information to carry out inspection	1.1. Workplace health and safety (WHS) requirements, including state/territory regulatory requirements and personal protection needs are observed throughout the work 1.2. Information, such as Australian Design Rules, workshop manuals and specifications, are sourced 1.3. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.4. Technical and/or calibration requirements for inspection are sourced and support equipment is identified and prepared
2. Inspect work	2.1. Work is identified and confirmed for inspection in accordance with worksite procedures 2.2. Inspections are conducted to ensure in-house quality systems and procedures are maintained/followed in accordance with worksite and quality procedures 2.3. Level of observation and inspection conducted is appropriate to the skill/experience of the employee 2.4. Faults identified are brought to the relevant person's attention in accordance with worksite procedures
3. Apply quality standards to work	3.1. Inspections are conducted throughout the course of the work to ensure quality standards are maintained 3.2. Quality standards are applied during work completion to ensure the treatment of customer property meets industry and/or enterprise standards 3.3. Activities are coordinated throughout the workplace in accordance with worksite procedures 3.4. Documents of work quality are maintained according to worksite requirements
4. Achieve quality work outcomes	4.1. Damage to customer property is avoided through ensuring staff adherence to quality procedures and use of protective materials at all stages of the repair/service 4.2. Quality improvements and/or recommendations are communicated in accordance with worksite requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- research and interpretive skills sufficient to locate, interpret and apply manufacturer procedures, workplace policies and procedures
- analytical skills required for the identification and analysis of technical information
- plain English literacy and communication skills in relation to dealing with others involved in the work
- questioning and active listening skills, for example when obtaining information of technical quality working practices
- as applied to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interacting effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- such as number and space and techniques, estimation and approximation, for practical purposes
- capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and the desired solution are clearly evident and in situations requiring critical thinking and a creative approach to achieve an outcome
- combine the physical and sensory skills needed to operate equipment with understanding of scientific and technological principles needed to explore and adapt systems

Required knowledge

Knowledge of:

- quality systems in a workplace
- common automotive terminology
- vehicle safety requirements
- work planning processes
- WHS regulations/requirements, equipment, material and personal safety requirements
- enterprise quality systems and procedures
- worksite environmental control measures
- worksite reporting procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • identifying and assessing hazardous situations and rectifying, or reporting to the relevant persons • applying WHS policies and procedures • identifying quality procedures • inspecting work undertaken by others • applying quality standards to work • communicating improvements • processing recommendations for change.

Context of and specific resources for assessment	• This unit will normally need to be assessed as a discrete entity. Performance may involve the application of a range of contributory competencies
	• Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of quality processes and procedures
	• The prescribed outcome must be able to be achieved without direct supervision
	• The competence should be assessed within the context of the qualification being sought
	• The following should be made available:
	  • a workplace or simulated workplace
	  • situations requiring inspections of technical quality
	  • worksite or equivalent instructions on quality working practices and/or standards
	  • computer hardware and software, access to electronic communication
	  • access to information.

Method of assessment	It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality

EVIDENCE GUIDE	
	circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Evidence of being able to: • access, interpret and apply service information • identify inspection requirements • use service tooling and equipment • observe safety procedures and requirements • provide customer service • prepare service reports • communicate with customers orally and in writing • maintain workplace documents.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Quality procedures	Quality procedures may be: • contained in worksite quality system documentation, work instructions, safe work procedures, product specifications, equipment maintenance schedules, technical procedures, and adopted or specifically prepared standards
Quality inspections	Quality inspections may include: • periodic inspection during the job or observation at completion of the job to ensure all ordered parts have been fitted, components used meet manufacturer/component supplier specifications, invoicing complies with service/repair/parts order and contains sufficient details of labour and/or components used, reported and diagnosed problems have been confirmed as rectified via test procedures and presentation of the vehicle or equipment after service/repair meets manufacturer and enterprise standards
Legislative requirements	Legislative requirements may include: • state/territory WHS legislation, manufacturer/ component supplier specifications and safe operating procedures • environmental requirements, manual handling procedures and insurance requirements
Performance indicators	Performance indicators are to account for: • issues of time, quantity, quality and cost factors and may include establishing time targets for own work, identifying reasonable criteria for evaluating own work outcomes, identifying measures to avoid wastage, identifying reasonable criteria to judge internal and/or external customer satisfaction and identifying processes to ensure a 'right first time' approach
Loss and damage incidents	Loss and damage incidents may include: • personal injury, and loss and damage of plant, equipment and materials
Communications	Communications may be: • verbal, written or by telephone or electronic means

RANGE STATEMENT	
Information/documents	Information/documents may include: • manufacturer/component supplier specifications, enterprise operating procedures, supplier directories, parts catalogues, customer orders and industry/workplace codes of practice, material safety data sheets (MSDS) and HAZCHEM information

Unit Sector(s)

Unit sector	Common

Co-requisite units

Not applicable.

Competency field

Competency field	Quality

AURAQA3003 Maintain quality systems

Modification History

Release	Comment
Release 1	Replaces AURC361337A Maintain quality systems Unit code updated to meet policy requirements. Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor Application of the unit added Critical Aspects updated

Unit Descriptor

Unit descriptor	This unit of competency covers the competence to conduct the final quality check on completed work or orders, report on the quality of processes and work outcomes, and implement improvements to work processes. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to the conduct of final quality checks on work/orders,reporting on quality process and implementation of improvements to work processes. This includes seeking input from staff and providing feedback on quality of work.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Conduct final quality check on completed work/orders	1.1. Completed work/orders are checked for compliance with supplier, enterprise or customer specifications 1.2. Level of inspection conducted is appropriate to the size and importance of the job 1.3. Documentation is authorised in accordance with enterprise requirements 1.4. Feedback is provided to staff on the quality of their work with equal emphasis on strengths and weaknesses and opportunities for development
2. Report on the quality of processes and work outcomes	2.1. Documents are kept according to enterprise quality systems on outcomes of quality checks 2.2. Quality problems are identified according to enterprise performance indicators 2.3. Information relating to the quality of processes and work outcomes is provided to appropriate persons on a regular basis
3. Implement improvements to work processes	3.1. Staff input is encouraged to generate possible solutions to quality problems 3.2. Options for solving quality problems are generated and the costs and benefits of each option are evaluated 3.3. Recommended solutions to quality problems are discussed with management 3.4. Improvements to work processes are implemented according to enterprise policies and procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- research and interpretive skills to locate, interpret and apply quality audit policies and procedures
- investigative and analytical skills required for identification and analysis of quality breaches, incidents or risks, and identification of quality related training needs
- English literacy and communication skills in relation to dealing with customers and team members on worksite quality audit issues
- questioning and active listening skills, for example when obtaining information of worksite operational and quality issues
- written communication skills sufficient to prepare reports, document investigations and maintain worksite quality documents
- plan and organise activities for leadership skills required in organising, implementing and promoting worksite quality systems and measures
- work with others and in a team by seeking advice and assistance from team members
- use mathematical ideas and techniques to document quantities and enterprise sampling procedures
- establish diagnostic processes which analyse problems and recommend solutions
- use the workplace technology related to document and analyse quality problems

Required knowledge

Knowledge of:

- quality systems and application techniques in a work environment
- typical loss and damage control systems
- work planning and organisation processes
- workplace health and safety (WHS) regulations/requirements, equipment, material and personal safety requirements at the worksite
- enterprise quality systems and procedures
- worksite information management systems

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment

EVIDENCE GUIDE	
Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • communicating effectively with others involved in or affected by the work • identifying quality system procedures and needs • identifying performance indicators • conducting final quality checks on completed work orders • reporting on the quality of processes and work outcomes • processing and implementing recommendations for change.

Context of and specific resources for assessment	• This unit may be assessed in conjunction with units which form part of the normal job role
	• Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of quality processes and procedures
	• The following should be made available:
	  • a workplace or simulated workplace
	  • situations requiring worksite quality systems maintenance
	  • worksite quality policies and procedures
	  • worksite quality documents system
	  • personnel
	  • materials, tooling and equipment
	  • a qualified workplace assessor.

Method of assessment	It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover the varying circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Quality procedures	Quality procedures may: • be contained in worksite quality system documentation, work instructions, safe work procedures, product specifications, equipment maintenance schedules, technical procedures and adopted or specifically prepared standards
Performance indicators	Performance indicators are to: • account for issues of time, quantity, quality and cost factors and may include establishing time targets for own work, identifying reasonable criteria for evaluating own work outcomes, identifying measures to avoid wastage, identifying reasonable criteria to judge internal and/or external customer satisfaction and identifying processes to ensure a 'right first time' approach
Quality problems	Quality problems may include: • misdiagnosed faults, jobs requiring rework, jobs which do not meet customer requirements and repairs which do not fix the problem within the allocated timeframe
Legislative requirements	Legislative requirements include: • state/territory legislation related to WHS and Australian Design Rules
Communication	Communications may be: • verbal, written or by telephone or other means
Storage of documents	Documents of information are completed and may be stored: • manually, electronically or by other means
Information/documents	Information/documents may include: • vehicle manufacturer practices, enterprise operating procedures, supplier directories, parts catalogues, customer orders and industry/workplace codes of practice, material safety data sheets (MSDS) and HAZCHEM, computer software manuals, bookkeeping procedures, taxation laws and regulations

Unit Sector(s)

Unit sector	Common

Co-requisite units

Not applicable.

Competency field

Competency field	Quality

AURASA2002 Apply safe working practices in an automotive workplace

Modification History

Release	Comment
Release 1	Replaces AURC270103A Apply safe working practices Performance Criteria updated to reflect the automotive workplace

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes to apply basic safety and emergency procedures in order to contribute to a safe workplace for staff, customers and others. The unit involves the safety factors related to the use of automotive workplace hand tools and hand-held power tools, fixed equipment, chemicals, as well as vehicles and their use. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	Work applies to the safety and emergency procedures of automotive workplaces.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Apply basic safety procedures	1.1. Worksite ***policies and procedures*** for safety are followed and maintained while performing work tasks 1.2. Unsafe situations and ***hazards*** in the workplace are recognised and reported according to ***workplace health and safety (WHS) requirements*** and regulations 1.3. Procedure and reporting guidelines for machinery and equipment breakdowns are identified 1.4. Fire and safety hazards are identified and precautions are taken or reported according to workplace policy and procedures 1.5. Storage and handling practices for dangerous goods and substances are identified and applied according to workplace policy, procedures and WHS requirements 1.6. Workplace policy regarding manual handling practice is identified and followed 1.7. Participation in WHS consultative arrangements established by company is exercised
2. Apply emergency procedures	2.1. Worksite policies and ***emergency procedures*** regarding illness or accidents are identified and applied 2.2. Safety alarms are identified 2.3. Fire fighting appliances and equipment are located and identified for emergency use 2.4. Qualified persons are identified for contacting in the event of accident or sickness of customers or staff 2.5. Accident and incident documentation practices are followed according to worksite accident and injury procedures 2.6. Worksite evacuation procedures are identified

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to communicate verbal and written information relating to reporting procedures and unsafe conditions
- initiative and enterprise to:
  - adapt to emerging situations in an automotive workplace
  - identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- literacy skills to:
  - understand workplace safety-related procedures
  - read, interpret and follow information on written instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
- numeracy skills to understand numbers and mathematical
- planning and organising skills to:
  - identify risk factors and take action to minimise risk
  - plan and organise activities which implement and follow standard procedures
- problem-solving skills to:
  - recognise a workplace problem or a potential problem and take action
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - establish diagnostic processes which recommend improvements for WHS issues
- self-management skills to:
  - select and use appropriate safety equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
  - document and report numbers for emergency procedures
  - follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to:
  - work with others and in a team by assisting and cooperating with team members
  - work with diverse individuals and groups
- technical skills to:
  - collect, organise and understand technical information relating to recognising and reporting unsafe situations
- technology skills to use workplace safety-related technology to assist with safe work practices

Required knowledge

- implications for WHS of business operations and customer relations
- common automotive workplace safety terminology

REQUIRED SKILLS AND KNOWLEDGE

- WHS regulations, requirements, equipment and material and personal safety requirements
- safe manual handling theories and practices
- the location and application of fire fighting appliances in the workplace
- dangerous goods and hazardous chemicals handling processes
- workplace reporting procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • communicate effectively with others involved in or affected by the work • identify and assess hazardous situations and rectify, or report to the relevant persons • safely handle and store dangerous and hazardous goods and substances • apply safe manual handling practices • identify fire safety equipment and procedures applicable to emergency situations in an automotive workplace • follow workplace safety, accident, incident and evacuation procedures.

EVIDENCE GUIDE	
Context of and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following should be made available: • workplace location or simulated workplace • worksite or equivalent instructions on safe working practice • hazardous chemicals and dangerous goods information • materials, tools and equipment relevant to an automotive workplace • access to fire fighting appliances and equipment.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Policies and procedures may include:	• hazard policies and procedures • emergency, fire and accident procedures • personal safety procedures • procedures for the use of personal protective clothing and equipment • use of motor vehicles • resolution procedures • job procedures and work instructions • safe working practices • workplace operating procedures.

Workplace health and safety (WHS) requirements:	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures
	• may include:
	  • protective clothing and equipment
	  • use of tools and equipment
	  • handling of material
	  • use of fire-fighting equipment
	  • first aid equipment
	• hazard control, including control of hazardous materials and toxic substances.

Hazards may include:	• sharp cutting tooling and instruments • electricity and water • toxic substances • damaged packing material or containers • broken or damaged equipment • flammable materials and fire hazards • lifting practices • spillages • waste and debris especially on floors, ladders, trolleys.
Emergency procedures may include:	• sickness or accident reporting procedure • fire or workshop evacuation involving staff or customers • environmental incidents • incidents and accidents involving harmful or hazardous

RANGE STATEMENT	
	substances.

Unit Sector(s)

Competency field	Common
Unit sector	Health and Safety

Custom Content Section

Not applicable.

AURATA3004 Provide technical guidance

Modification History

Release	Comment
Release 1	Replaces AURC359554A Provide technical guidance Unit code updated to meet policy requirements. Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the competence required to access and interpret technical information, assist staff with service/repair work, provide technical information to staff, and facilitate continuous education. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit of competency applies to the following and should be contextualised to the qualification to which it is being applied: • retail, service and repair - mechanical/technical.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Assist staff with service/repair work	1.1. Technical guidance, appropriate to skill level and need, is provided to staff when determining the repair/service method 1.2. Staff with advanced technical competence are used as a point of reference 1.3. Technical assistance is provided to staff, to identify difficult faults 1.4. Assistance is provided to staff during work completion, to ensure technical requirements are met 1.5. Potential faults are recognised and precautionary steps are taken to prevent them 1.6. Problems arising from the repair procedure are addressed
2. Provide technical information to staff	2.1. Technical information is made available to staff 2.2. Current technical information is communicated to staff on a regular basis 2.3. Staff are shown how to access, interpret and apply technical information 2.4. A range of information sources is accessed through an established network
3. Facilitate continuous education of self and others	3.1. Sharing of information/knowledge is encouraged to continue expansion of personal and team knowledge 3.2. Training and education opportunities are identified, to meet technical and business needs, and to enhance technical skills of self and staff 3.3. Approval to attend courses is sought from management to ensure current and future technical requirements are met

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to providing technical guidance
- communicate ideas and information to customers and supervisors related to providing technical guidance
- plan and organise activities related to providing technical guidance
- work with others and in a team by seeing and conveying information related to the planning, sequencing and completion of the task
- use mathematical ideas and techniques to count and measure
- establish diagnostic processes that identify methods related to providing technical guidance
- use the workplace technology related to providing technical guidance

Required knowledge

Knowledge of:

- coaching principles
- sources of technical information
- technical training and education options for staff
- technical and technological developments to the sector of the industry in which one is employed

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • accessing and interpreting technical information, assisting staff with service/repair work, providing technical information to staff, and facilitating continuous education.
Context of and specific resources for assessment	• Underpinning knowledge and skills may be assessed on or off the job. • Assessment of practical skills must take place only after a period of supervised practice and repetitive experience. If workplace conditions are not available, assessment in simulated workplace conditions is acceptable. • The prescribed outcome must be able to be achieved without direct supervision. • The following should be made available: • testing equipment and technical information.
Method of assessment	Practical assessments: • effectively communicate with staff • identify sources of technical information for a range of technical problems • identify training and education opportunities for self and staff.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Methods	Methods include: • interpreting technical information and mentoring
Technical requirements for work completion	Technical requirements for work completion may include: • manufacturer/component supplier specification • organisational quality standards • Australian Design Rules • industry standards • recommended repair procedures • precaution notes
Areas of advanced technical competence (mechanical)	Areas of advanced technical competence (mechanical) may include: • engine management systems • automatic transmission control • air conditioning, including climate control • advanced braking systems, including heavy vehicle testing • LPG service and repair • steering alignment (front, rear and 4WS) • advanced steering systems • preparation of race cars (mechanical)
Areas of advanced technical competence (body)	Areas of advanced technical competence (body) may include: • body electronics • advanced welding • advanced colour matching • restoration • panel body alignment • air-conditioning systems (gas and degas) • airbags • preparation of race cars (body)
Information/documents	Information/documents may include: • in-house literature (electronic or paper-based) • experience of others in the organisation

RANGE STATEMENT	

	• other industry contacts (network)
	• spare part representatives
	• insurance assessors
	• industry bodies/associations
	• Australian Design Rules
	• manufacturer/component supplier information
	• technical information may include:
	  • workshop manuals
	  • trade publications
	  • manufacturer/component supplier service bulletins and repair procedures
	  • manufacturer/component supplier specialised training programs

WHS requirements	WHS requirements may include: • state/territory WHS legislation • award provisions

Unit Sector(s)

Unit sector	Common

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURETB3001 Repair electric braking systems

Modification History

Release	Comment
Release 1	Replaces AURE311666A Repair electric braking systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to repair electric braking systems and associated components as fitted to vans and trailers. This unit of competency also applies to electric braking controllers fitted to vehicles and plant and equipment. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, testing of systems and identification of faults/causes, the repair and retesting of systems and associated electric braking system components and completion of work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Work instructions are used to determine job requirements, including method, processes and equipment 1.2. Job specifications are read and interpreted 1.3. WHS requirements, including personal safety needs, are observed throughout the work 1.4. Equipment and tooling are identified and checked for safe and effective operation 1.5. Procedures are determined to minimise task time
2. Test systems/ components and identify faults	2.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 2.2. Tests are carried out to determine faults using tooling and techniques 2.3. Tests are completed without causing damage to any component or system 2.4. Faults are identified and preferred repair action determined 2.5. Tests are carried out according to industry regulations/ guidelines, WHS legislation, statutory legislation and enterprise procedures/policies
3. Repair electric braking systems and/or associated components	3.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 3.2. Necessary repairs, component replacement and adjustments are carried out using tooling, techniques and materials 3.3. Electric braking system and/or associated component repair is completed without causing damage to any component or system 3.4. Retests are carried out to ensure correct and safe electric braking system service operation 3.5. Repairs/removal, replacement and adjustments are carried out according to industry regulations/guidelines WHS legislation, statutory legislation and enterprise/procedures policies 3.6. Workplace and equipment records are completed in accordance with workplace requirements
4. Clean up work area and maintain equipment	4.1. Material that can be reused is collected and stored 4.2. Waste and scrap is removed following workplace procedures 4.3. Equipment and work area are cleaned and inspected for serviceable condition in accordance with workplace procedures

ELEMENT	PERFORMANCE CRITERIA
	4.4. Unserviceable equipment is tagged and faults identified in accordance with workplace requirements 4.5. Maintenance is completed in accordance with manufacturer/component supplier specifications and workplace procedures 4.6. Tooling and equipment is maintained in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to work orders, plans and safety procedures for testing and repairing of electric braking systems
- communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with site supervisor, other workers and customers, and the reporting of work outcomes and problems
- plan and organise activities, including preparation and layout of work site and the obtaining of equipment and materials to avoid any backtracking or workflow interruptions
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use workplace technology related to the repair of electrical braking systems, including the use of specialist tooling and measuring equipment, computerised technology, communication devices and the reporting/recording of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- operating principles of electric braking systems
- construction and operation of electric braking systems/components relevant to application
- types and layout of service/repair manuals (hard copy and electronic)
- pre-repair testing and fault identification procedures
- repair, removal, replacement and adjustment procedures
- post-repair testing procedures
- work organisation and planning processes
- enterprise quality processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • testing a range of electric braking systems • identifying faults and determining repair requirements • repairing a range of electric braking systems to workplace and manufacturer/component supplier requirements • retesting electric braking systems prior to returning to service • completing workplace/equipment documentation.
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated automotive site. Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints. Assessment is to comply with regulatory requirements, including Australian Standards. The following resources should be made available: • workplace location or simulated workplace • materials relevant to the repair of electric braking systems • equipment, hand and power tooling appropriate to the repair of electric braking systems • activities covering the mandatory task requirements • specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of AUR12 Automotive Industry RS&R Training Package • Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge

EVIDENCE GUIDE	
	• Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and must reinforce the integration of key competencies • Assessment may be applied under project related conditions and require evidence of process • Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances • It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Electric braking systems	Electric braking systems may be in light vehicles and plant and equipment fitted with electric van/trailer braking controllers or trailers fitted with electric brakes
Repair methods	Repair methods are to include: • visual, aural and functional assessment (including damage and corrosion) • testing under operating conditions • electrical/electronic testing • removal, dismantling, reassembly and refitting • repair and/or replacement of system components • road testing/retesting prior to placing back into service
WHS requirements	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include: • protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and procedures
Safe operating procedures	Safe operating procedures may include, but are not limited to: • the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but may not be limited to: • emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation

RANGE STATEMENT	
Environmental requirements	Environmental requirements are to include, but are not limited to: • waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to: • regulations, including Australian Standards, company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State and local authorities administering the applicable acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include: • hand tooling, vehicle lifting equipment and testing equipment, including multimeters, power tooling, air tooling, specialist tooling for removal/adjustment and brake decelerometer
Materials	Materials may include: • spare parts, lubricants, fluids and cleaning materials
Communications	Communications are to include, but are not limited to: • verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the repair of electric braking systems • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external personnel • Australian Standards

Unit Sector(s)

Unit sector	Electrical

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Brakes

AURETK2002 Use and maintain automotive electrical test equipment

Modification History

Release	Comment
Release 1	New unit of competency

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to select, safely use and maintain automotive electrical test equipment used in an automotive workplace for the purpose of identifying, diagnosing and rectifying electrical and electronic faults in motor vehicles. Work involves identifying and confirming job requirements; preparing for work; selecting, using, servicing, maintaining and storing automotive electrical testing equipment; and completing work finalisation processes, including clean-up and documentation. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to where equipment used is dedicated to an electrical or electronic diagnosis or repair operation or machine-type function used for electrical system or component repair. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Select equipment suitable to workplace application	1.1. ***Workplace health and safety (WHS) requirements*** and appropriate precautions are identified and applied 1.2. ***Electrical test equipment*** and other suitable equipment is selected for use in the workplace environment according to job and ***workplace requirements*** 1.3. Equipment condition and functionality are confirmed prior to use
2. Use electrical test equipment	2.1. Electrical test equipment is used in a safe manner to prevent injury to self and others 2.2. Electrical test equipment is connected to vehicle or equipment without causing damage as a result of ***inappropriate testing procedures*** 2.3. Workplace ***safe operating procedures*** are followed during the use of test equipment
3. Service and maintain equipment	3.1. Damaged or faulty equipment is tagged and removed from the workplace for repair or replacement and reported according to workplace ***maintenance methods*** 3.2. Test equipment is inspected, serviced, adjusted and/or maintained in line with manufacturer and component supplier schedule within scope of own responsibility 3.3. Servicing and maintenance operations are carried out according to industry regulations and guidelines, WHS requirements and workplace policies and procedures
4. Finalise work processes	4.1. Test equipment is cleaned, inspected and checked 4.2. Test equipment is securely and appropriately stored 4.3. Fixed electrical test equipment is isolated where required 4.4. Documents are completed according to workplace requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- technical skills to:
  - identify types of automotive electrical test equipment
  - select test equipment appropriate to the task
  - use test equipment safely
  - identify and analyse technical information
  - identify test equipment defects
  - store equipment according to manufacturer specifications and standard operating procedures
- communication skills to:
  - follow written and verbal instructions
  - communicate basic information relating to the safe use of electrical test equipment
- literacy skills to:
  - read and follow basic vehicle repair information and electrical test equipment instruction manuals
  - read and follow information on standard operating procedures
- numeracy skills to interpret numbers as a measure of electrical power or resistance
- planning and organising skills to:
  - identify risk factors to minimise risk to self and others
  - contribute to activities that implement and follow standard workplace procedures
- problem-solving skills to:
  - recognise a workplace problem or potential problem
  - refer problems outside area of responsibility to appropriate person
  - identify defects and potential problems with electrical test equipment
- self-management skills to:
  - locate and identify electrical test equipment appropriate to the task
  - recognise limitations and seek timely advice
  - follow basic workplace documentation, such as operating procedures
- teamwork skills to:
  - work with others and in a team by cooperating with team members
  - apply knowledge of own role to support workplace activities and tasks
- technology skills to use workplace technology to assist with work practices

Required knowledge

- WHS regulations, requirements, equipment and material relating to automotive electrical test

REQUIRED SKILLS AND KNOWLEDGE
equipment, including: • personal safety requirements • test equipment safety and operating procedures • test equipment selection procedures • basic maintenance procedures for automotive electrical test equipment • types, characteristics, uses and limitations of automotive electrical test equipment • work organisation and planning processes relating to automotive electrical test equipment • workplace policies and procedures relating to diagnosing electrical faults on vehicles

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • select and safely use personal protective equipment • select and safely use automotive electrical test equipment • undertake basic maintenance and storage of electrical test equipment within scope of own responsibility.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources should be made available: • vehicles and electrical components that can be used to simulate conditions that require use of electrical test equipment and diagnosis of system condition or fault • materials and equipment relevant to the use and maintenance of automotive electrical test equipment • materials and equipment relevant to the secure storage of automotive electrical test equipment • specifications and work instructions.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package.

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	Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Workplace health and safety requirements:	• are to include those prescribed under regulations, codes of practice, and workplace safety policies and procedures
	• may include
	  • personal protective clothing and equipment
	  • emergency shutdown
	  • use of fire-fighting equipment
	  • first aid training and response
	  • hazard control, including control of hazardous materials and toxic substances
	  • site evacuation procedures.

Electrical test equipment may include:	• multimeters • test lights and probes • logic probes • scan tools • load testers • circuit testers • oscilloscopes • computer • ignition module test equipment • alternator or starter test bench • distributor test bench • emissions analysers • leak detectors • fuel system analysers.
Workplace requirements may include:	• Australian standards • engineer's design specifications and instructions • instructions issued by authorised workplace or external persons • material safety data sheets (MSDS) • workplace work specifications and requirements • regulatory and legislative requirements relating to the automotive industry • safe work procedures relating to the use and maintenance of electrical test equipment

RANGE STATEMENT	
	• signage • verbal, written and graphical instructions • work bulletins and memos • work schedules and plans • workplace policies and procedures.

Inappropriate testing procedures may include:	• intrusive testing (which must not be performed as it is not a recommended test and repair method), which includes:
	  • back probing terminals and connectors and fuse holders with inappropriate test probes
	  • probing terminal and connectors with inappropriate test probes
	  • pushing sharp probes and objects into wiring insulation.

Safe operating procedures may include:	• conducting operational risk assessment and treatments associated with vehicle movement • safe use of automotive electrical test equipment • electrical safety • manual and mechanical lifting and shifting • procedures for working in proximity to others and site visitors • safe handling of material.
Maintenance methods may include:	• routine maintenance to test equipment according to schedules • labelling faulty tools and equipment • performing minor electrical test equipment repairs, adjustments or calibration • documenting or tagging equipment as faulty or out-of-service.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Tools and Equipment

Custom Content Section

Not applicable.

AURETR2006 Carry out soldering of electrical wiring and circuits

Modification History

Release	Comment
Release 1	Replaces AURE224008A Carry out soldering of electrical wiring/circuits Unit code updated to meet policy requirements Minor changes to unit title Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence to carry out soldering processes appropriate to electrical components/wiring/circuits. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, soldering and testing of joints and completion of work processes, including clean-up and documentation. Work involves the application of solder in electrical/electronic wiring and circuitry applications. Work requires individuals to demonstrate some judgement and problem-solving skills in safety equipment, soldering techniques, environmental issues, repair procedures and vehicle operational requirements.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Work instructions are used to determine job requirements, including job sheets, quality and quantity of material 1.2. Job specifications are read and interpreted 1.3. WHS requirements, including personal protection needs, are observed throughout the work 1.4. Material for repairs and replacements are selected and inspected for quality 1.5. Correct hand and power tooling and safety equipment are selected and checked for safe use 1.6. Products are determined to minimise waste material 1.7. Procedures are identified for maximising energy efficiency while completing the job
2. Prepare components/ wiring/circuits, tooling and equipment for soldering	2.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 2.2. Materials/components to be joined are cleaned and solder/flux combinations identified 2.3. Soldering equipment is prepared/cleaned 2.4. Preparation is completed without causing damage to vehicle or component 2.5. Preparation activities are carried out according to a standard that meets industry regulations/guidelines, WHS, legislation and enterprise procedures/policies
3. Carry out soldering of components/wiring/ circuits	3.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 3.2. Soldering is completed without causing damage to vehicle or component 3.3. Soldering joint is tested prior to placing into service 3.4. Soldering activities are carried out according to a standard that meets industry regulations/guidelines, WHS, legislation and enterprise policy/procedures
4. Clean up work area and maintain equipment	4.1. Material that can be reused is collected and stored 4.2. Waste and scrap is removed following workplace procedures 4.3. Equipment and work area are cleaned and inspected for serviceable conditions in accordance with workplace procedures 4.4. Unserviceable equipment is tagged and faults identified in accordance with workplace 4.5. Operator maintenance is completed in accordance with

ELEMENT	PERFORMANCE CRITERIA
	manufacturer/component supplier specifications and site procedures 4.6. Tooling is maintained in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to soldering of electrical components/wiring, work orders, plans and safety procedures
- communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with site supervisor, other workers and customers, and the reporting of work outcomes and problems
- plan and organise activities, including preparation and layout of worksite and obtaining of equipment and material to avoid backtracking, workflow interruptions or wastage
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use workplace technology related to soldering of electrical wiring/circuits, including the use of soldering tooling, measuring equipment and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS regulations/requirement, equipment material and personal safety requirements
- fluxes and their application
- types of material, including solder, electrical terminals, wires and circuits
- preparation and soldering procedures
- guidelines regarding acceptable solder tolerance levels to be considered and manufacturer/component supplier specification
- work organisation and planning processes
- enterprise quality processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstance in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • identifying, setting up, operating and maintaining heating equipment and hand tooling • achieving soldering outcome and work quality relevant to application.
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite. Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints. Assessment is to comply with regulatory requirements, including Australian standards. The following resources should be made available: • workplace location or simulated workplace • material relevant to soldering of electrical wiring/circuits • equipment, hand and power tooling appropriate to soldering of electrical wiring/circuits • activities covering mandatory task requirements • specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of AUR12 Automotive Industry RS&R Training Package • Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge • Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also

EVIDENCE GUIDE	
	reinforce the integration of key competencies • Assessment may be applied under project related conditions and require evidence of process • Assessment must confirm a reasonable inference that competence is able to be under the particular circumstance, and is able to be transferred to other circumstances • It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
WHS requirements	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include: • protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to: • the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to: • emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to: • waste management, noise, dust and clean-up management
Quality Requirements	Quality requirements are to include, but are not limited to: • regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include: • federal, state/territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include:

RANGE STATEMENT	
	• hand tooling and soldering equipment, including electric and gas-fired torches
Materials	Materials may include: • cleaning substances, flux and solder
Communications	Communications are to include, but are not limited to: • verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to soldering of electrical wiring/circuits • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Electrical

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Electrical and Electronic

AURETR2009 Install, test and repair vehicle lighting and wiring systems

Modification History

Release	Comment
Release 1	Replaces AURE219331A Install, test and repair low voltage wiring/lighting systems Performance Criteria and Range Statement updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to carry out installation, testing and repair processes to low voltage (LV) vehicle lighting and wiring systems and components. The unit involves identifying and confirming work requirements; preparing for work; installing, testing and repairing LV lighting systems and components; and completing work finalisation processes, including clean-up and documentation. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to the installation of LV lighting and wiring systems that are fitted in light and heavy vehicle, mining, construction, agricultural, motorcycle, outdoor power equipment and marine environments. This work applies to the installation of a light or heavy vehicle rear lighting wiring harness that would typically be required for a vehicle towing a trailer, caravan or boat or a heavy vehicle trailer. It also includes both normal filament lamps and LED lamps that may be fitted to either the vehicle or the trailer. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS)*** requirements are observed throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. Installation options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. ***Tools and equipment*** are identified for effective installation and testing procedures
2. Install and test lighting and wiring systems	2.1. ***Low voltage lighting and wiring systems*** are installed according to manufacturer and component supplier specifications without causing damage to components or systems as a result of ***inappropriate testing procedures*** 2.2. Tests are carried out to determine ***faults*** using tools and diagnostic techniques 2.3. Preferred ***repair options*** are determined and carried out 2.4. ***Post-repair testing*** is carried out according to workplace procedures
3. Prepare vehicle and equipment for delivery to customer after repair is completed	3.1. Final inspection is made to ensure work is to workplace expectations 3.2. Vehicle is cleaned to workplace expectations and presented ready for use 3.3. Workplace documentation is processed according to workplace procedures
4. Clean up work area and maintain equipment	4.1. Material that can be reused is collected and stored 4.2. Waste and scrap are removed following workplace procedures 4.3. Equipment and work area are cleaned and inspected for serviceable condition according to workplace procedures 4.4. Faulty equipment is identified, tagged and isolated according to workplace procedures 4.5. Operator maintenance is completed according to manufacturer and component supplier specifications and site procedures 4.6. Tools and equipment are maintained according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- literacy skills to:
  - read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document required repairs and parts
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise them
- problem-solving skills to:
  - recognise a workplace problem or potential problem and take action
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
  - follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace technology and tools relating to installing and testing vehicle LV lighting and wiring systems and components, including:
  - specialist tools and equipment
  - electrical measuring equipment
- technology skills to:
  - operate a range of electrical diagnostic test equipment
  - use technology to collect, analyse and provide information

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

- WHS regulations, requirements, equipment, material and personal safety requirements, including:
  - codes of practice
  - personal protection needs
- wiring harness and loom fabrication techniques
- procedures for removing and replacing wiring harnesses and looms
- soldering procedures and techniques
- cable types and sizes and current carrying capacity
- various types of wiring systems found in vehicles, including:
  - basic wiring
  - twisted pair
  - shielded wiring
  - computer area network databus (CAN-bus) networks
- techniques for reading and interpreting technical information, wiring diagrams and graphic symbols
- diagnostic and testing procedures, including:
  - testing procedures for LV lighting and wiring installations, including:
    - following manufacturer and component suppliers' test procedures
    - following original equipment manufacturer (OEM) service information
  - analysis of system operation using basic electrical test equipment and other industry-relevant test equipment
  - visual, aural and functional assessments, including:
    - component damage and wear
    - component corrosion
    - water and moisture ingress
- repair procedures, including:
  - component removal and replacement procedures
  - component and associated system adjustment procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • read and interpret low voltage lighting wiring diagrams • install low voltage lighting and wiring systems to specification • retrofit LED lamps where filament lamps were originally installed • repair low voltage lighting and wiring to specification • test low voltage lighting and wiring to determine short circuits, open circuits, and earthing and ground faults • test lighting wiring harness and looms and locate faults • perform electrical connections, including crimping and soldering • remove and replace lighting wiring harness and looms • conduct installation according to workplace, manufacturer and component supplier requirements • accurately interpret test results • present vehicle and equipment in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant:

EVIDENCE GUIDE	

	• regulatory requirements
	• Australian standards
	• industry codes of practice.
	
	The following resources must be made available for the assessment of this unit:
	
	• workplace location or simulated workplace
	• material relevant to the installation of low voltage lighting and wiring systems and components
	• equipment, and hand and power tools appropriate to:
	  • installing low voltage lighting and wiring components
	  • retrofitting LED low voltage lighting and wiring components where filament lamps were originally fitted
	• specifications and work instructions.

Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• electronic or hard copy instructions • verbal instructions • written instructions.
Job requirements may include:	• diagnosis and repair methods, processes and equipment.
Workplace health and safety requirements may include:	• personal protective clothing and equipment • hazards associated with high voltage ignition systems • safe use of tools and equipment • safe handling of material • use of fire-fighting equipment • workplace safety policies and procedures • workplace first aid • hazard control, including control of hazardous materials and toxic substances.
Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins and memos • material safety data sheets • diagrams and sketches • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • engineer's design specifications and instructions • workplace work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • vehicle service requirements and repair manuals.
Tools and equipment may include:	• hand tools • testing equipment, including multimeters and ohmmeters • insulation testers • crimping tools • soldering iron

RANGE STATEMENT	
	• heat-gun or blower • wire and cabling of various colours and sizes • heat shrink sleeving and flexible conduit • terminals and connectors • electrical tape.

Low voltage lighting and wiring systems may include:	• basic single wiring:
	  • tailer wiring harness
	  • driving lights wiring harness
	  • side clearance lamps
	  • high-mount rear brake lamps
	  • ascent strip LED lamps
	  • filament lamp to LED lamp replacement.

Inappropriate testing procedures may include:	• intrusive testing (which must not be performed as it is not a recommended test and repair method), which includes:
	  • back probing terminals and connectors and fuse holders with inappropriate test probes
	  • probing terminal and connectors with inappropriate test probes
	  • pushing sharp probes and objects into wiring insulation.

Faults may include:	• open circuits • high resistance circuits • short circuits • damaged insulation • frayed wires • burnt wiring • water and moisture ingress • connector damage • terminal damage • diagnosis trouble codes (DTC) being set as a result of LED lamp resistance being lower than original resistive filament lamp load.

Repair options may include:	• pre- and post-repair testing
	• identifying and testing components
	• diagnosing and determining faults
	• component repair procedures, including:
	  • removal, replacement and adjustment procedures
	  • dismantle, repair, reassembly and adjustment procedures
	• electrical measurements
	• visual and functional assessments, including for damage and wear.

RANGE STATEMENT	
Post-repair testing may include:	• validating effectiveness of the repair action • confirming that reported fault has been rectified • confirming that no other faults are present as a result of the repair action.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Electrical and Electronic

Custom Content Section

Not applicable.

AURETR2011 Install and test basic ancillary electrical components

Modification History

Release	Comment
Release 1	Replaces AURE219531A Install ancillary electrical components Performance Criteria and Range Statement updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to install and test basic vehicle ancillary electrical components that do not require programming procedures to connect and interface them with the vehicle computer area network databus (CAN-bus) network. The unit also involves identifying and confirming work requirements, preparing for work, and completing work finalisation processes, including clean-up and documentation. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to the installation and testing of basic ancillary electrical components that are fitted in light and heavy vehicle, mining, construction, agricultural, motorcycle, outdoor power equipment and marine environments. Basic ancillary electrical components include driver interlocks; remote keyless entry and security alarm systems; audio systems; mobile phones; speed alert and navigation systems; reverse parking aids, including audible alerts and cameras; and driver gauges and instruments. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. ***Installation options*** are analysed and those most appropriate to the circumstances are selected and prepared 1.5. ***Tools and equipment*** are identified for effective installation and testing procedures
2. Install and test fitted components	2.1. ***Basic ancillary electrical equipment*** is installed and tested according to manufacturer and component supplier specifications without causing damage to components or systems as a result of ***inappropriate testing procedures*** 2.2. Tests are carried out to identify faults using tools and diagnostic techniques 2.3. Preferred ***repair action*** is determined and carried out 2.4. Post-repair testing is carried out according to workplace procedures
3. Prepare vehicle and equipment for delivery to customer after repair is completed	3.1. Final inspection is made to ensure work is to workplace expectations 3.2. Vehicle is cleaned to workplace expectations and presented ready for use 3.3. Workplace documentation is processed according to workplace procedures
4. Clean up work area and maintain equipment	4.1. Material that can be reused is collected and stored 4.2. Waste and scrap are removed following workplace procedures 4.3. Equipment and work area are cleaned and inspected for serviceable condition according to workplace procedures 4.4. Faulty equipment is identified, tagged and isolated according to workplace procedures 4.5. Operator maintenance is completed according to manufacturer and component supplier specifications and site procedures 4.6. Tools and equipment are maintained according to workplace procedure

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- literacy skills to:
  - read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document required repairs and parts
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
  - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise them
- problem-solving skills to:
  - recognise a workplace problem or potential problem and take action
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
  - follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace technology and tools relating to installing and testing basic ancillary electrical components in vehicles, including:
  - specialist tools and equipment
  - electrical measuring equipment
- technology skills to:
  - operate a range of electrical diagnostic test equipment
  - use technology to collect, analyse and provide information

Required knowledge

- WHS regulations, requirements, equipment, material and personal safety requirements,

REQUIRED SKILLS AND KNOWLEDGE

including:

- codes of practice
- personal protection needs

- basic ancillary component and systems installation and testing procedures, including resistance and voltage drop and circuit performance checks
- correct cable types and sizes and current carrying capacity
- various types of wiring systems found in vehicles, including:
  - basic wiring
  - twisted pair
  - shielded wiring
  - CAN-bus networks
- techniques for reading and interpreting technical information, wiring diagrams and graphic symbols
- diagnostic and testing procedures, including:
  - testing procedures for basic ancillary electrical installations, including:
    - following manufacturer and component suppliers' test procedures
    - following original equipment manufacturer (OEM) service information
  - analysis of system operation using basic electrical test equipment and other industry-relevant test equipment
  - visual, aural and functional assessments, including:
    - component damage and wear
    - component corrosion
    - water and moisture ingress
- repair procedures, including:
  - component removal and replacement procedures
  - component and associated system adjustment procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • read and interpret vehicle wiring diagrams • install basic ancillary electrical components to specification • test basic ancillary electrical components to determine short, open, high resistance between power, signal and ground circuits • test electrical wiring harnesses and looms and locate possible faults • conduct installation according to workplace, manufacturer and component supplier requirements • accurately interpret test results • present vehicle and equipment in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment

EVIDENCE GUIDE	
	of this unit: • workplace location or simulated workplace • materials relevant to the installation of basic ancillary electrical components that could be fitted to a range of vehicles • equipment, and hand and power tools appropriate to installing basic ancillary electrical components • specifications and work instructions.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• electronic or hard copy instructions • verbal instructions • written instructions.
Job requirements may include:	• diagnosis and repair methods, processes and equipment.
Workplace health and safety requirements may include:	• personal protective clothing and equipment • hazards associated with high voltage ignition systems • safe use of tools and equipment • safe handling of material • use of fire-fighting equipment • workplace safety policies and procedures • workplace first aid equipment • hazard control, including control of hazardous materials and toxic substances.
Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins and memos • material safety data sheets • diagrams and sketches • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • engineer's design specifications and instructions • workplace work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • vehicle service requirements and repair manuals.
Installation options may include:	• OEM and workplace instructions • equipment manufacturer and/or supplier instructions • aftermarket accessory instructions • visual inspection and evaluation of components.
Tools and equipment may	• hand tools

RANGE STATEMENT	
include:	• testing equipment, including multimeters and ohmmeters • insulation testers • crimping tools • soldering iron • heat-gun or blower • wire and cabling of various colours and sizes • heat shrink sleeving and flexible conduit • terminals and connectors • electrical tape.
Basic ancillary electrical equipment may include:	• driver interlocks • remote keyless entry • security alarm systems • audio systems • mobile phones • speed alert systems • navigation systems • reverse parking aids, including sensors, audible alerts and cameras • driver gauges and instruments.
Inappropriate testing procedures may include:	intrusive testing (which must not be performed as it is not a recommended test and repair method), which includes: • back probing terminals and connectors and fuse holders with inappropriate test probes • probing terminal and connectors with inappropriate test probes • pushing sharp probes and objects into wiring insulation.
Faults may include:	• open circuits • short circuits • high resistance circuits • damaged insulation • frayed wires • burnt wiring • connector damage • terminal damage • diagnosis trouble codes (DTC) being set.
Repair options may include:	• pre- and post-repair testing • identifying and testing components • diagnosing and determining faults • component repair procedures, including:

RANGE STATEMENT	
	• removal, replacement and adjustment procedures • dismantle, repair, reassembly and adjustment procedures • electrical measurements • visual and functional assessments, including for damage and wear.
Post-repair testing may include:	• validating effectiveness of the repair action • confirming that reported fault has been rectified • confirming that no other faults are present as a result of the repair action.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Electrical and Electronic

Custom Content Section

Not applicable.

AURETR2012 Test and repair basic electrical circuits

Modification History

Release	Comment
Release 1	Replaces AURE218708A Carry out repairs to single electrical circuits Performance Criteria and Range Statement updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to test and carry out repairs to basic electrical circuits in an automotive retail, service or repair environment. The unit also involves identifying and confirming work requirements, preparing for work, identifying faults and potential causes, repairing and replacing basic circuit components, and completing work finalisation processes, including clean-up and documentation. It includes replacing fuses, circuit breakers, lamps, switches, terminals and connectors; and basic wiring repairs. It includes the following fault types: open circuits, short circuits and high resistance circuits to power, signal and ground paths. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to testing and repairing basic electrical circuits in light and heavy vehicle, mining, construction, agricultural, motorcycle, outdoor power equipment and marine environments. It applies to circuits in an automotive retail, service or repair environment. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment within the scope of this unit.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. ***Tools and equipment*** are identified for effective testing and repair procedures
2. Test basic electrical circuits and identify faults	2.1. ***Basic electrical circuits*** are visually checked to establish the extent of failure or damage, applying knowledge of electrical fundamentals 2.2. ***Options for diagnosing faults*** are identified and used, using appropriate tools and diagnostic techniques 2.3. Inspection and testing are undertaken without causing damage to components or systems as a result of ***inappropriate testing procedures*** 2.4. ***Faults*** are identified from test results and causes of faults are determined 2.5. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Complete repairs to basic electrical circuits	3.1. ***Repair options*** are analysed and those most appropriate are selected 3.2. Appropriate tools, repair techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage, according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is conducted and results are documented according to workplace procedures
4. Prepare vehicle and equipment for delivery to customer after repair is completed	4.1. Final inspection is made to ensure work is to workplace expectations 4.2. Vehicle is cleaned to workplace expectations and presented ready for use 4.3. Workplace documentation is processed according to workplace procedures
5. Clean up work area and maintain equipment	5.1. Material that can be reused is collected and stored 5.2. Waste and scrap are removed following workplace procedures

	5.3. Equipment and work area are cleaned and inspected for serviceable condition according to workplace procedures 5.4. Faulty equipment is identified, tagged and isolated according to workplace procedures 5.5. Operator maintenance is completed according to manufacturer and component supplier specifications and site procedures 5.6. Tools and equipment are maintained according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to apply learning when testing and repairing basic electrical circuits
- learning skills to identify sources of information, assistance and expert knowledge to expand skills, knowledge and understanding
- literacy skills to:
  - read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document work performed
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
- planning and organising skills to ensure tasks are completed within an acceptable time frame
- problem-solving skills to seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - follow workplace documentation, such as codes of practice and operating procedures
- technical skills to use workplace technology and tools to test and repair basic electrical circuits and components in vehicles, including:
  - specialist tools and equipment
  - electrical measuring equipment
- technology skills to:
  - operate a range of electrical diagnostic test equipment
  - use technology to collect, analyse and provide information

Required knowledge

- WHS regulations, requirements, equipment and material relating to testing and repairing electrical circuits, including personal safety requirements
- electrical principles, including:
  - current, voltage, resistance and power
  - series circuits
  - parallel circuits

REQUIRED SKILLS AND KNOWLEDGE

- series and parallel circuits
- Ohm's law
- basic electrical circuit components, including:
  - cable types and sizes and current carrying capacity
  - circuit protection devices
  - switches
  - relays
  - automotive globes
- techniques for reading and interpreting technical information, including circuit types, diagrams and symbols
- types and operation of electrical testing equipment, including:
  - digital multimeters
  - test lights and probes
- electrical measuring and testing procedures, including:
  - resistance and voltage drop tests
  - open and short circuit tests
  - inspecting for component moisture ingress and connector damage
- repair procedures of electrical circuits, including:
  - wire soldering procedures
  - terminal crimping
  - removal and replacement procedures for basic electrical components

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • read and interpret circuit wiring diagrams • test basic electrical circuits to determine short, open and high resistance between power, signal and ground paths • demonstrate understanding of the principle of current flow in a simple circuit and voltage drop across a resistive load • test and repair basic wiring harnesses and looms to manufacturer specifications • perform electrical connections, including crimping and soldering to manufacturer specification • perform a terminal retention check following replacement of terminals in a wiring connector • accurately interpret test results • present vehicle and equipment in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards

EVIDENCE GUIDE	
	• industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • material relevant to testing and repairing basic electrical circuits and components • equipment, and hand and power tools appropriate to testing and repairing basic electrical circuits and components • specifications and work instructions.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• electronic or hard copy instructions • verbal instructions • written instructions.
Job requirements may include:	• testing and repair methods, processes and equipment.
Workplace health and safety requirements may include:	• personal protective clothing and equipment • hazards associated with high voltage ignition systems • safe use of tools and equipment • safe handling of material • use of fire-fighting equipment • workplace safety policies and procedures • workplace first aid equipment • hazard control, including control of hazardous materials and toxic substances • identifying hazards associated with soldering processes • identifying hazards associated with working with vehicle supplementary restraint systems (SRS).
Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins and memos • material safety data sheets • diagrams and sketches • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • engineer's design specifications and instructions • workplace work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • vehicle service requirements and repair manuals.
Tools and equipment may include:	• hand tools • digital multimeters

RANGE STATEMENT	
	• test lights and probes • insulation testers • crimping tools • soldering iron • heat-gun or blower • wire and cabling of various colours and sizes • heat shrink sleeving and flexible conduit • terminals and connectors • electrical tape.
Basic electrical circuits may include:	• basic single wire circuits (non CAN-bus networked circuits) • door ajar switch interior courtesy light • battery B+ to fuse panel • accessory B+ to lighter or accessory socket • heated rear demister • interior lighting • exterior lighting • rear brake lighting • wiper and washer • electric engine cooling fan.
Options for diagnosing faults may include:	• verification of fault • continuity testing • insulation testing • isolation of faults • replacement of blown fuses • replacement of blown globes and lamps • replacement of damaged terminals and connectors • visual inspection and evaluation of components.

Inappropriate testing procedures may include:	• intrusive testing (which must not be performed as it is not a recommended test and repair method), which includes:
	  • back probing terminals and connectors and fuse holders with inappropriate test probes
	  • probing terminal and connectors with inappropriate test probes
	  • pushing sharp probes and objects into wiring insulation.

Faults may include:	• open circuits • high resistance circuits • short circuits • damaged insulation • frayed wires • burnt wiring

RANGE STATEMENT	
	• water and moisture ingress • connector damage • terminal damage • diagnosis trouble codes (DTC) being set.

Repair options may include:	• pre- and post-repair testing
	• identifying and testing components
	• diagnosing and determining faults
	• component repair procedures, including:
	  • removal, replacement and adjustment procedures
	  • dismantle, repair, reassembly and adjustment procedures
	• electrical measurements
	• visual and functional assessments, including for damage and wear.

Post-repair testing may include:	• validating the effectiveness of the repair action • confirming that reported fault has been rectified • confirming that no other faults are present as a result of the repair action.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Electrical and Electronic

Custom Content Section

Not applicable.

AURETR2015 Inspect and service batteries

Modification History

Release	Comment
Release 1	Replaces AURE218670A Service, maintain or replace batteries Performance Criteria and Range Statement updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to inspect and service batteries. The unit involves identifying and confirming work requirements, preparing for work, testing batteries, analysing test results, servicing and maintaining batteries, and completing work finalisation processes, including clean-up and documentation. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	Work applies to light and heavy vehicle, mining, construction, agricultural, motorcycle, outdoor power equipment and marine environments. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to inspect battery	1.1. Nature and scope of work requirements are identified and confirmed 1.2. ***Workplace health and safety (WHS) requirements***, including state and territory regulatory requirements, and ***personal protective equipment (PPE)*** needs, are observed throughout the work 1.3. ***Safe operating procedures*** and information are sourced 1.4. Technical requirements necessary for inspection are sourced, and tools, ***equipment*** and ***materials*** are identified and prepared
2. Test battery	2.1. Test methods are implemented according to workplace procedures and manufacturer and component supplier specifications 2.2. Test results are compared with manufacturer and component supplier specifications 2.3. Results are documented with evidence, and supporting information is recorded 2.4. Test results and findings are communicated to the appropriate workshop personnel for replacement or repair action
3. Carry out service and maintenance to battery	3.1. ***Service and maintenance methods*** are carried out according to workplace procedures and manufacturer and component supplier specifications 3.2. Electrolyte levels are checked and topped up where appropriate according to service and maintenance methods 3.3. Battery terminals and connection to vehicle wiring are inspected 3.4. Condition is reported to persons responsible for repair action 3.5. Batteries and terminals are cleaned according to service and maintenance methods
4. Prepare vehicle and equipment for delivery to customer after service is completed	4.1. Final inspection is made to ensure work is to workplace expectations 4.2. Vehicle is cleaned to workplace expectations and presented ready for use 4.3. Workplace documentation is processed according to workplace procedures
5. Clean up work area and maintain equipment	5.1. Work schedule and job card documentation are completed 5.2. Equipment and work area are cleaned and inspected for

ELEMENT	PERFORMANCE CRITERIA
	serviceable condition according to workplace procedures 5.3. Faulty equipment is identified, tagged and isolated according to workplace procedures 5.4. Tools and equipment are maintained according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - communicate basic information relating to battery safety
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to:
  - participate in self-improvement activities
  - recognise a workplace problem or potential problem
- literacy skills to:
  - read and interpret technical information relating to recognising and reporting unsafe situations
  - read, understand and follow battery inspection and maintenance information
  - read, understand and follow information on standard operating procedures and repair guidelines
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired battery performance
- planning and organising skills to:
  - identify risk factors to minimise risk to self and others
  - contribute to activities that implement standard workplace procedures
- problem-solving skills to refer problems outside area of responsibility to appropriate person
- self-management skills to:
  - locate and identify appropriate tools and equipment
  - locate technical information
  - recognise limitations and seek timely advice
- teamwork skills to:
  - work with others and in a team by cooperating with team members
  - work with diverse individuals and groups
- technical skills to:
  - select tools and equipment appropriate to inspecting, servicing and maintaining batteries in light and heavy vehicles, mobile plant and mining vehicles
  - use battery servicing and testing tools and equipment safely
  - maintain tools and equipment using appropriate techniques and standard operating procedures
- technology skills to use workplace technology to:

REQUIRED SKILLS AND KNOWLEDGE
• assist with work practices • inspect, service and maintain battery storage systems, including use of specialist tools, measuring equipment and communication devices • report and document inspection and servicing results
Required knowledge
• WHS and environmental regulations, requirements, equipment, material and personal safety requirements to ensure batteries are maintained, handled and disposed of in an environmentally sustainable manner • battery service and maintenance procedures • battery testing methods • dangers of working with battery testing equipment • operating principles and layout of vehicle battery storage systems • original equipment manufacturer (OEM) specific procedures for inspecting maintenance-free batteries • workplace quality procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • inspect, service and maintain battery storage systems in light and heavy vehicle, mining, construction, agricultural, motorcycle, outdoor power equipment and marine environments according to manufacturer and component supplier and site requirements • inspect, service and maintain at least three different types of batteries according to manufacturer and site requirements • complete workplace documents.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace that best reflects a light or heavy vehicle service facility or environment • material relevant to inspecting, servicing and maintaining

EVIDENCE GUIDE	
	battery storage systems • equipment, and hand and power tools appropriate to servicing and maintaining batteries • specifications and work instructions.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace health and safety requirements may include:	• personal protective clothing and equipment • safe use of tools and equipment • safe handling of potentially hazardous material and substances • use of fire-fighting equipment • first aid training and response • control of hazards and hazardous materials.
Personal protective equipment may include:	• safety glasses • protective clothing • gloves.
Safe operating procedures may include:	• conducting operational risk assessment • treatments associated with vehicle movement • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • procedures for working in proximity to others and site visitors.
Tools and equipment may include:	• hand tools • load testing devices • hydrometer • multimeter.
Materials may include:	• battery consumables • cleaning materials.
Service and maintenance methods may include:	• inspecting battery and leads • inspecting battery securing system • cleaning battery and battery compartments • topping battery fluid • testing battery with a hydrometer.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Electrical and Electronic

Custom Content Section

Not applicable.

AURETR3020 Repair electronic systems

Modification History

Release	Comment
Release 1	Replaces AURE321066A Repair electronic systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence to carry out repairs to electronically controlled systems, including aftermarket accessories, wipers, windows, lighting, turning indicators, hazard lights, door locks and fan blowers. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, testing of systems and identification of faults/causes, repair and retesting of electronic systems and completion of work finalisation processes, including clean-up and documentation. For minor electrical repairs see AURETR2012 Test and repair basic electrical circuits. For general electrical repairs see AURETR3032 Repair electrical systems. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Work instructions are used to determine job requirements, including method, process and equipment 1.2. Job specifications are read and interpreted 1.3. WHS requirements, including personal safety needs, are observed throughout the work 1.4. Equipment and tooling are identified and checked for safe and effective operation 1.5. Procedures are determined to minimise task time
2. Test systems/ components and identify faults	2.1. Correct information is accessed and interpreted from manufacturer/component supplier specification 2.2. Tests are carried out to determine faults using tooling and techniques 2.3. Systems/components are tested without causing damage to component or system 2.4. Faults are identified and preferred repair action determined 2.5. Tests are carried out according to industry regulations/ guidelines, WHS, legislation and enterprise procedures/policies
3. Repair electronic systems	3.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 3.2. Repairs, component replacement and adjustments are carried out using tooling, techniques and materials 3.3. Repairs to electronic systems are completed without causing damage to component or system 3.4. Electronic systems are tested and results are documented in accordance with workplace policies and procedures 3.5. Repairs and tests are carried out according to industry regulations/guidelines, WHS, legislation and enterprise procedures/policies 3.6. Workplace and equipment documents are completed in accordance with site requirements
4. Clean up work area and maintain equipment	4.1. Material that can be reused is collected and stored 4.2. Waste and scrap is removed following workplace procedure 4.3. Equipment and work area are cleaned and inspected for serviceable condition in accordance with workplace procedures 4.4. Unserviceable equipment is tagged and faults identified in accordance with workplace requirements 4.5. Operator maintenance is completed in accordance with

ELEMENT	PERFORMANCE CRITERIA
	manufacturer/component supplier specifications and site procedures 4.6. Tooling and equipment is maintained in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to work orders, plans and safety procedures for circuit and component testing, and major repairs/component replacement
- technical literacy and communication skills sufficient to interpret and apply common industry terminology, and interpret technical information and specifications
- research and interpretive skills to locate, interpret and apply operational and safety information
- communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with site supervisor, other workers and customers, and the reporting of work outcomes and problems
- plain English literacy and communication skills in relation to dealing with others involved in the work
- questioning and active listening skills, for example when obtaining information of electronic circuit/component testing, servicing and replacement procedures
- plan and organise activities, including preparation and layout of worksite and obtaining of equipment and material to avoid backtracking or workflow interruptions
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- use mathematical ideas and techniques to correctly complete tests and measurements to determine electronic circuit/component major repair/replacement requirements
- use pre-checking and inspection techniques to anticipate planning and scheduling problems, avoid wastage of time and material
- manipulative and dexterity skills to perform electronic testing, and repair/replacement procedures
- problem-solving skills for a range of procedural issues
- use workplace technology related to the repair of electronic systems, including the use of specialist tooling and equipment, measuring equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- operation of electronic control systems/components
- operation of solid state devices
- types and layout of service/repair manuals (hard copy and electronic)
- procedures for the repair/replacement of electronic systems/components
- testing and diagnosis procedures for electronic system/component faults
- input/output measurement techniques
- work organisation and planning processes

REQUIRED SKILLS AND KNOWLEDGE
• enterprise quality processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • testing and identifying faults in electronic systems • testing inputs and outputs to electronic systems • repairing/replacing electronic systems/components to site and manufacturer/component supplier requirements • completing workplace and equipment documents.
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite. Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints. Assessment is to comply with regulatory requirements, including Australian Standards. The following resources should be made available: • workplace location or simulated workplace • material relevant repairing electronic systems • equipment, hand and power tooling appropriate to the repair of electronic systems • activities covering mandatory task requirements • specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of the Automotive Industry RS&R Training Package • Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge • Assessment must be by direct observation of tasks, with

EVIDENCE GUIDE	
	questioning on underpinning knowledge and it must also reinforce the integration of key competencies • Assessment may be applied under project related conditions and require evidence of process • Assessment must confirm a reasonable inference that competence is able to be under the particular circumstance, and is able to be transferred to other circumstances • It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Electronically controlled systems	Electronically controlled systems may include: • accessories, wipers, windows, lighting, turning indicators, hazard lights, door locks, fan blowers and cruise control
Fittings	Electronically controlled systems may be fitted to light vehicles and/or plant and equipment and/or heavy commercial vehicles
Faults	Faults may include: • electrical/electronic unit faults, wire repair/replacement, open circuits, short circuits and earthing
Fault finding methods	Fault finding methods are to include: • electrical measurements, fault finding using aural, visual and functional assessments for damage, corrosion, wear and electrical defects, reading/interpreting wiring diagrams, diagnosing and determining faults, soldering, crimping, repairing components and wiring and remove/replace components
Critical precautions	Critical precautions, including manufacturer/component supplier procedures, must be applied as poor working practices are likely to damage electronic system ECUs and/or other components
WHS requirements	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include: • protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to: • the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances,

RANGE STATEMENT	
	electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but may not be limited to: • emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include, but are not limited to: • waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to: • regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include: • federal, state/territory and local authorities administering the acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include: • hand tooling, testing equipment, including multimeters, power tooling, air tooling, specialist tooling for removal/adjustment, manufacturer/component supplier diagnostic tooling, oscilloscopes and scan tooling
Materials	Materials may include: • spare parts, lubricants and cleaning material
Communications	Communications are to include, but are not limited to: • verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the repair of electronic systems • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules, Environment Protection Regulations (Diesel Fuels), National Environment Protection for Diesel Vehicle Guidelines • engineer's design specifications and instructions

RANGE STATEMENT	
	• organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Electrical

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Electrical and Electronic

AURETR3021 Inspect, service and repair electronic management, monitoring and tracking systems

Modification History

Release	Comment
Release 1	Replaces AURE321971A Inspect, service and repair electronic management, monitoring and tracking systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence to carry out inspection, service and repair of electronic monitoring, management and tracking systems in rural and resources industry plant, machinery and equipment. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, conduct of inspection and identification of servicing/repair requirements, completion of servicing and repair of systems and completion of work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to undertake inspection	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual state/territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and/or calibration requirements for inspection are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with electronic systems are observed
2. Conduct inspection and analyse results	2.1. Methods for the conduct of inspection are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Inspection results are compared with manufacturer/component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is forwarded to persons for action in accordance with workplace procedures
3. Prepare to service/repair systems	3.1. WHS requirements, including individual state/territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information are identified and sourced 3.3. Technical and tool requirements for service are identified and support equipment is identified and prepared
4. Carry out service and repairs to systems	4.1. Methods for the conduct of service and repair are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 4.2. All adjustments made during the service and repair are in accordance with manufacturer/component supplier specifications
5. Prepare equipment for delivery to customer and/or storage	5.1. Service/repairs schedule documentation is completed 5.2. Final inspection is made to ensure protective features are in place and work is to workplace expectations 5.3. Equipment is cleaned and/or stored to workplaces

ELEMENT	PERFORMANCE CRITERIA
	expectations 5.4. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- analytical skills for identification and analysis of technical information
- plain English literacy and communication skills in relation to dealing with customers and team members
- questioning and active listening skills for example when obtaining information from customers
- oral communication skills sufficient to convey information and concepts to customers
- plan and organise activities as applied to work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- work with others and in a team by interacting effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and desired solution are clearly evident and in situations requiring critical thinking and a creative approach to achieve an outcome
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the inspection and service/repair of electronic tracking systems, including the use of specialist tooling and equipment, measuring equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- types, characteristics, applications and limitations of electronic management, monitoring and tracking systems
- operating principles of systems and their relationship to each other
- inspection procedures
- service and/or repair procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • accurately interpreting inspection results • conducting the inspection, service and repair of a range of electronic management systems in accordance with workplace and manufacturer/component supplier requirements • conducting the inspection, service and repair of at least one electronic monitoring and/or tracking system in accordance with workplace and manufacturer/ component supplier requirements • completing service and repair of systems within workplace timeframes • presenting equipment to customer in compliance with workplace requirements.
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite. Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints. Assessment is to comply with regulatory requirements, including Australian Standards. The following resources should be made available: • workplace location or simulated workplace • material relevant to the inspection and service/repair of electronic management, monitoring and tracking systems • equipment, hand and power tooling appropriate to the inspection and service/repair of electronic management, monitoring and tracking systems

EVIDENCE GUIDE	
	• activities covering mandatory task requirements • specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of AUR12 Automotive Industry RS&R Training Package • Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge • Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies • Assessment may be applied under project related conditions and require evidence of process • Assessment must confirm a reasonable inference that competence is able to be under the particular circumstance, and is able to be transferred to other circumstances • It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Electronic management, **monitoring and tracking systems**	Electronic management, monitoring and tracking systems refer to: • systems which control integration and operation of sub-systems which make up rural and resources industry plant, machinery and equipment
Rural and resources industries	Rural and resources industries refer to: • specialist agricultural, mining and civil engineering sectors
WHS requirements	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include: • protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to: • the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but may not be limited to: • emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include, but are not limited to: • waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to: • regulations, including Australian Standards, internal company

RANGE STATEMENT	
	quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include: • federal, state/territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include: • internal and external computerised diagnostic systems and tooling, hand tooling, meters, gauges and load testing, pulling and pushing devices
Materials	Materials may include: • repair parts, adhesives and cleaning material
Communications	Communications are to include, but are not limited to: • verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the inspection and service/repair of electronic management, monitoring and tracking systems • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Electrical

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Electrical and Electronic

AURETR3022 Diagnose and repair vehicle dynamic control systems

Modification History

Release	Comment
Release 1	Replaces: • AURE321671A Service and repair electronically operated stability control systems • AURE321571A Service and repair electronically operated traction control systems • AURE321471A Service and repair electronically controlled anti-lock braking systems Performance Criteria and Range Statement updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair vehicle dynamic control systems in light and heavy vehicles. It involves diagnosing deviations from correct operation, repairing dynamic control system components and associated systems, and undertaking post-repair testing procedures. The unit also involves identifying and confirming work requirements, preparing for work, and completing work finalisation processes, including clean-up and documentation. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to vehicle dynamic control systems fitted to light and heavy vehicles. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose vehicle dynamic control systems	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. ***Options for diagnosing faults*** are identified and used, using appropriate tools and diagnostic techniques 1.5. ***Tools and equipment*** are identified for effective repair methods
2. Diagnose vehicle dynamic control systems	2.1. ***Vehicle dynamic control systems*** are tested to isolate faults according to workplace procedures and without causing damage to components or systems as a result of ***inappropriate testing procedures*** 2.2. ***Faults*** are identified from test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair vehicle dynamic control systems	3.1. ***Repair options*** are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tools, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage, according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation
4. Prepare vehicle for delivery to customer	4.1. Final inspection is made to ensure work is to workplace expectations 4.2. Vehicle is cleaned to workplace expectations and presented ready for use 4.3. Workplace documentation is processed according to workplace procedures
5. Clean up work area and finalise work processes	5.1. Material that can be reused is collected and stored according to workplace sustainability practices 5.2. Waste and scrap are removed according to workplace practices 5.3. Tools, equipment and work area are cleaned and inspected

	according to workplace procedures 5.4. Tools and equipment are maintained according to workplace procedures 5.5. Faulty equipment is identified, tagged and isolated according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to:
  - apply learning when diagnosing and repairing various vehicle dynamic control systems
  - recognise a workplace problem or potential problem and take action
- learning skills to identify sources of information, assistance and expert knowledge to expand own skills, knowledge and understanding
- literacy skills to:
  - read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document required repairs and parts
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise them
- problem-solving skills to:
  - determine the underlying causes of faults
  - refer problems outside area of responsibility to appropriate person and suggest possible causes or solutions
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - follow workplace documentation, such as codes of practice and operating procedures
- technical skills to use hand, power and specialised tools relating to the repair of vehicle dynamic control systems
- technology skills to:
  - operate diagnostic and automotive test equipment
  - use technology to collect, analyse and provide information

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

- WHS regulations, requirements, equipment, material and personal safety requirements, including:
  - individual state and territory legislation
  - codes of practice
  - personal protection needs when working on vehicles in an automotive workshop
- application, purpose and operation of vehicle dynamic control systems
- principal types of vehicle dynamic control systems, including:
  - electronic braking control module (EBCM):
    - active roll-over protection
    - anti-lock braking
    - brake assist
    - descent control
    - electronic brake force distribution
    - electronic park brake
    - hill start assist
    - stability control
    - traction control
- techniques for reading and interpreting automotive technical information, graphic symbols and wiring diagrams
- diagnostic and testing procedures, including:
  - diagnostic procedures for vehicle dynamic control systems, including accessing and interpreting:
    - diagnostic trouble codes
    - diagnostic flow charts
  - analysis of system operation using electrical test equipment, scan tools, oscilloscopes and other industry-relevant test equipment
  - visual, aural and functional assessments, including:
    - component damage and wear
    - component corrosion
- repair procedures, including:
  - component removal and replacement procedures
  - component and associated system adjustment procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • select methods and techniques appropriate to the fault being diagnosed • complete preparatory activity in a systematic manner • diagnose and repair at least three different faults within vehicle dynamic control systems • conduct diagnosis and repair procedures according to workplace, manufacturer and component supplier requirements • present vehicle in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • vehicles with various vehicle dynamic control system faults • equipment appropriate for the testing of vehicle dynamic control systems • specifications and workplace instructions

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	• tools appropriate for repairing, replacing and adjusting vehicle dynamic control systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• electronic or hard copy instructions • verbal instructions • written instructions.
Job requirements may include:	• diagnosis and repair methods, processes and equipment.
Workplace health and safety requirements may include:	• workplace first aid equipment • workplace safety policies and procedures • safe work procedures relating to the repair of vehicle under-body systems • safe handling of material • hazard control, including control of hazardous materials and toxic substances • personal protective clothing and equipment • use of fire-fighting equipment • safe use of tools and equipment.
Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins or memos • material safety data sheets • diagrams and sketches • safe work procedures relating to the repair and replacement of instrument and warning systems • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • engineer's design specifications and instructions • workplace work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • vehicle service requirements and repair manuals.
Options for diagnosing faults may include:	• obtaining vehicle service history • isolating faults

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• inspecting and evaluating components.

Tools and equipment may include:	• hand tools
	• vehicle lifting devices
	• power tools
	• specialist tools for removing vehicle trim and assemblies
	• dynamometer
	• electronic testing equipment, including:
	  • multimeter
	  • oscilloscope
	  • scan tools.

Vehicle dynamic control systems may include:	• anti-lock braking system (ABS) control • traction control • steering control • stability control • powertrain management control.

Inappropriate testing procedures may include:	• intrusive **t**esting (which must not be performed as it is not a recommended test and repair method), which includes:
	  • back probing terminals and connectors and fuse holders with inappropriate test probes
	  • probing terminal and connectors with inappropriate test probes
	  • pushing sharp probes and objects into wiring insulation.

Faults may include:	• component malfunction, including:
	  • sensor malfunction
	  • yaw rate
	  • lateral rate
	  • steering angle
	  • electronic control module (ECM) or unit (ECU)
	  • electronic brake control module (EBCM)
	• CAN-bus network operational faults
	• system and component adjustment
	• open or short circuits to power, ground and reference circuits
	• high circuit resistance
	• diagnosis trouble codes (DTC) being set.

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Repair options may include:	• procedures for removing, replacing and adjusting • procedures for dismantling, repairing, re-assembling and adjusting • fault finding using aural, visual and functional assessments for damage, corrosion, wear and electrical short and open circuits • electrical measurements • diagnosing and determining repair requirements, electronic systems data, including fault codes, sensor, actuator measurement, and control unit input and output signals • reading and interpreting wiring diagrams.
Post-repair testing may include:	• validating the effectiveness of the repair action • confirming that reported fault has been rectified • confirming that no other faults are present as a result of the repair action.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Electrical and Electronic

Custom Content Section

Not applicable.

AURETR3023 Diagnose and repair electronic spark ignition engine management systems

Modification History

Release	Comment
Release 1	Replaces AURE321171A Service and repair electronic spark ignition engine management systems Performance Criteria and Range Statement updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair electronic spark ignition engine management systems. The unit involves diagnosing deviations from correct operation, repairing electronic spark ignition engine management system components and associated systems, and undertaking post-repair testing procedures. The unit also involves identifying and confirming work requirements, preparing for work, and completing work finalisation processes, including clean-up and documentation. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to light and heavy petrol fuelled vehicles; LPG, CNG and LNG fuelled vehicles; motorcycles; outdoor power equipment; and marine environments. Engine management systems are systems where the electronic control unit (ECU) incorporates control over fuel injection and ignition timing control and all other systems relating to engine performance and emissions. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose and repair electronic spark ignition engine management systems	1.1. ***Workplace instructions*** are used to determine job requirements 1.2. ***Workplace health and safety (WHS) requirements*** are observed throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. ***Options for diagnosing faults*** are identified and used, using appropriate tools and diagnostic techniques 1.5. ***Tools and equipment*** are identified for effective repair methods
2. Diagnose electronic spark ignition engine management systems	2.1. ***Electronic spark ignition engine management systems*** are tested to isolate faults according to workplace procedures and without causing damage to components or systems as a result of ***inappropriate testing procedures*** 2.2. ***Faults*** are identified from test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair electronic spark ignition engine management systems	3.1. ***Repair options*** are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tools, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage, according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation
4. Prepare vehicle and equipment for delivery to customer after repair is completed	4.1. Final inspection is made to ensure work is to workplace expectations 4.2. Vehicle is cleaned to workplace expectations and presented ready for use 4.3. Workplace documentation is processed according to workplace procedures
5. Clean up work area and finalise work processes	5.1. Material that can be reused is collected and stored according to workplace sustainability practices 5.2. Waste and scrap are removed according to workplace practices 5.3. Tools, equipment and work area are cleaned and inspected

	according to workplace procedures 5.4. Tools and equipment are maintained according to workplace procedures 5.5. Faulty equipment is identified, tagged and isolated according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to:
  - apply learning when diagnosing and repairing various electronic spark ignition engine management systems
  - recognise a workplace problem or potential problem and take action
- learning skills to identify sources of information, assistance and expert knowledge to expand skills, knowledge and understanding
- literacy skills to:
  - read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document required repairs and parts
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
  - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise them
- problem-solving skills to:
  - determine the underlying causes of faults
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
- select and use appropriate equipment, materials, processes and procedures
- recognise limitations and seek timely advice
- follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use hand, power, measuring and specialised tools relating to the repair of electronic spark ignition engine management systems

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- technology skills to:
  - operate diagnostic and test equipment
  - use technology to collect, analyse and provide information

Required knowledge

- WHS regulations, requirements, equipment, material and personal safety requirements relating to diagnosing and repairing electronic spark ignition engine management systems, including:
  - individual state and territory legislation
  - codes of practice
  - personal protection needs
- principal types of vehicle electronic spark ignition engine management systems, including:
  - electronic ignition systems: distributer and distributer-less systems
  - coil on plug ignition systems: two and three wire
  - fuel injection, return and non-return systems
  - turbo and supercharger control
  - variable intake
  - variable valve timing
  - drive-by-wire systems
- application, purpose and operation of electronic spark ignition engine management systems, including:
  - misfire detection
  - ignition timing and spark advance
  - electronic control of spark advance
  - dwell period
  - camshaft and crankshaft sensors
  - knock sensors
  - spark plugs
- technical information, graphic symbols and diagrams relating to electronic spark ignition engine management systems
- diagnostic and testing procedures, including:
  - diagnostic procedures for electronic spark ignition engine management systems, including:
    - accessing and interpreting diagnostic trouble codes (DTC)
    - diagnostic flow charts
  - analysis of system operation using electrical test equipment, scan tools, oscilloscopes and other industry-relevant test equipment
  - visual, aural and functional assessments, including:
    - component damage and wear

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- component corrosion
- repair procedures, including:
  - component removal and replacement procedures
  - component and associated system adjustment procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • diagnose and repair a range of electronic spark ignition engine management systems • conduct diagnosis and repair procedures according to workplace, manufacturer and component supplier requirements • present vehicle and equipment in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • vehicles with electronic spark ignition engine management faults relevant to the qualification being sought • equipment appropriate for the testing of vehicle electronic spark ignition engine management systems

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	• specifications and workplace instructions • tools appropriate for repairing, replacing and adjusting vehicle electronic spark ignition engine management systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• electronic or hard copy instructions • verbal instructions • written instructions.
Job requirements may include:	• diagnosis and repair methods, processes and equipment.

Workplace health and safety requirements may include:	• personal protective clothing and equipment
	• hazards associated with:
	  • high voltage ignition systems
	  • LPG, CNG and LNG fuels
	  • high pressure fuel rail systems and components
	• safe use of tools and equipment
	• safe handling of material
	• use of fire-fighting equipment
	• workplace safety policies and procedures
	• workplace first aid equipment
	• hazard control, including control of hazardous materials and toxic substances.

Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins and memos • material safety data sheets • diagrams and sketches • safe work procedures relating to repairing and replacing electronic spark ignition engine management systems • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • engineer's design specifications and instructions • workplace work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • vehicle service requirements and repair manuals.

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Options for diagnosing faults may include:	• isolation of faults • component inspection and evaluation.
Tools and equipment may include:	• hand tools • testing equipment, including multimeters, ohmmeters, voltmeters and tachometers • fuel pressure and flow meter • insulation testers • power tools and air tools • tune scopes • engine analysers • dynamometers • oscilloscope • diagnostic scan tools.
Electronic spark ignition engine management systems may include:	• electronic ignition systems • direct fire ignition (DFI) systems • coil-on-plug ignition systems • turbo chargers and intercoolers • air intake • exhaust emission control • throttle control.

Inappropriate testing procedures may include:	• intrusive **t**esting (which must not be performed as it is not a recommended test and repair method), which includes:
	  • back probing terminals and connectors and fuse holders with inappropriate test probes
	  • probing terminal and connectors with inappropriate test probes
	  • pushing sharp probes and objects into wiring insulation.

Faults may include:	• engine difficult to start or will not start • engine misfiring • poor engine performance • engine knock • overheating • DTC being set.
Repair options may include:	• pre- and post-repair testing

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

	• identifying and testing components
	• diagnosing and determining faults
	• component repair procedures, including:
	  • removal, replacement and adjustment procedures
	  • dismantle, repair, re-assembly and adjustment procedures
	• electrical measurements
	• peak voltage testing
	• visual and functional assessments, including for damage and wear.

Post-repair testing may include:	• validating effectiveness of the repair action • confirming that reported fault has been rectified • confirming that no other faults are present as a result of the repair action.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Electrical and Electronic

Custom Content Section

Not applicable.

AURETR3024 Diagnose and repair electronic compression ignition engine management systems

Modification History

Release	Comment
Release 1	Replaces AURE321771A Service and repair electronic compression ignition engine management systems Performance Criteria and Range Statement updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair electronic compression ignition engine management systems. The unit involves diagnosing deviations from correct operation, repairing electronic compression ignition engine management system components and associated systems, and undertaking post-repair testing procedures. The unit also involves identifying and confirming work requirements, preparing for work, testing systems, identifying faults and potential causes, repairing and retesting electronic compression ignition engine management systems, and completing work finalisation processes, including clean-up and documentation. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to diesel fuelled vehicles and equipment in light and heavy vehicle, mining, construction, agricultural, motorcycle, outdoor power equipment and marine environments. Engine management systems are systems where the electronic control unit (ECU) incorporates control over fuel injection, ignition timing control and all other systems relating to engine performance and emissions. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose and repair electronic compression ignition engine management systems	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. ***Options for diagnosing faults*** are identified and used, using appropriate tools and diagnostic techniques 1.5. ***Tools and equipment*** are identified for effective repair methods
2. Diagnose electronic compression ignition engine management systems	2.1. ***Electronic compression ignition engine management systems*** are tested to isolate faults according to workplace procedures and without causing damage to components or systems as a result of ***inappropriate testing procedures*** 2.2. ***Faults*** are identified from test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair electronic compression ignition engine management systems	3.1. ***Repair options*** are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tools, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage, according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation
4. Prepare vehicle and equipment for delivery to customer after repair is completed	4.1. Final inspection is made to ensure work is to workplace expectations 4.2. Vehicle is cleaned to workplace expectations and presented ready for use 4.3. Workplace documentation is processed according to workplace procedures
5. Clean up work area and finalise work processes	5.1. Material that can be reused is collected and stored according to workplace sustainability practices 5.2. Waste and scrap are removed according to workplace practices 5.3. Tools, equipment and work area are cleaned and inspected

	according to workplace procedures 5.4. Tools and equipment are maintained according to workplace procedures 5.5. Faulty equipment is identified, tagged and isolated according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to:
  - apply learning when diagnosing and repairing various electronic compression ignition engine management systems
  - recognise a workplace problem or potential problem and take action
- learning skills to identify sources of information, assistance and expert knowledge to expand skills, knowledge and understanding
- literacy skills to:
  - read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document required repairs and parts
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
  - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise them
- problem-solving skills to:
  - determine the underlying causes of faults
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
- select and use appropriate equipment, materials, processes and procedures
- recognise limitations and seek timely advice
- follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use hand, power, measuring and specialised tools relating to the repair of electronic compression ignition engine management systems

REQUIRED SKILLS AND KNOWLEDGE

- technology skills to:
  - operate diagnostic and test equipment
  - use technology to collect, analyse and provide information

Required knowledge

- WHS regulations, requirements, equipment, material and personal safety requirements relating to diagnosing and repairing electronic compression ignition engine management systems, including:
  - individual state and territory legislation
  - codes of practice
  - personal protection needs
- dangers of working with high-pressure diesel fuel systems
- principal types of vehicle electronic compression ignition engine management systems, including:
  - direct injection, including:
    - electronic unit injectors (EUI)
    - hydraulic electronic unit injectors (HEUI)
  - indirect injection
  - common rail systems, including:
    - common rail solenoid
    - piezo design
    - amplified systems
- application, purpose and operation of electronic compression ignition engine management systems, including:
  - common rail fuel control system
  - fuel injectors, types and designs
  - glow plugs
  - exhaust gas recirculation (EGR) and positive crankcase ventilation (PCV) system
  - diesel particulate diffuser (DPD) exhaust after-treatment system
  - turbo and super charger and intercooler systems
  - fuel filter, coolers and water trap
- techniques for reading and interpreting technical information, graphic symbols and diagrams
- diagnostic and testing procedures, including:
  - diagnostic procedures for electronic compression ignition engine management systems, including:
    - accessing and interpreting diagnostic trouble codes
    - diagnostic flow charts
  - analysis of system operation using electrical test equipment, scan tools, oscilloscopes and other industry-relevant test equipment

REQUIRED SKILLS AND KNOWLEDGE

• visual, aural and functional assessments, including:
  • component damage and wear
  • component corrosion
• repair procedures, including:
  • component removal and replacement procedures
  • component and associated system adjustment and recalibration procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • demonstrate safe work procedures relating to working with high fuel pressure and high injector voltages on diesel engines • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • diagnose and repair a range of electronic compression ignition engine management systems • conduct diagnosis and repair procedures according to workplace, manufacturer and component supplier requirements • present vehicle and equipment in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • vehicles with electronic compression ignition engine management faults relevant to the qualification being sought

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	• equipment appropriate for the testing of vehicle electronic compression ignition engine management systems • specifications and workplace instructions • tools appropriate for repairing, replacing and adjusting vehicle electronic compression ignition engine management systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• electronic or hard copy instructions • verbal instructions • written instructions.
Job requirements may include:	• diagnosis and repair methods, processes and equipment.
Workplace health and safety requirements may include:	• personal protective clothing and equipment • hazards associated with high pressure fuel systems • hazards associated with high injector voltage circuits • safe use of tools and equipment • safe handling of material • use of fire-fighting equipment • workplace safety policies and procedures • workplace first aid equipment • hazard control, including control of hazardous materials and toxic substances.
Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins and memos • material safety data sheets • diagrams and sketches • safe work procedures relating to the repair and replacement of electronic compression ignition engine management systems • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • engineer's design specifications and instructions • workplace work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • vehicle service requirements and repair manuals.
Options for diagnosing faults may include:	• isolation of faults • component inspection and evaluation.

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Tools and equipment may include:	• hand tools • testing equipment, including multimeters, ohmmeters, voltmeters and tachometers • insulation testers • power tools and air tools • fuel pressure and fuel flow gauges • engine analysers • dynamometers • oscilloscopes • diagnostic scan tools.

Electronic compression ignition engine management systems may include:	• direct injection:
	  • electronic unit injectors
	  • hydraulic electronic unit injectors
	• indirect injection
	• common rail systems, including:
	  • solenoid
	  • piezo electric
	  • amplified systems.

Inappropriate testing procedures may include:	• intrusive testing (which must not be performed as it is not a recommended test and repair method), which includes:
	  • back probing terminals and connectors and fuse holders with inappropriate test probes
	  • probing terminal and connectors with inappropriate test probes
	  • pushing sharp probes and objects into wiring insulation.

Faults may include:	• engine difficult to start or will not start • engine misfiring • poor engine performance • engine knock • overheating • black or white smoke from exhaust • PCV defective • diesel fuel contamination • blocked or restricted fuel injectors

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• DPD exhaust after treatment system defective or not serviced • diagnosis trouble codes (DTC) being set.

Repair options may include:	• pre- and post-repair testing
	• identifying and testing components
	• diagnosing and determining faults
	• component repair procedures, including:
	  • removal, replacement and adjustment procedures
	  • dismantle, repair, re-assembly and adjustment procedures
	• electrical measurements
	• fuel pressure testing involving visual and functional assessments, including for damage and wear.

Post-repair testing may include:	• validating effectiveness of the repair action • confirming that reported fault has been rectified • confirming that no other faults are present as a result of the repair action.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Electrical and Electronic

Custom Content Section

Not applicable.

AURETR3025 Test, charge and replace batteries

Modification History

Release	Comment
Release 1	Replaces AURE218676A Test, service and charge batteries (Heavy Vehicle) Performance Criteria and Range Statement updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to test, charge, jump-start, and remove and replace automotive batteries. The unit involves identifying and confirming work requirements; preparing for work; servicing, testing and charging batteries; and completing work finalisation processes, including clean-up and documentation. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	Work applies to light vehicles, heavy vehicles, motorcycles, mining plant and equipment, outdoor power equipment, and marine craft. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to test and inspect battery	1.1. Nature and scope of work requirements are identified and confirmed 1.2. ***Workplace health and safety (WHS) requirements***, including individual state and territory regulatory requirements and ***personal protective equipment*** (PPE) needs, are observed throughout the work 1.3. ***Safe operating procedures*** and information such as site procedures and specifications are sourced 1.4. ***Technical information*** is accessed from manufacturer and component supplier specifications and interpreted 1.5. ***Tools, equipment*** and ***materials*** are identified and prepared 1.6. Warnings in relation to working with batteries are observed
2. Test and service battery	2.1. ***Service and maintenance methods*** are carried out according to workplace procedures and manufacturer and component supplier specifications 2.2. Electrolyte levels are checked and topped up where appropriate according to service and maintenance methods 2.3. Batteries and terminals are cleaned according to site procedures 2.4. Battery voltage and load checks are conducted to confirm service repair action 2.5. Battery is charged, jump-started or replaced
3. Charge battery	3.1. Technical information for charging is accessed from manufacturer and component supplier specifications and is correctly interpreted 3.2. Components, tools and equipment to complete work are identified, selected and prepared according to site procedures 3.3. Electrolyte levels are checked and topped up according to site procedures 3.4. Batteries are charged according to site procedures and component manufacturer and supplier recommendations
4. Carry out jump-start procedures to vehicle	4.1. Technical information is accessed from manufacturer and component supplier specifications and is correctly interpreted 4.2. Battery voltage is identified and vehicle and equipment are confirmed as being appropriate to jump-start procedures 4.3. Leads are connected and disconnected in correct sequence and polarity 4.4. Work is carried out without causing damage to the vehicles

ELEMENT	PERFORMANCE CRITERIA
	involved and equipment being used
5. Remove and replace battery	5.1. Battery is removed from vehicle according to site procedures, and component manufacturer and supplier recommendations 5.2. Battery is replaced in line with vehicle electrical and physical specifications and measurements 5.3. Correct secure battery fitment is confirmed 5.4. Battery terminals are reconnected and tightened
6. Retest battery	6.1. Test methods are implemented according to workplace procedures and manufacturer and component supplier specifications 6.2. Test results are compared with manufacturer and component supplier specifications 6.3. Results are documented with evidence, and supporting information is recorded
7. Prepare vehicle and equipment for delivery to customer after battery is replaced	7.1. Final inspection is made to ensure work is to workplace expectations 7.2. Vehicle is cleaned to workplace expectations and presented ready for use 7.3. Workplace documentation is processed according to workplace procedures
8. Clean up work area and maintain equipment	8.1. Material that can be reused or recycled is collected and stored according to workplace sustainability practices 8.2. Waste and scrap are removed according to workplace practices 8.3. Tools, equipment and work area are cleaned and inspected according to workplace procedures 8.4. Tools and equipment are maintained according to workplace procedures 8.5. Faulty equipment is identified, tagged and isolated according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - communicate basic information relating to battery safety
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to:
  - participate in self-improvement activities
  - recognise a workplace problem or potential problem
- literacy skills to:
  - read and follow battery inspection and maintenance information
  - read and follow information on standard operating procedures and repair guidelines
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
  - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - identify risk factors to minimise risk to self and others
  - contribute to activities that implement and follow standard workplace procedures
- problem-solving skills to refer problems outside area of responsibility to appropriate person
- self-management skills to:
  - locate and identify appropriate tools and equipment
  - locate technical information
  - recognise limitations and seek timely advice
  - follow basic workplace documentation, such as operating procedures
- teamwork skills to:
  - work with others and in a team by cooperating with team members
  - work with diverse individuals and groups
- technical skills to:
  - understand technical information relating to recognising and reporting unsafe situations
  - select tools and equipment appropriate to inspecting, servicing and maintaining light and heavy vehicle batteries
  - use battery servicing and testing tools and equipment safely
  - maintain tools and equipment using appropriate techniques and standard operating procedures
- technology skills to:

REQUIRED SKILLS AND KNOWLEDGE
• use workplace technology relating to inspecting, servicing and maintaining battery storage systems, including use of specialist tools, measuring equipment and communication devices • report and document results
Required knowledge
• WHS and environmental regulations, requirements, equipment and material, including personal safety requirements • battery testing methods • dangers of working with battery testing equipment • dangers associated with overcharging batteries • operating principles and layout of vehicle battery storage systems • battery inspection procedures • battery service and maintenance procedures • workplace quality procedures • work organisation and planning processes relating to testing, charging and replacing batteries

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • service and charge batteries • test batteries and battery connections • jump-start vehicles • remove and replace vehicle batteries correctly • accurately interpret inspection and test results • conduct servicing, removal and replacement according to workplace, manufacturer and component supplier requirements • present vehicle and equipment in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	• material relevant to servicing, maintaining and replacing batteries, including a range of various battery types • equipment, and hand and power tools appropriate to servicing, maintaining and replacing batteries • specifications and work instructions.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace health and safety requirements may include:	• personal protective clothing and equipment • safe use of tools and equipment • handling of potentially hazardous material and substances • use of fire-fighting equipment • first aid training and response • control of hazards and hazardous materials.
Personal protective equipment may include:	• safety glasses • protective clothing • gloves.
Safe operating procedures may include:	• conducting operational risk assessments • treatments associated with vehicle movement • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • procedures for working in proximity to others and site visitors.
Technical information may include:	• battery manufacturer and component supplier recommendations.
Tools and equipment may include:	• hand tools • load testing devices • hydrometer • multimeter • jumper leads • booster charger.
Materials may include:	• battery consumables • cleaning materials.
Service and maintenance methods may include:	• inspecting battery, terminals and leads • inspecting battery securing system • cleaning battery and battery compartment or storage area • topping up battery fluid • testing battery with a hydrometer.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Electrical and Electronic

Custom Content Section

Not applicable.

AURETR3026 Remove, replace and program electrical and electronic units and assemblies

Modification History

Release	Comment
Release 1	Replaces AURE218664A Remove and replace electrical/electronic units/assemblies Performance Criteria and Range Statement updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to remove and replace electrical units and assemblies, such as powertrain control modules (PCM), engine and body control modules, as well as other electronic control units that are an integral part of the vehicle's computer area network databus (CAN-bus) network, to facilitate body repair activities or similar. The unit involves identifying and confirming work requirements; preparing for work; and completing work finalisation processes, including clean-up and documentation. Assistance from a licensed person must be sought in relation to air conditioning and LPG/CNG/LNG systems and components, and in recommissioning systems. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to electrical units and assemblies that are fitted in light and heavy vehicle, mining, construction, agricultural, motorcycle, outdoor power equipment and marine environments. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. ***Tools and equipment*** are identified for effective removal, replacement and testing procedures
2. Remove electrical and electronic units and assemblies	2.1. Correct information is accessed and interpreted from manufacturer and component supplier specifications 2.2. ***Electrical and electronic units and assemblies*** are removed using approved methods, tools and equipment 2.3. Assistance from a licensed person is sought in relation to air conditioning and LPG/CNG/LNG systems and component removal 2.4. Removal activities are carried out according to industry regulations and guidelines, workplace health and safety (WHS) legislation, and workplace policies and procedures 2.5. Units and assemblies are handled and stored according to manufacturer and component supplier requirements
3. Replace electrical and electronic units and assemblies	3.1. Correct information is accessed and interpreted from manufacturer and component supplier specifications 3.2. Electrical and electronic control units and assemblies are replaced using approved methods, tools and equipment 3.3. Assistance from a licensed person is sought in relation to air conditioning and LPG/CNG/LNG systems and component replacement 3.4. Replacement activities are carried out according to industry regulations and guidelines, WHS legislation and workplace policies and procedures
4. Test and reprogram electrical and electronic units and assemblies	4.1. Testing procedures on replaced electrical and electronic control unit and assemblies are carried out 4.2. ***Options for diagnosing faults*** are identified and used, using appropriate tools and diagnostic techniques 4.3. Checking and testing are achieved without causing damage to components or systems as a result of ***inappropriate testing procedures*** 4.4. ***Faults*** are identified from test results and causes of faults are determined 4.5. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary

ELEMENT	PERFORMANCE CRITERIA
	repairs or adjustments 4.6. ***Reprograming options*** are analysed and those most appropriate are selected 4.7. Component replacement and programing procedures are carried out according to workplace procedures and manufacturer and component supplier specifications 4.8. ***Post-repair testing*** is conducted and results are documented according to workplace procedures and relevant legislation
5. Clean up work area and maintain equipment	5.1. Material that can be reused is collected and stored 5.2. Waste and scrap are removed following workplace procedures 5.3. Equipment and work area are cleaned and inspected for serviceable condition according to workplace procedures 5.4. Faulty equipment is identified, tagged and isolated according to workplace procedures 5.5. Operator maintenance is completed according to manufacturer and component supplier specifications and site procedures 5.6. Tools and equipment are maintained according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to:
  - apply learning when replacing electronic units and assemblies in complex automotive electrical systems
  - recognise a workplace problem or potential problem and take action
- learning skills to identify sources of information, assistance and expert knowledge to expand skills, knowledge and understanding
- literacy skills to:
  - read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document required repairs and parts
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
  - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise them
- problem-solving skills to:
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
  - follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace technology and tools relating to removing and replacing vehicle electrical and electronic units and assemblies, including:
  - specialist tools and equipment

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- electrical measuring equipment
- technology skills to:
  - operate a range of electrical and electronic diagnostic test equipment
  - use technology to collect, analyse and provide information

Required knowledge

- WHS regulations, requirements, equipment, material and personal safety requirements, including:
  - individual state and territory legislation
  - codes of practice
  - personal protection needs
- procedures for removing, replacing, testing and reprogramming electrical and electronic units and assemblies and post-repair testing
- wiring harness and loom fabrication techniques
- procedures for removing and replacing wiring harnesses and looms
- soldering procedures and techniques
- terminal crimping and connector repair techniques
- cable types and sizes and current carrying capacity
- various types of wiring systems found in vehicles, including:
  - basic wiring
  - twisted pair
  - shielded wiring
  - CAN-bus and databus networks
- techniques for reading and interpreting technical information, wiring diagrams and graphic symbols
- diagnostic and testing procedures, including:
  - analysis of system operation using electrical test equipment and other industry-relevant test equipment
  - visual, aural and functional assessments, including:
    - component damage and wear
    - component corrosion
    - water and moisture ingress
- repair procedures, including:
  - component removal and replacement procedures
  - component and associated system adjustment procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge.
	A person who demonstrates competency in this unit must be able to:
	• observe safety procedures and requirements
	• select methods and techniques appropriate to the circumstances
	• complete preparatory activity in a systematic manner
	• remove and replace a minimum of four units and assemblies to workplace, manufacturer and component supplier requirements, including:
	  • one supplementary restraint system module
	  • one body control module
	  • one engine or powertrain control module
	• complete final functional test to specification
	• present vehicle and equipment in a condition that complies with workplace requirements.

Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
	• material relevant to removing and replacing electrical and electronic units and assemblies • equipment, and hand and power tools appropriate to removing and replacing electrical and electronic units and assemblies • specifications and work instructions.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• electronic or hard copy instructions • verbal instructions • written instructions.
Job requirements may include:	• effective unit and assembly removal and replacement techniques • reprogramming procedures to enable replaced unit and assembly to communicate with vehicle CAN-bus systems • diagnosis and repair methods, processes and equipment.
Workplace health and safety requirements may include:	• personal protective clothing and equipment • hazards associated with high voltage ignition systems • safe use of tools and equipment • safe handling of material • use of fire-fighting equipment • workplace safety policies and procedures • workplace first aid equipment • hazard control, including control of hazardous materials and toxic substances.
Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins and memos • material safety data sheets (MSDS) • diagrams and sketches • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • engineer's design specifications and instructions • workplace work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • vehicle service requirements and repair manuals.
Tools and equipment may include:	• hand tools • testing equipment, including multimeters and ohmmeters • heat-gun or blower

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• heat shrink sleeving and flexible conduit • terminals and connectors • electrical tape.

Electrical and electronic units and assemblies may include:	• electrical and electronic units and assemblies integral to the vehicle's CAN-bus network, including:
	  • engine control unit (ECU)
	  • engine control module (ECM)
	  • powertrain control module (PCM)
	  • body control module (BCM)
	  • supplementary restraint systems (SRS).

Options for diagnosing faults may include:	• continuity testing • insulation testing • isolation and repair to located faults • replacement of blown fuses or circuit breakers • replacement of damaged connectors or terminals • visual inspection and evaluation of components.

Inappropriate testing procedures may include:	• intrusive testing (which must not be performed as it is not a recommended test and repair method), which includes:
	  • back probing terminals and connectors and fuse holders with inappropriate test probes
	  • probing terminal and connectors with inappropriate test probes
	  • pushing sharp probes and objects into wiring insulation.

Faults may include:	• open circuits • short circuits • high resistance circuits • damaged insulation • frayed wires • burnt wiring • water and moisture ingress • connector damage • terminal damage • diagnosis trouble codes (DTC) being set.
Reprogramming options	• service programming system (SPS)

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
may include:	• manufacturer programming code and relearn procedures • original equipment manufacturer (OEM) specific programming code.
Post-repair testing may include:	• validating effectiveness of the replacement or repair action • confirming that reported fault has been rectified • confirming that no other faults are present as a result of the replacement and the reprogram or repair action.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Electrical and Electronic

Custom Content Section

Not applicable.

AURETR3028 Diagnose and repair instruments and warning systems

Modification History

Release	Comment
Release 1	Replaces AURE318966A Repair instruments and warning systems Performance Criteria and Range Statement updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair instruments and warning systems fitted in light and heavy vehicle, mining, construction, agricultural, motorcycle, outdoor power equipment and marine environments. It involves diagnosing deviations from correct operation, repairing vehicle instruments and warning system components and associated systems; and undertaking post-repair testing procedures. The unit also involves identifying and confirming work requirements, preparing for work, and completing work finalisation processes, including clean-up and documentation. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to instruments and warning systems fitted in light and heavy vehicle, mining, construction, agricultural, motorcycle, outdoor power equipment and marine environments. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose and repair instruments and warning systems	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. ***Options for diagnosing faults*** are identified and used, using appropriate tools and diagnostic techniques 1.5. ***Tools and equipment*** are identified for effective repair methods
2. Diagnose instruments and warning systems	2.1. ***Instruments and warning systems*** are tested to isolate faults according to workplace procedures and without causing damage to components or systems as a result of ***inappropriate testing procedures*** 2.2. ***Faults*** are identified from test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair instruments and warning systems	3.1. ***Repair options*** are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tools, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage, according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation
4. Prepare vehicle for delivery to customer	4.1. Final inspection is made to ensure work is to workplace expectations 4.2. Vehicle is cleaned to workplace expectations and presented ready for use 4.3. Workplace documentation is processed according to workplace procedures
5. Clean up work area and finalise work processes	5.1. Material that can be reused is collected and stored according to workplace sustainability practices 5.2. Waste and scrap are removed according to workplace practices 5.3. Tools, equipment and the work area are cleaned and

ELEMENT	PERFORMANCE CRITERIA
	inspected according to workplace procedures 5.4. Tools and equipment are maintained according to workplace procedures 5.5. Faulty equipment is identified, tagged and isolated according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to:
  - apply learning when diagnosing and repairing various instrument and warning systems
  - recognise a workplace problem or potential problem and take action
- learning skills to identify sources of information, assistance and expert knowledge to expand skills, knowledge and understanding
- literacy skills to:
  - read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document required repairs and parts
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
  - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise them
- problem-solving skills to:
  - determine the underlying causes of faults
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace technology and tools relating to repairing instrument and warning systems, including:
  - specialist tools and equipment
  - measuring equipment

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- computerised technology
- technology skills to:
  - operate diagnostic and test equipment
  - use technology to collect, analyse and provide information

Required knowledge

- WHS regulations, requirements, equipment, material and personal safety requirements, including:
  - codes of practice
  - personal protection needs when working on vehicles in an automotive workshop
  - individual state and territory legislation and regulatory requirements, including:
    - LPG/CNG/LNG systems and components
    - air conditioning and HVAC systems and components
- principal types of vehicle instrument and warning systems, including:
  - hazard flashers
  - horns or alarms
  - driver display instruments
  - reversing alert systems
- application, purpose and operation of instruments and warning systems
- techniques for reading and interpreting automotive technical information, graphic symbols and wiring diagrams
- diagnostic and testing procedures, including:
  - diagnostic procedures for instruments and warning systems, including:
    - accessing and interpreting diagnostic trouble codes
    - diagnostic flow charts
  - analysis of system operation using electrical test equipment, scan tools, oscilloscopes and other industry-relevant test equipment
  - visual, aural and functional assessments, including:
    - component damage and wear
    - component or connector corrosion
    - component water or moisture ingress
- repair procedures, including:
    - component removal and replacement procedures
    - component and associated system adjustment procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • diagnose and repair a range of vehicle instruments and warning systems • conduct diagnosis and repair procedures according to workplace, manufacturer and component supplier requirements • present vehicle or equipment in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • vehicles with instrument and warning system faults relevant to the qualification being sought • equipment appropriate for the testing of vehicle instruments and warning systems

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	• specifications and workplace instructions • tools appropriate for repairing, replacing and adjusting vehicle instruments and warning systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• electronic or hard copy instructions • verbal instructions • written instructions.
Job requirements may include:	• diagnosis and repair methods, processes and equipment.
Workplace health and safety requirements may include:	• workplace first aid equipment • workplace safety policies and procedures • safe handling of material • hazard control, including control of hazardous materials and toxic substances • personal protective clothing and equipment • use of fire-fighting equipment • safe use of tools and equipment.
Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins and memos • material safety data sheets (MSDS) • diagrams and sketches • safe work procedures relating to repairing and replacing instrument and warning systems • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • engineer's design specifications and instructions • workplace work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • vehicle service requirements and repair manuals.
Options for diagnosing faults may include:	• obtaining vehicle service history • isolating faults • inspecting and evaluating components.
Tools and equipment may	• hand tools

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

include:	• vehicle lifting devices
	• power tools
	• specialist tools for vehicle trim removal and replacement
	• dynamometer
	• electronic testing equipment, including:
	  • multimeter
	  • oscilloscope
	  • scan tools.

Instruments and warning systems may include:	• driver information instruments and gauges • warning lights and dash lamps • engine shutdown systems • audible reverse warning systems in all types of vehicles, craft and equipment.

Inappropriate testing procedures may include:	• intrusive testing (which must not be performed as it is not a recommende**d** test and repair method), which includes:
	• back probing terminals and connectors and fuse holders with inappropriate test probes
	  • probing terminal and connectors with inappropriate test probes
	  • pushing sharp probes and objects into wiring insulation.

Faults may include:	• gauge and instrument warning system not working
	• incorrect gauge and instrument readings
	• wiring circuit faults, including:
	  • open circuit
	  • short circuit
	  • reference circuit
	  • ground earth circuit.

Repair options may include:	• removal, replacement and adjustment procedures • dismantling, repair, re-assembly and adjustment procedures • fault finding using aural, visual and functional assessments for damage, corrosion, wear and electrical short and open circuits • electrical measurements • diagnosing and determining repair requirements and electronic systems data, including fault codes, sensors, actuator measurement, and control unit input and output signals

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• reading and interpreting wiring diagrams.
Post-repair testing may include:	• validating effectiveness of repair action • confirming that reported fault has been rectified • confirming that no other faults are present as a result of repair action.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Electrical and Electronic

Custom Content Section

Not applicable.

AURETR3029 Diagnose and repair charging systems

Modification History

Release	Comment
Release 1	Replaces AURE319166B Repair charging systems Performance Criteria and Range Statement updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair charging systems. It involves diagnosing deviations from correct operation, repairing charging system components and associated systems, and undertaking post-repair testing procedures. The unit also involves identifying and confirming work requirements, preparing for work, and completing work finalisation processes, including clean-up and documentation. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to vehicles in light and heavy vehicle, mining, construction, agricultural, motorcycle, outdoor power equipment and marine environments. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose vehicle charging systems	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. ***Options for diagnosing faults*** are identified and used, using appropriate tools and diagnostic techniques 1.5. ***Tools and equipment*** are identified for effective repair methods
2. Diagnose vehicle charging systems	2.1. ***Charging systems*** are tested to isolate faults according to workplace procedures without causing damage to components or systems as a result of ***inappropriate testing procedures*** 2.2. ***Faults*** are identified from test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair vehicle charging systems	3.1. ***Repair options*** are analysed and those most appropriate are selected 3.2. Appropriate tools, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage, according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation
4. Prepare vehicle for delivery to customer	4.1. Final inspection is made to ensure work is to workplace expectations 4.2. Vehicle is cleaned to workplace expectations and presented ready for use 4.3. Workplace documentation is processed according to workplace procedures
5. Clean up work area and finalise work processes	5.1. Material that can be reused is collected and stored according to workplace sustainability practices 5.2. Waste and scrap are removed according to workplace practices 5.3. Tools, equipment and the work area are cleaned and

ELEMENT	PERFORMANCE CRITERIA
	inspected according to workplace procedures 5.4. Tools and equipment are maintained according to workplace procedures 5.5. Faulty equipment is identified, tagged and isolated according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to:
  - apply learning when diagnosing and repairing various charging systems
  - recognise a workplace problem or potential problem and take action
- learning skills to identify sources of information, assistance and expert knowledge to expand own skills, knowledge and understanding
- literacy skills to:
  - read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document required repairs and parts
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
  - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise them
- problem-solving skills to:
  - determine the underlying causes of faults
  - refer problems outside area of responsibility to appropriate person and suggest possible causes or solutions
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use hand, power, measuring and specialised tools relating to the repair of charging systems
- technology skills to:
  - operate diagnostic and automotive test equipment

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- use technology to collect, analyse and provide information

Required knowledge

- WHS regulations, requirements, equipment, material and personal safety requirements when working with vehicle while either on a hoist, trolley jack or safety stand, including:
  - individual state and territory legislation
  - codes of practice
  - personal protection needs when working on vehicles in an automotive workshop
- application, purpose and operation of charging systems
- principal types of charging systems, including:
  - star connected stator
  - delta connected stator
  - internally or externally regulated
  - magneto
  - generators
- techniques for reading and interpreting automotive technical information, graphic symbols and wiring diagrams
- operating principles of DC and AC motors
- diagnostic and testing procedures, including:
  - diagnostic procedures for charging systems, including:
    - accessing and interpreting diagnostic trouble codes
    - diagnostic flow charts
  - analysis of system operation using electrical test equipment, scan tools, oscilloscopes and other industry-relevant test equipment
  - visual, aural and functional assessments, including:
    - component damage and wear
    - component corrosion
- repair procedures, including:
  - component removal and replacement procedures
  - component and associated system adjustment procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • select methods and techniques appropriate to the fault being diagnosed • complete preparatory activity in a systematic manner • apply and demonstrate knowledge of DC and AC motors • diagnose and repair a range of charging systems • conduct diagnosis and repair procedures according to workplace, manufacturer and component supplier requirements • present vehicle in a condition that complies with workplace requirements • complete workplace and equipment documents • clean up work area and maintain equipment to workplace standards.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • a range of alternators, generators and components relevant to

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	the qualification being sought • vehicles with charging faults relevant to the qualification being sought • equipment appropriate for the testing of charging systems • specifications and workplace instructions • tools appropriate for repairing, replacing and adjusting charging systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• electronic or hard copy instructions • safe work procedures relating to the repair of charging systems • verbal instructions • written instructions.
Job requirements may include:	• diagnosis and repair methods, processes and equipment.
Workplace health and safety requirements may include:	• workplace first aid equipment • workplace safety policies and procedures • safe handling of material • hazard control, including control of hazardous materials and toxic substances • hot surfaces and moving parts and components • personal protective clothing and equipment • use of fire-fighting equipment • safe use of tools and equipment.
Procedures and information may include:	• Australian standards • engineer's design specifications and instructions • instructions issued by authorised workplace or external persons • workplace work specifications and requirements • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • safe work procedures relating to repairing and replacing charging systems and components • vehicle service requirements and repair manuals • verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins and memos • material safety data sheets (MSDS) • diagrams and sketches.
Options for diagnosing faults may include:	• obtaining vehicle service history • isolating faults

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• inspecting and evaluating components.

Tools and equipment may include:	• hand tools
	• vehicle lifting devices
	• power and air tools
	• specialist tools for removing and replacing charging systems
	• soldering equipment
	• electronic testing equipment, including:
	  • multimeter
	  • test light
	  • load tester
	  • inductive ammeter
	  • test benches
	  • single and ganged panels
	  • oscilloscope
	  • scan tools.

Charging systems may include:	• alternators:
	  • electromagnetic
	  • permanent magnet
	• generators
	• dynastart, solid state and mechanical regulation
	• belt and/or direct drive, single and multiple belt drives and adjustable tensioning devices
	• single phase, half-wave rectified and full-wave rectified
	• solar systems, including:
	  • single and ganged panels
	  • internal and external regulation
	  • battery sensed and machine sensing regulation
	  • 6 V, 12 V and 24 V operation
	• solid state controlled.

Inappropriate testing procedures may include:	• intrusive **t**esting (which must not be performed as it is not a recommended test and repair method), which includes:
	  • back probing terminals and connectors and fuse holders with inappropriate test probes
	  • probing terminal and connectors with inappropriate test

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	probes • pushing sharp probes and objects into wiring insulation.

Faults may include:	• component malfunction, including:
	  • system not charging
	  • alternator drive problems
	  • regulator malfunction
	  • noisy operation
	  • seized mechanical components
	  • worn mechanical components
	  • overrunning clutch pulley faulty
	• control circuit faults
	• open or short circuits to power, ground and reference circuits
	• high circuit resistance
	• DTC failure codes.

Repair options may include:	• component repair procedures, including:
	  • removal, replacement and adjustment procedures
	  • dismantle, repair, re-assembly and adjustment procedures.

Post-repair testing may include:	• validating effectiveness of the repair action • confirming that reported fault has been rectified • confirming that no other faults are present as a result of the repair action.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Electrical and Electronic

Custom Content Section

Not applicable.

AURETR3030 Diagnose and repair starting systems

Modification History

Release	Comment
Release 1	Replaces AURE319166B Repair charging systems Performance Criteria and Range Statement updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair starting systems. It involves diagnosing deviations from correct operation, repairing starting system components and associated systems, and undertaking post-repair testing procedures. The unit also involves identifying and confirming work requirements, preparing for work, and completing work finalisation processes, including clean-up and documentation. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to vehicles in light and heavy vehicle, mining, construction, agricultural, motorcycle, outdoor power equipment and marine environments. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose vehicle starting system	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. ***Options for diagnosing faults*** are identified and used, using appropriate tools and diagnostic techniques 1.5. ***Tools and equipment*** are identified for effective repair methods
2. Diagnose vehicle starting system	2.1. ***Starting systems*** are tested to isolate faults according to workplace procedures without causing damage to components or systems as a result of ***inappropriate testing procedures*** 2.2. ***Faults*** are identified from test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair vehicle starting system	3.1. ***Repair options*** are analysed and those most appropriate are selected 3.2. Appropriate tools, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage, according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation
4. Prepare vehicle for delivery to customer	4.1. Final inspection is made to ensure work is to workplace expectations 4.2. Vehicle is cleaned to workplace expectations and presented ready for use 4.3. Workplace documentation is processed according to workplace procedures
5. Clean up work area and finalise work processes	5.1. Material that can be reused is collected and stored according to workplace sustainability practices 5.2. Waste and scrap are removed according to workplace practices 5.3. Tools, equipment and the work area are cleaned and

ELEMENT	PERFORMANCE CRITERIA
	inspected according to workplace procedures 5.4. Tools and equipment are maintained according to workplace procedures 5.5. Faulty equipment is identified, tagged and isolated according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to:
  - apply learning when diagnosing and repairing various starting systems
  - recognise a workplace problem or potential problem and take action
- learning skills to identify sources of information, assistance and expert knowledge to expand own skills, knowledge and understanding
- literacy skills to:
  - read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document required repairs and parts
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
  - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise them
- problem-solving skills to:
  - determine the underlying causes of faults
  - refer problems outside area of responsibility to appropriate person and suggest possible causes or solutions
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use hand, power, measuring and specialised tools relating to the repair of starting systems
- technology skills to:
  - operate diagnostic and automotive test equipment

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- use technology to collect, analyse and provide information

Required knowledge

- WHS regulations, requirements, equipment, material and personal safety requirements when working with vehicle while either on a hoist, trolley jack or safety stand, including:
  - individual state and territory legislation
  - codes of practice
  - personal protection needs when working on vehicles in an automotive workshop
- application, purpose and operation of starting systems
- principal types of starting systems, including:
  - direct drive
  - solenoid pre-engaged, including:
    - reduction
    - spark ignition systems
    - compression ignition systems
  - control circuit, including:
    - key start
    - push button start
    - remote start
- techniques for reading and interpreting automotive technical information, graphic symbols and wiring diagrams
- operating principles of DC and AC motors
- diagnostic and testing procedures, including:
  - diagnostic procedures for starting systems, including:
    - typical starting system faults and their symptoms
    - accessing and interpreting diagnostic trouble codes (DTCs)
    - diagnostic flow charts
  - analysis of system operation using electrical test equipment, scan tools, oscilloscopes and other industry-relevant test equipment
  - visual, aural and functional assessments, including:
    - component damage and wear
    - component corrosion
- repair procedures, including:
  - component removal and replacement procedures
  - component and associated system adjustment procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • select methods and techniques appropriate to the fault being diagnosed • complete preparatory activity in a systematic manner • apply and demonstrate knowledge of DC and AC motors • diagnose and repair a range of starting systems • conduct diagnosis and repair procedures according to workplace, manufacturer and component supplier requirements • present vehicle in a condition that complies with workplace requirements • clean up work area and maintain equipment to workplace standards.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • a range of starter motors and components relevant to the qualification being sought

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	• vehicles with starting faults relevant to the qualification being sought • equipment appropriate for the testing of starting systems • specifications and workplace instructions • tools appropriate for repairing, replacing and adjusting starting systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• electronic or hard copy instructions • safe work procedures relating to the repair of starting systems • verbal instructions • written instructions.
Job requirements may include:	• diagnosis and repair methods, processes and equipment.
Workplace health and safety requirements may include:	• workplace first aid equipment • workplace safety policies and procedures • safe handling of material • hazard control, including control of hazardous materials and toxic substances • hot surfaces and moving parts and components • personal protective clothing and equipment • use of fire-fighting equipment • use of tools and equipment.
Procedures and information may include:	• Australian standards • engineer's design specifications and instructions • instructions issued by authorised workplace or external persons • workplace work specifications and requirements • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • safe work procedures relating to repairing and replacing starting systems and components • vehicle service requirements and repair manuals • verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins and memos • material safety data sheets (MSDS) • diagrams and sketches.
Options for diagnosing faults may include:	• obtaining vehicle service history • isolating faults

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• inspecting and evaluating components.

Tools and equipment may include:	• hand tools
	• vehicle lifting devices
	• power and air tools
	• specialist tools for removal and replacement
	• soldering equipment
	• electronic testing equipment, including:
	  • multimeter
	  • test light
	  • load tester
	  • inductive ammeter
	  • test benches
	  • oscilloscope
	  • scan tools.

Starting systems may include:	• dynastart • inertia • pre-engaged • axial and coaxial • fixed and remote solenoid • direct drive • gear reduction • protection lockout • inhibitor switch • series-parallel switching • battery isolation switch • single/multiple battery system • permag starter motors • DC and AC motors.

Inappropriate testing procedures may include:	• intrusive **t**esting (which must not be performed as it is not a recommended test and repair method), which includes:
	  • back probing terminals and connectors and fuse holders with inappropriate test probes
	  • probing terminal and connectors with inappropriate test probes

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• pushing sharp probes and objects into wiring insulation.

Faults may include:	• component malfunction, including:
	  • low battery voltage
	  • discharged battery
	  • excessive voltage drop
	  • noisy operation
	  • seized mechanical components
	  • worn mechanical components
	  • failure to engage drive pinion
	• control circuit faults
	• open or short circuits to power, ground and reference circuits
	• high circuit resistance
	• DTC being set.

Repair options **may include:**	• component repair procedures, including:
	  • removal, replacement and adjustment procedures
	  • dismantle, repair, re-assembly and adjustment procedures.

Post-repair testing may include:	• validating effectiveness of the repair action • confirming that reported fault has been rectified • confirming that no other faults are present as a result of the repair action.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Electrical and Electronic

Custom Content Section

Not applicable.

AURETR3031 Diagnose and repair ignition systems

Modification History

Release	Comment
Release 1	Replaces AURE320666B Repair ignition systems Performance Criteria and Range Statement updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair ignition systems. It involves diagnosing deviations from correct operation, repairing ignition system components and associated systems, and undertaking post-repair testing procedures. The unit also involves identifying and confirming work requirements, preparing for work, and completing work finalisation processes, including clean-up and documentation. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to basic ignition and electronic ignition (EI) systems fitted in light and heavy vehicle, mining, construction, agricultural, motorcycle, outdoor power equipment and marine environments. Work does not apply to ignition systems associated with engine management systems. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose and repair ignition systems	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. ***Options for diagnosing faults*** are identified and used, using appropriate tools and diagnostic techniques 1.5. ***Tools and equipment*** are identified for effective repair methods
2. Diagnose ignition systems	2.1. ***Basic ignition and electronic ignition systems*** are tested to isolate faults according to workplace procedures and without causing damage to components or systems as a result of **inappropriate testing procedures** 2.2. ***Faults*** are identified from test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair ignition systems	3.1. ***Repair options*** are analysed and those most appropriate are selected 3.2. Appropriate tools, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage, according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation
4. Prepare vehicle and equipment for delivery to customer after repair is completed	4.1. Final inspection is made to ensure work is to workplace expectations 4.2. Vehicle is cleaned to workplace expectations and presented ready for use 4.3. Workplace documentation is processed according to workplace procedures
5. Clean up work area and finalise work processes	5.1. Material that can be reused is collected and stored according to workplace sustainability practices 5.2. Waste and scrap are removed according to workplace practices 5.3. Tools, equipment and the work area are cleaned and

ELEMENT	PERFORMANCE CRITERIA
	inspected according to workplace procedures 5.4. Tools and equipment are maintained according to workplace procedures 5.5. Faulty equipment is identified, tagged and isolated according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to:
  - apply learning when diagnosing and repairing various basic ignition and EI systems
  - recognise a workplace problem or potential problem and take action
- learning skills to identify sources of information, assistance and expert knowledge to expand skills, knowledge and understanding
- literacy skills to:
  - read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document required repairs and parts
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
  - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise them
- problem-solving skills to:
  - determine the underlying causes of faults
- refer problems outside area of responsibility to appropriate person and suggest possible causes
- seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
  - follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use hand, power, measuring and specialised tools relating to the repair of ignition systems
- technology skills to:
  - operate diagnostic and test equipment

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- use technology to collect, analyse and provide information

Required knowledge

- WHS regulations, requirements, equipment, material and personal safety requirements, including:
  - individual state and territory legislation
  - codes of practice
  - personal protection needs
- principal types of vehicle basic ignition and EI systems, including:
  - kettering
  - magneto
  - distributor
  - waste spark
- application, purpose and operation of basic ignition and EI systems, including:
  - ignition coil construction and operation:
    - transformer principles of operation
    - self-induced voltage and condenser effect on output
  - vehicle demands on ignition system
  - ignition switching and triggering, including dwell, firing order, timing, advances, current control and dwell extensions
  - magnetic inductive, hall effect and optical switching
- techniques for reading and interpreting technical information, graphic symbols and diagrams
- diagnostic and testing procedures, including:
  - diagnostic procedures for basic ignition and EI systems, including:
    - accessing and interpreting diagnostic trouble codes (DTCs)
    - diagnostic flow charts
  - analysis of system operation using electrical test equipment, current measurement, scan tools, oscilloscopes and other industry-relevant test equipment
  - visual, aural and functional assessments, including:
    - component damage and wear
    - component corrosion
- repair procedures, including:
  - component removal and replacement procedures
  - component and associated system adjustment procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • apply and demonstrate knowledge of ignition system operation, including dwell, current and timing control in all systems • diagnose and repair a range of vehicle basic ignition and EI systems • conduct diagnosis and repair procedures according to workplace, manufacturer and component supplier requirements • present vehicle and equipment in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • a range of ignition system and components relevant to the qualification being sought

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	• vehicles with basic ignition and EI faults relevant to the qualification being sought • equipment appropriate for the testing of vehicle basic ignition and EI systems • specifications and workplace instructions • tools appropriate for repairing, replacing and adjusting vehicle basic ignition and EI systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• electronic or hard copy instructions • verbal instructions • written instructions.
Job requirements may include:	• diagnosis and repair methods, processes and equipment.
Workplace health and safety requirements may include:	• personal protective clothing and equipment • hazards associated with high voltage ignition systems • use of tools and equipment • safe handling of material • use of fire-fighting equipment • workplace safety policies and procedures • workplace first aid equipment • hazard control, including control of hazardous materials and toxic substances.
Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins and memos • material safety data sheets (MSDS) • diagrams and sketches • safe work procedures relating to repairing and replacing basic ignition and EI systems • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • engineer's design specifications and instructions • workplace work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • vehicle service requirements and repair manuals.
Options for diagnosing faults may include:	• isolation of faults • component inspection and evaluation.

RANGE STATEMENT	
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Tools and equipment may include:	• hand tools • testing equipment, including multimeters, ammeters, voltmeters and tachometers • timing light • spark plug testers • insulation testers • power tools and air tools • tune scopes • engine analysers • dynamometers • distributor test bench.
Basic ignition and electronic ignition systems may include:	• single and dual points • transistor assisted • single and multiple distributors • ballast and non-ballast primary circuits • suppressed and non-suppressed high-tension leads • magneto • capacitor discharge ignition (CDI) systems • transistor controlled ignition (TCI) systems • electronic spark timing (EST) systems • advance mechanisms: mechanical, vacuum, electronic, magnetic pulse, optic and hall effect • spark plug, resistor plug and cap.

Inappropriate testing procedures may include:	• intrusive testing (which must not be performed as it is not a recommended test and repair method), which includes:
	  • back probing terminals and connectors and fuse holders with inappropriate test probes
	  • probing terminal and connectors with inappropriate test probes
	  • pushing sharp probes and objects into wiring insulation.

Faults may include:	• engine difficult to start or will not start • engine misfiring • poor engine performance • engine knock • overheating

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• DTC being set.

Repair options may include:	• pre- and post-repair testing
	• identifying and testing components
	• diagnosing and determining faults
	• component repair procedures, including:
	  • removal, replacement and adjustment procedures
	  • dismantle, repair, re-assembly and adjustment procedures
	• electrical measurements
	• peak voltage testing
	• visual and functional assessments, including for damage and wear.

Post-repair testing may include:	• validating effectiveness of the repair action • confirming that reported fault has been rectified • confirming that no other faults are present as a result of the repair action.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Electrical and Electronic

Custom Content Section

Not applicable.

AURETR3032 Repair electrical systems

Modification History

Release	Comment
Release 1	Replaces AURE318866A Repair electrical systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence to carry out repairs to vehicle/equipment electrical systems, including accessories, wipers, electric windows, lighting, turning indicators, hazard lights, door locks and fan blowers. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, testing of systems and identification of faults/causes, repair and retesting of electrical systems and completion of work finalisation processes, including clean-up and documentation. For minor electrical repairs see AURETR2012 Test and repair basic electrical circuits. For repairs to electrical marine systems see AURRTE3005 Diagnose and repair marine electrical systems and components. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Work instructions are used to determine job requirements, including method, process and equipment 1.2. Job specifications are read and interpreted 1.3. WHS requirements, including personal safety needs, are observed throughout the work 1.4. Equipment and tooling are identified and checked for safe and effective operation 1.5. Procedures are determined to minimise task time
2. Test systems/ components and identify faults	2.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 2.2. Tests are carried out to determine faults using tooling and techniques 2.3. Systems/components are tested without causing damage to component or system 2.4. Faults are identified and preferred repair action determined 2.5. Tests are carried out according to industry regulations/ guidelines, WHS, legislation and enterprise procedures/policies
3. Repair electrical systems	3.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 3.2. Repairs, component replacement and adjustments are carried out using tooling, techniques and materials 3.3. Repairs to electrical systems are completed without causing damage to component or system 3.4. Retests are carried out to ensure correct and safe electrical system operation 3.5. Repairs and retests are carried out according to industry regulations/guidelines, WHS, legislation and enterprise procedures/policies 3.6. Workplace and equipment documents are completed in accordance with site requirements
4. Clean up work area and maintain equipment	4.1. Material that can be reused is collected and stored 4.2. Waste and scrap is removed following workplace procedures 4.3. Equipment and work area are cleaned and inspected for serviceable condition in accordance with workplace procedures 4.4. Unserviceable equipment is tagged and faults identified in accordance with workplace requirements

ELEMENT	PERFORMANCE CRITERIA
	4.5. Operator maintenance is completed in accordance with manufacturer/component supplier specifications and site procedures 4.6. Tooling and equipment is maintained in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to work orders, plans and safety procedures for circuit and component testing, and major repairs/component replacement
- technical literacy and communication skills sufficient to interpret and apply common industry terminology, and interpret technical information and specifications
- research and interpretive skills to locate, interpret and apply operational and safety information
- communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with site supervisor, other workers and customers, and the reporting of work outcomes and problems
- plain English literacy and communication skills in relation to dealing with others involved in the work
- questioning and active listening skills, for example when obtaining information of electrical circuit/component testing, servicing and replacement procedures
- plan and organise activities, including preparation and layout of worksite and obtaining of equipment and material to avoid backtracking or workflow interruptions
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- use mathematical ideas and techniques to correctly complete tests and measurements to determine electrical circuit/component major repair/replacement requirements
- use pre-checking and inspection techniques to anticipate planning and scheduling problems, avoid wastage of time and material
- manipulative and dexterity skills to perform electrical testing, and repair/replacement procedures
- problem-solving skills for a range of procedural issues
- use workplace technology related to the repair of electrical systems, including use of specialist tooling and equipment, measuring equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- operation of electrical system/components relevant to application
- motor principles/magnetism
- types and layout of service/repair manuals (hard copy and electronic)
- procedures for the repair/replacement of electrical systems/components
- testing and diagnosis procedures of electrical system/component faults
- wiring repair procedures
- work organisation and planning processes

REQUIRED SKILLS AND KNOWLEDGE
• enterprise quality processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • testing and identifying open circuits, short circuits and earthing faults in electrical systems • repairing/replacing electrical systems/components to site and manufacturer/component supplier requirements • completing workplace and equipment documents.
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite. Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints. Assessment is to comply with regulatory requirements, including Australian Standards. The following resources should be made available: • workplace location or simulated workplace • material relevant to repairing electrical systems • equipment and hand and power tooling appropriate to repairing electrical systems • activities covering mandatory task requirements • specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of the Automotive Industry RS&R Training Package • Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge • Assessment must be by direct observation of tasks, with

EVIDENCE GUIDE	
	questioning on underpinning knowledge and it must also reinforce the integration of key competencies • Assessment may be applied under project related conditions and require evidence of process • Assessment must confirm a reasonable inference that competence is able to be under the particular circumstance, and is able to be transferred to other circumstances • It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Electrical systems	Electrical systems may include: • accessories, wipers, electric windows, door locks and fan blowers applicable to all equipment, including light, heavy, motorcycles, marine and outdoor power equipment
Faults	Faults are to include: • electrical unit faults, wire repair/replacement, open circuits, short circuits and earthing
Systems	Systems include; electrical systems fitted to all vehicles including motorcycles, marine and outdoor power equipment applicable to electrical measurements
Repair methods	Repair methods include: • fault finding using aural, visual and functional assessments for damage, corrosion, wear and electrical defects, reading/interpreting wiring diagrams, diagnosing and determining faults, soldering, crimping, repairing components and wiring, remove/replace components, and may include repairing 12/24 V electric motors
WHS requirements	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include: • protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to: • the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to

RANGE STATEMENT	
	others and site visitors
Emergency procedures	Emergency procedures are to include, but may not be limited to: • emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include, but are not limited to: • waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to: • regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include: • hand tooling, testing equipment, including multimeters, power tooling, air tooling, specialist tooling for removal/adjustment, manufacturer/component suppliers' diagnostic tooling, oscilloscopes and scan tooling
Materials	Materials may include: • spare parts, lubricants, fluids and cleaning material
Communications	Communications are to include, but are not limited to: • verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the repair of electrical systems • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Electrical

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Electrical and Electronic

AURETR3043 Service and repair electronic body management systems

Modification History

Release	Comment
Release 1	Replaces AURE321371A Service and repair electronic body management systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence to service/repair electronic body management systems and/or associated components which include engine immobilisation, central locking, power windows, electric mirrors, electronic seat adjustment with memory and security systems. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, testing and diagnosis of faults, servicing, repair and retesting of systems and completion of work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Work instructions are used to determine job requirements, including quality, material, equipment quantities and service manuals 1.2. Job specifications are read and interpreted 1.3. WHS requirements, including personal protection needs, are observed throughout the work 1.4. Electronic system protection devices, processes and precautions are identified appropriate to the application 1.5. Equipment and tooling are identified and checked for safety and correct operation 1.6. Procedures are identified to minimise task time
2. Test control system, diagnose faults and determine service/repair requirements	2.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 2.2. Tests are carried out according to manufacturer/component supplier recommended procedures using tooling, equipment and techniques 2.3. Testing is completed without causing damage to component or system 2.4. Test results are used to diagnose system/component faults 2.5. Service/repair requirements are determined 2.6. Testing is carried out according to industry regulations/ guidelines WHS and enterprise/procedures policies
3. Service/repair body management systems	3.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 3.2. Service/repair requirements are carried out according to manufacturer/component supplier recommended specifications and procedures 3.3. Service/repair is completed without causing damage to component or system 3.4. Electronic systems are tested and results are documented in accordance with workplace policies and procedures 3.5. Service, repair and retesting are carried out according to industry regulations/guidelines, WHS and enterprise/ procedures policies 3.6. Workplace and equipment documents are completed in accordance with site requirements
4. Clean up work area and maintain equipment	4.1. Material that can be reused is collected and stored 4.2. Waste and scrap are removed following workplace procedures

ELEMENT	PERFORMANCE CRITERIA
	4.3. Equipment and work area are cleaned and inspected for serviceable conditions in accordance with workplace procedures 4.4. Unserviceable equipment is tagged and faults identified in accordance with workplace procedures 4.5. Operator maintenance is completed in accordance with manufacturer/component supplier specifications and site procedures 4.6. Tooling is maintained in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to work orders, plans and safety procedures for servicing, repairing and testing electronic body management systems
- communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with site supervisor, other workers and customers, and the reporting of work outcomes and problems
- plan and organise activities, including preparation and layout of worksite and obtaining of equipment and material to avoid backtracking or workflow interruptions
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- use pre-checking and inspection techniques to anticipate planning and scheduling problems, avoid wastage of time and material
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the service and repair of electronic body management systems, including the use of specialist tooling and equipment, measuring equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS regulations/requirement, equipment, material and personal safety requirements
- operating principles of electronic body management systems
- construction and operation of electronic body management systems
- types and layout of service/repair manuals (hard copy and electronic)
- relationship to other electronically controlled systems, including shared components (e.g. ECU, sensors)
- testing, diagnosis and fault determination procedures
- servicing/repairing, removal, replacement and adjustment procedures relevant to application
- work organisation and planning processes
- enterprise quality processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • testing, inspecting and evaluating electronic body management systems/components • diagnosing and determining the repair/replacement requirements to rectify faults • servicing/repairing electronic body management systems to manufacturer/component supplier requirements • completing the work within agreed time • completing workplace and equipment documents.
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite. Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints. Assessment is to comply with regulatory requirements, including Australian Standards. The following resources should be made available: • workplace location or simulated workplace • material relevant to the service and repair of electronic body management systems • equipment, hand and power tooling appropriate to the service and repair of electronic body management systems • activities covering mandatory task requirements • specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of AUR12 Automotive Industry RS&R Training Package

EVIDENCE GUIDE	
	• Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge • Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies • Assessment may be applied under project related conditions and require evidence of process • Assessment must confirm a reasonable inference that competence is able to be under the particular circumstance, and is able to be transferred to other circumstances • It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Electronic body management systems	Electronic body management systems may control the following functions: • engine immobilisation, central locking, power windows, electric mirrors, electronic seat adjustment with memory and security systems
Fittings	Electronic body management systems include those fitted to light vehicles and/or heavy commercial vehicles and/or plant and equipment and/or outdoor power equipment
Functions	Electronic body management may control the following functions: • engine immobilisation, central locking, power windows, electric mirrors, electronic seat adjustment with memory and security systems
Service and repair methods	Service and repair methods include: • identifying, measuring and interpreting inputs and outputs, diagnosis and determining faults, pre- and post-repair testing of system and component operation, service and repair/replacement of system components, service and repair adjustments, removal, dismantling, reassembly and refitting, testing system operations and retrieval and assessment of electronic systems data, including fault codes
Faults	Faults may include: • component or system malfunction
Critical precautions	Critical precautions, including manufacturer/component supplier procedures, must be applied as poor working practices are likely to damage electronic system ECUs and/or other components
WHS requirements	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include: • protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances

RANGE STATEMENT	
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to: • the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but may not be limited to: • emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include, but are not limited to: • waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to: • regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include: • federal, state/territory and local authorities administering the acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include: • hand tooling, testing equipment, including multimeters, power tooling, air tooling, specialist tooling for removal/adjustment, specialised system testers, oscilloscope, scan tooling and LED test lights
Materials	Materials may include: • spare parts and cleaning material
Communications	Communications are to include, but are not limited to: • verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material

RANGE STATEMENT	
	safety data sheets, diagrams or sketches • safe work procedures related to the service and repair of electronic body management systems • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Electrical

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Electrical and Electronic

AURETR3044 Service and repair electronic drive management systems

Modification History

Release	Comment
Release 1	Replaces AURE321271A Service and repair electronic drive management systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence to service/repair electronic drive management systems and/or associated components. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, testing and diagnosis of faults, servicing, repair and retesting of systems and completion of work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Work instructions are used to determine job requirements including methods, processes and equipment 1.2. Job specifications are read and interpreted 1.3. WHS requirements, including personal protection needs, are observed throughout the work 1.4. Electronic system protection devices, processes and precautions are identified appropriate to the application 1.5. Equipment and tooling are identified and checked for safety and correct operation 1.6. Procedures are identified to minimise task time
2. Test control system, diagnose faults and determine service/repair requirements	2.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 2.2. Tests are carried out according to manufacturer/component supplier recommended procedures using tooling, equipment and techniques 2.3. Testing is completed without causing damage to component or system 2.4. Test results are used to diagnose system/component faults 2.5. Service/repair requirements are determined 2.6. Testing is carried out according to industry regulations/guidelines WHS and enterprise/procedures policies
3. Service/repair drive management systems	3.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 3.2. Service/repair requirements are carried out according to manufacturer/component supplier recommended specifications and procedures 3.3. Service/repair is completed without causing damage to component or system 3.4. Electronic systems are tested and results are documented in accordance with workplace policies and procedures 3.5. Service, repair and retesting are carried out according to industry regulations/guidelines, WHS and enterprise/procedures policies 3.6. Workplace and equipment documents are completed in accordance with site requirements
4. Clean up work area and maintain equipment	4.1. Material that can be reused is collected and stored 4.2. Waste and scrap are removed following workplace procedures

ELEMENT	PERFORMANCE CRITERIA
	4.3. Equipment and work area are cleaned and inspected for serviceable conditions in accordance with workplace procedures 4.4. Unserviceable equipment is tagged and faults identified in accordance with workplace procedures 4.5. Operator maintenance is completed in accordance with manufacturer/component supplier specifications and site procedures 4.6. Tooling is maintained in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to work orders, plans and safety procedures for servicing, repairing and testing electronic drive management systems
- communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with site supervisor, other workers and customers, and the reporting of work outcomes and problems
- plan and organise activities, including preparation and layout of worksite and obtaining of equipment and material to avoid backtracking or workflow interruptions
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- use pre-checking and inspection techniques to anticipate planning and scheduling problems, avoid wastage of time and material
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the service and repair of electronic drive management systems, including the use of specialist tooling and equipment, measuring equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS regulations/requirement, equipment, material and personal safety requirements
- operating principles of electronic drive management systems
- construction and operation of electronic drive management systems
- types and layout of service/repair manuals (hard copy and electronic)
- relationship to other electronically controlled systems, including shared components (e.g. ECU, sensors)
- testing, diagnosis and fault determination procedures
- servicing/repairing, removal, replacement and adjustment procedures relevant to application
- work organisation and planning processes
- enterprise quality processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • testing, inspecting and evaluating electronic drive management systems • diagnosing and determining the repair/replacement requirements to rectify faults • servicing/repairing electronic drive management systems to manufacturer/component supplier requirements • completing mandatory service and repair methods listed in the range statement • completing the work within agreed time • completing workplace and equipment documents.
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite. Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints. Assessment is to comply with regulatory requirements, including Australian Standards. The following resources should be made available: • workplace location or simulated workplace • material relevant to the service and repair of electronic drive management systems • equipment, hand and power tooling appropriate to the service and repair of electronic drive management systems • activities covering mandatory task requirements • specifications and work instructions.

EVIDENCE GUIDE	
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of AUR12 Automotive Industry RS&R Training Package • Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge • Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies • Assessment may be applied under project related conditions and require evidence of process • Assessment must confirm a reasonable inference that competence is able to be under the particular circumstance, and is able to be transferred to other circumstances • It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Drivelines	Electronic control automatic transmissions and 4WD drivelines, such as automatic free wheeling hubs, differentials and axle locks
Electronic drive management systems	Electronic drive management systems include: • electronically controlled automatic transmissions and electronically controlled 4WD drivelines, such as automatic free wheeling hubs, differentials and anti lock braking systems
Fittings	Electronic drive management systems may be fitted to light vehicles, plant, heavy vehicles and outdoor power equipment
Service and repair methods	Service and repair methods include: • diagnosis and determining faults, pre- and post-repair testing of system and component operation, service and repair/replacement of system components, service and repair adjustments, removal, dismantling, reassembly and refitting, retrieval and assessment of electronic systems data, including fault codes
Critical precautions include	Critical precautions include: • manufacturer/component supplier procedures which must be applied as poor working practices are likely to damage electronic system ECU and/or other components
WHS requirements	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include: • protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to: • the conduct of operational risk assessment and treatments

RANGE STATEMENT	
	associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but may not be limited to: • emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include, but are not limited to: • waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to: • regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include: • federal, state/territory and local authorities administering the acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include: • hand tooling, testing equipment, including multimeters, power tooling, air tooling, specialist tooling for removal/adjustment and specialist system testers
Materials	Materials may include: • spare parts and cleaning material
Communications	Communications are to include, but are not limited to: • verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the service and repair of electronic drive management systems • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements

RANGE STATEMENT	
	• instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Electrical

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Electrical and Electronic

AURETU2003 Service air conditioning and HVAC systems

Modification History

Release	Comment
Release 1	Replaces AURT222670A Service air conditioning systems Performance Criteria, Range Statement and Critical Aspects updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to service air conditioning systems including heating, ventilation, air conditioning and cooling (HVAC) systems that are fitted to a range of vehicles and equipment for passenger convenience and comfort. The unit involves identifying and confirming work requirements, preparing for work, and completing work finalisation processes, including clean-up and documentation. Licensing, legislative, regulatory or certification requirements apply to this unit. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to automotive air conditioners, including HVAC systems fitted to vehicles in light and heavy vehicle, mining, construction, agricultural, motorcycle and outdoor power equipment environments. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to service an air conditioning and HVAC system	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. Australian Refrigeration Council (ARC) code of practice is sourced and complied with 1.5. ***Servicing options*** are analysed and those most appropriate to the circumstances are selected and prepared 1.6. ***Tools and equipment*** are identified for effective servicing procedures 1.7. ***Critical precautions*** in relation to working with air conditioning, refrigerant and refrigerant oils are observed
2. Functionally test air conditioning and HVAC system and components and identify faults	2.1. Correct information is accessed and interpreted from manufacturer and component supplier specifications 2.2. ***Air conditioning and HVAC systems*** are performance tested to isolate faults according to workplace procedures and without causing damage to components or systems as a result of ***inappropriate testing procedures*** 2.3. ***Faults*** are identified from test results and causes of faults are determined 2.4. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments 2.5. Tests are carried out according to industry and WHS regulations and guidelines, and relevant industry codes of practice
3. Service air conditioning and HVAC system	3.1. Service of the system and components is carried out according to manufacturer and component supplier specifications, industry regulations and guidelines, WHS legislation, workplace policies and procedures, and relevant industry codes of practice 3.2. Air conditioning system service is completed without causing damage to components or systems 3.3. Regulations regarding topping up refrigerant are understood and followed
4. Retest air conditioning and HVAC system	4.1. System is retested to ensure correct and safe performance and operation 4.2. ***Post-service testing*** is carried out and results are documented according to air conditioning service

ELEMENT	PERFORMANCE CRITERIA
	procedures and relevant industry codes of practice
5. Prepare vehicle and equipment for delivery to customer	5.1. Final inspection is made to ensure vehicle protective guards and safety features are in place and work is to workplace expectations 5.2. Vehicle is cleaned to workplace expectations and presented ready for use 5.3. Workplace documentation is processed according to workplace procedures 5.4. Appropriate ***decal sticker*** is placed in engine compartment
6. Clean up work area and maintain equipment	6.1. Material that can be reused is collected and stored in the appropriate designated area and according to workplace sustainability practices 6.2. Waste and scrap are removed following workplace procedures and disposed of according to environmental regulations 6.3. Equipment and work area are cleaned and inspected for serviceable condition according to workplace procedures 6.4. Faulty equipment is identified, tagged and isolated according to workplace procedures and WHS regulations 6.5. Operator maintenance is completed according to manufacturer and component supplier specifications, site procedures and relevant industry codes of practice 6.6. Tools and equipment are maintained according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to:
  - apply learning when servicing various air conditioning and HVAC systems
  - recognise a workplace problem or potential problem and take action
- learning skills to identify sources of information, assistance and expert knowledge to expand skills, knowledge and understanding
- literacy skills to:
  - read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document required repairs and parts
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
  - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise them
- problem-solving skills to:
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
- select and use appropriate equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
  - follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to:
  - work with diverse individuals and groups
  - apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace technology and tools relating to servicing air conditioning and HVAC systems, including:

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- specialist tools and equipment
- measuring equipment
- computerised technology
- technology skills to:
  - operate diagnostic and test equipment
  - use technology to collect, analyse and provide information

Required knowledge

- WHS regulations, requirements, equipment, material and personal safety requirements, including:
  - legislation and regulatory requirements
  - ARC code of practice
- principal types of vehicle air conditioning and HVAC systems, including:
  - piston, scroll and rotary vane compressors
  - electric compressors
  - variable displacement compressors
  - clutchless compressors
- application, purpose and operation of air conditioning and HVAC systems, including:
  - climate control
  - multi-zone systems
- techniques for reading and interpreting technical information, graphic symbols and diagrams
- diagnostic and testing procedures, including:
  - diagnostic procedures for air conditioning and HVAC systems, including:
    - accessing and interpreting diagnostic trouble codes
    - diagnostic flow charts
  - analysis of system operation using gauges, temperature probes, electrical test equipment, scan tools and other industry-relevant test equipment
  - visual, aural and functional assessments, including:
    - component damage and wear
    - component corrosion
    - vacuum and leaks
- repair procedures, including:
  - component removal and replacement procedures
  - component and associated system adjustment procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements, in particular the dangers associated with handling refrigerants • select methods and techniques appropriate to servicing an air conditioning system • complete preparatory activity in a systematic manner • identify application, purpose and operating principles of automotive air conditioning and HVAC systems • conduct inspection, servicing and operational testing according to industry codes of practice and workplace, manufacturer and component supplier specifications • ensure that the addition of refrigerant to an existing system charge to 'top up' the air conditioning system **is not** carried out • performance test air conditioning systems • accurately interpret performance test results • complete servicing of air conditioning systems and associated components within workplace time frames • present vehicle and equipment in a condition that complies with workplace requirements • complete workplace and equipment documents to ARC code of practice requirements • clean up work area and maintain equipment to workplace standards.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	• applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • ARC code of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • vehicles with air conditioning and HVAC systems relevant to the qualification being sought • material relevant to servicing air conditioning systems • equipment appropriate for the testing of vehicle air conditioning and HVAC systems relevant to the qualification being sought, including: • manifold and gauge set • recovery unit • vacuum pump • electronic leak detector • nitrogen cylinder and regulator • digital vacuum gauge (vacrometer) • digital multimeter • electronic scales • oil injector • infra-red thermometer (pyrometer) • electronic temperature probe • valve core removing or replacement tool • psychrometer (humidity detector) • various refrigerant hoses and couplers • diagnostic scan tool • specifications and work instructions • service procedures for above equipment appropriate for the service and adjustment of vehicle air conditioning and HVAC systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

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Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• electronic or hard copy instructions • verbal instructions • written instructions • safe work procedures relating to refrigerant recovery and replacement.
Job requirements may include:	• testing and service methods, processes and equipment • diagnosing faults that may be in addition to normal service procedures and may be detrimental to future performance of the air conditioning and HVAC system.
Workplace health and safety requirements may include:	• material safety data sheets (MSDS) • first aid kit • personal protective clothing and equipment • use of tools and equipment • safe handling of material • use of fire-fighting equipment • workplace safety policies and procedures • workplace first aid equipment • hazard control, including control of hazardous materials and toxic substances • water shower or equivalent.
Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins and memos • MSDS • diagrams and sketches • safe work procedures relating to servicing air conditioning and HVAC systems • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • engineer’s design specifications and instructions • workplace work specifications and requirements • instructions issued by authorised workplace or external persons

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• Australian standards • ARC code of practice • vehicle service requirements and repair manuals.

Servicing options may include:	• fluid levels:
	  • refrigerant
	  • lubricating oils
	• filter serviceability:
	  • receiver dryer
	  • cabin filter
	• O-rings and seals
	• adjustments and operational testing
	• visual inspections and documentation.

Tools and equipment:	• are to include the following specialist tools that are mandatory under the ARC code of practice:
	  • manifold and gauge set
	  • recovery unit
	  • vacuum pump
	  • electronic leak detector
	  • electronic scales
	• may include:
	  • normal hand tools
	  • nitrogen cylinder and regulator
	  • digital vacuum gauge (vacrometer)
	  • oil injector
	  • infra-red thermometer (pyrometer)
	  • electronic temperature probe
	  • valve core removing or replacement tool
	  • psychrometer (humidity detector)
	  • various refrigerant hoses and couplers
	  • digital multimeter
	  • diagnostic scan tool.

Critical precautions may include:	• those relating to dangers associated with working with refrigerants and lubricants, including:

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• frostbite (refrigerant boiling point -36.7ºC) • carcinogenic oil • care taken with some flammable refrigerants.

Air conditioning and HVAC systems may include:	• single zone and multi-zone, including:
	  • climate control
	  • electric compressors
	• R12 systems
	• R134a systems
	• R1234yf systems
	• high and low pressure switches
	• pressure relief valves
	• temperature sensors
	• sunlight sensors
	• carbon dioxide sensors
	• zone temperature sensors.

Inappropriate testing procedures may include:	• intrusive testing (which must not be performed as it is not a recommended test and repair method), which includes:
	  • back probing terminals and connectors and fuse holders with inappropriate test probes
	  • probing terminal and connectors with inappropriate test probes
	  • pushing sharp probes and objects into wiring insulation.

Faults may include:	• system containing atmospheric air with moisture • electrical sensor malfunction • dislodged temperature sensor or transfer valve • faulty pressure relief valve • vacuum leak • air flow restriction or blockage • receiver drier blockage • evaporator fan not working • electrical fault • electrical system fault.
Post-service testing may include:	• validating the effectiveness of the service action, including the following checks:

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• ambient temperature • centre vent temperature • condenser and suction line temperature • manifold gauge pressure readings • refrigerant leaks • confirming that reported fault has now been rectified • confirming that no other faults are present as a result of the service action.
Information on decal sticker must include:	• name of the service organisation • quantity of refrigerant added • refrigerant and oil type • service date • technician's licence number • vehicle odometer reading.

Unit Sector(s)

Unit sector	Electrical

Co-requisite units

Not applicable.

Competency field

Competency field	Technical – Air Conditioning and HVAC

AURETU3004 Diagnose and repair air conditioning and HVAC systems

Modification History

Release	Comment
Release 1	Replaces AURT322666A Repair/retrofit air conditioning systems Performance Criteria, Range Statement and Critical Aspects updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair air conditioning systems including heating, ventilation, air conditioning and cooling (HVAC) systems that are fitted to a range of vehicles and equipment for passenger convenience and comfort. The unit involves diagnosing deviations from correct operation, repairing vehicle air conditioning and HVAC system components and associated systems, and applying post-repair testing procedures. The unit also involves identifying and confirming work requirements; preparing for work; testing systems; identifying faults and causes and appropriate repair; retesting air conditioning and HVAC systems; and completing work finalisation processes, including clean-up and documentation. Licensing, legislative, regulatory or certification requirements apply to this unit. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to automotive air conditioners, including HVAC systems fitted to vehicles in light and heavy vehicle, mining, construction, agricultural, motorcycle and outdoor power equipment environments. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose and repair air conditioning and HVAC system	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. Australian Refrigeration Council (ARC) code of practice is sourced and complied with 1.5. ***Options for diagnosing faults*** are identified and used, using appropriate tools and diagnostic techniques 1.6. ***Tools and equipment*** are identified for effective diagnosis and repair methods 1.7. ***Critical precautions*** in relation to working with air conditioning, refrigerant and refrigerant oils are observed
2. Diagnose air conditioning and HVAC system	2.1. ***Air conditioning and HVAC systems*** are tested to isolate faults according to workplace procedures and without causing damage to components or systems as a result of ***inappropriate testing procedures*** 2.2. ***Faults*** are identified from test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair air conditioning and HVAC system	3.1. ***Repair options*** are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tools and recognised techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage, according to workplace procedures and manufacturer and component supplier specifications
4. Retest air conditioning and HVAC system	4.1. Retests are carried out to ensure correct and safe air conditioning and HVAC system performance operation 4.2. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation
5. Prepare vehicle and equipment for delivery to customer after repair is completed	5.1. Final inspection is made to ensure work is to workplace expectations 5.2. Vehicle is cleaned to workplace expectations and presented ready for use 5.3. Workplace documentation is processed according to

ELEMENT	PERFORMANCE CRITERIA
	workplace procedures 5.4. Appropriate ***decal sticker*** is placed in engine compartment
6. Clean up work area and finalise work processes	6.1. Material that can be reused is collected and stored in the appropriate designated area and according to workplace sustainability practices 6.2. Waste and scrap are removed following workplace procedures and disposed of according to environmental regulations 6.3. Equipment and work area are cleaned and inspected for serviceable condition according to workplace procedures 6.4. Faulty equipment is identified, tagged and isolated according to workplace procedures and WHS regulations 6.5. Operator maintenance is completed according to manufacturer and component supplier specifications, site procedures and relevant industry codes of practice 6.6. Tools and equipment are maintained according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to:
  - apply learning when diagnosing and repairing various air conditioning and HVAC systems
  - recognise a workplace problem or potential problem and take action
- learning skills to identify sources of information, assistance and expert knowledge to expand skills, knowledge and understanding
- literacy skills to:
  - read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document required repairs and parts
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
  - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise them
- problem-solving skills to:
  - determine the underlying causes of faults
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
  - follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace technology and tools relating to repairing air conditioning and HVAC systems, including:
  - specialist tools and equipment

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- measuring equipment
- computerised technology
- technology skills to:
  - operate diagnostic and test equipment
  - use technology to collect, analyse and provide information

Required knowledge

- WHS regulations, requirements, equipment, material and personal safety requirements, including:
  - legislation relating to automotive air conditioning and HVAC systems
  - ARC code of practice
- principles of operation of automotive air conditioning and HVAC systems, including:
  - piston, scroll and rotary vane compressors
  - electric compressors
  - variable displacement compressors
  - clutchless compressors
- application, purpose and operation of air conditioning and HVAC systems, including:
  - climate control
  - multi-zone systems
- techniques for reading and interpreting technical information, including:
  - refrigerant saturation temperatures in relation to ambient temperatures and changing levels of humidity
  - graphic symbols and diagrams
- diagnostic and testing procedures, including:
  - use of manifold gauges and surface probe thermocouples for complete system analysis
  - diagnostic procedures for air conditioning and HVAC systems, including:
    - accessing and interpreting diagnostic trouble codes (DTC)
    - diagnostic flow charts
  - analysis of system operation using gauges, temperature probes, electrical test equipment, scan tools, oscilloscopes and other industry-relevant test equipment
  - visual, aural and functional assessments, including:
    - component damage and wear
    - component corrosion
    - vacuum and leaks
- repair procedures, including:
  - component removal and replacement procedures
  - component and associated system adjustment procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge.
	A person who demonstrates competency in this unit must be able to:
	• observe safety procedures and requirements, in particular the dangers associated with handling refrigerants
	• select methods and techniques appropriate to diagnosing and repairing an air conditioning system
	• complete preparatory activity in a systematic manner
	• diagnose and repair a range of vehicle air conditioning and HVAC systems, including:
	  • climate control
	  • single and multi-zone
	  • electric compressors
	• apply safe operation of automotive refrigerant tools and equipment
	• record relevant details in relation to workplace and licensing requirements of the ARC code of practice
	• demonstrate understanding of the environmental regulations and refrigerant waste disposal procedures
	• conduct diagnosis and repair procedures according to workplace, manufacturer and component supplier requirements
	• present vehicle and equipment in a condition that complies with workplace requirements
	• complete workplace and equipment documents to ARC code of practice requirements
	• clean up work area and maintain equipment to workplace standards.

Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur:

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

	• using standard workplace practices and procedures
	• following safety requirements
	• applying environmental constraints.
	
	Assessment is to comply with relevant:
	
	• regulatory requirements
	• Australian standards
	• ARC code of practice.
	
	The following resources must be made available for the assessment of this unit:
	
	• workplace location or simulated workplace
	• vehicles with air conditioning and HVAC faults relevant to the qualification being sought
	• equipment appropriate for the diagnosing and repairing a range of vehicle air conditioning and HVAC systems relevant to the qualification being sought, including:
	  • manifold and gauge set
	  • recovery unit
	  • vacuum pump
	  • electronic leak detector
	  • nitrogen cylinder and regulator
	  • digital vacuum gauge (vacrometer)
	  • digital multimeter
	  • electronic scales
	  • oil injector
	  • infra-red thermometer (pyrometer)
	  • electronic temperature probe
	  • valve core removing/replacement tool
	  • psychrometer (humidity detector)
	  • various refrigerant hoses and couplers
	  • diagnostic scan tool
	• specifications and workplace instructions
	• service procedures for above equipment appropriate for the diagnosis, repair, replacement and adjustment of vehicle air conditioning and HVAC systems.

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• electronic or hard copy instructions • verbal instructions • written instructions • safe work procedures relating to refrigerant recovery and replacement.
Job requirements may include:	• diagnosis and repair methods, processes and equipment.
Workplace health and safety requirements may include:	• material safety data sheets (MSDS) • first aid kit • personal protective clothing and equipment • use of tools and equipment • safe handling of material • use of fire-fighting equipment • workplace safety policies and procedures • workplace first aid equipment • water shower or equivalent • hazard control, including control of hazardous materials and toxic substances.
Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins and memos • MSDS • diagrams and sketches • safe work procedures relating to the diagnosis and repair of air conditioning and HVAC systems • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • engineer’s design specifications and instructions • workplace work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• ARC code of practice • vehicle service requirements and repair manuals.
Options for diagnosing faults may include:	• isolation of faults • component inspection and evaluation • use and application of air conditioning diagnostic tools.

Tools and equipment:	• are to include the following specialist tools, which are mandatory under the ARC code of practice:
	  • manifold and gauge set
	  • recovery unit
	  • vacuum pump
	  • electronic leak detector
	  • electronic scales
	• may include:
	  • normal hand tools
	  • nitrogen cylinder and regulator
	  • digital vacuum gauge (vacrometer)
	  • oil injector
	  • infra-red thermometer (pyrometer)
	  • electronic temperature probe
	  • valve core removing/replacement tool
	  • psychrometer (humidity detector)
	  • various refrigerant hoses and couplers
	  • digital multimeter
	  • diagnostic scan tool.

Critical precautions may include:	• dangers associated with working with refrigerants and lubricants, including:
	  • frostbite (refrigerant boiling point -36.7ºC)
	  • carcinogenic oil
	  • care taken with some flammable refrigerants.

Air conditioning and HVAC systems may include:	• single zone and multi-zone, including:
	  • climate control
	  • electric compressors
	• R12 systems

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• R134a systems • R1234yf systems • high and low pressure switches • pressure relief valve • temperature sensors • sunlight sensors • carbon dioxide sensors • zone temperature sensors.

Inappropriate testing procedures may include:	• intrusive testing (which must not be performed as it is not a recommende**d** test and repair method), which includes:
	  • back probing terminals and connectors and fuse holders with inappropriate test probes
	  • probing terminal and connectors with inappropriate test probes
	  • pushing sharp probes and objects into wiring insulation.

Faults may include:	• system containing atmospheric air with moisture • electrical sensor malfunction • dislodged temperature sensor or transfer valve • faulty pressure relief valve • vacuum leak • air flow restriction or blockage • receiver drier blockage • evaporator fan not working • electrical fault • electrical system fault.

Repair options may include:	• component repair procedures, including:
	  • removal, replacement and adjustment procedures
	  • dismantle, repair, re-assembly and adjustment procedures.

Post-repair testing may include:	• validating effectiveness of the repair action, including the following checks:
	  • ambient temperature
	  • centre vent temperature
	  • condenser and suction line temperature
	  • manifold gauge pressure readings

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• refrigerant leaks • confirming that reported fault has been rectified • confirming that no other faults are present as a result of the repair action.
Information on decal sticker must include:	• name of the service organisation • quantity of refrigerant added • refrigerant and oil type • service date • technician's licence number • vehicle odometer reading.

Unit Sector(s)

Competency field	Electrical
Unit sector	Technical – Air Conditioning and HVAC

Co-requisite units

Not applicable.

Competency field

AURETU3005 Retrofit and modify air conditioning and HVAC systems

Modification History

Release	Comment
Release 1	Replaces AURT322666A Repair/retrofit air conditioning systems Performance Criteria, Range Statement and Critical Aspects of Evidence updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to retrofit and modify automotive air conditioning systems – including heating, ventilation, air conditioning and cooling (HVAC) systems – that are fitted to a range of vehicles and equipment for passenger convenience and comfort. The unit involves diagnosing deviations from correct operation, the retrofit and modification of vehicle air conditioning and HVAC system components and associated systems, and applying post-modification testing procedures. The unit also involves identifying and confirming work requirements, preparing for work, de-gassing and re-gassing systems, and completing work finalisation processes, including clean-up and documentation. Licensing, legislative, regulatory or certification requirements apply to this unit. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to automotive air conditioners, including HVAC systems fitted in light and heavy vehicle, mining, construction, agricultural, motorcycle and outdoor power equipment environments. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to retrofit air conditioning and HVAC system	1.1. Nature and ***scope of work*** requirements are identified and confirmed 1.2. ***Workplace health and safety (WHS) requirements*** are observed throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. Australian Refrigeration Council (ARC) code of practice is sourced and complied with 1.5. ***Retrofit options*** are analysed and those most appropriate to the circumstances are selected and prepared 1.6. Technical and calibration requirements for retrofit are sourced and support equipment is identified and prepared 1.7. ***Tools and equipment*** are identified for effective retrofit and modification methods 1.8. ***Critical precautions*** in relation to working with air conditioning, refrigerant and refrigerant oils are observed
2. De-gas and re-gas air conditioning and HVAC system	2.1. Correct information is accessed and interpreted from manufacturer and component supplier specifications 2.2. System is de-gassed using approved recovery unit and appropriate refrigerant recovery cylinder for individual refrigerant type 2.3. Oil recovered is measured for replacement purposes 2.4. System is evacuated according to manufacturer and component supplier specifications and industry codes of practice, including state and territory legislation with reference to ozone depleting substances 2.5. System is pressure tested for leaks prior to being re-gassed and performance tested using approved methods and equipment 2.6. Recovery and charging of air conditioning system are completed without causing damage to components or systems and in line with requirements for ozone depleting substances, industry regulations and guidelines, WHS legislation, and relevant industry codes of practice
3. Retrofit air conditioning and HVAC system	3.1. Correct information is accessed and interpreted from manufacturer and component supplier specifications 3.2. Air conditioning retrofit procedures are determined after performance testing 3.3. Retrofit of the system and components is carried out according to manufacturer and component supplier specifications

ELEMENT	PERFORMANCE CRITERIA
	3.4. Modifications are carried out without additional pressures associated with the performance of the system or any loss to system integrity 3.5. Retrofit to air conditioning system is completed without causing damage to components or systems and according to industry regulations and guidelines, WHS legislation, and relevant industry codes of practice
4. Performance test air conditioning and HVAC system	4.1. System is performance tested prior to placing into service and results are documented according to workplace policies and procedures 4.2. Service schedule documentation is completed 4.3. Final inspection is made to ensure protective guards and safety features are in place
5. Retest air conditioning and HVAC systems	5.1. Retests are carried out to ensure correct and safe system performance operation 5.2. ***Post-retrofit testing*** is carried out according to workplace procedures and relevant legislation
6. Prepare vehicle and equipment for delivery to customer	6.1. Final inspection is made to ensure work is to workplace expectations 6.2. Vehicle is cleaned to workplace expectations and presented ready for use 6.3. Workplace documentation is processed according to workplace procedures 6.4. Appropriate ***decal sticker*** is placed in engine compartment
7. Clean up work area and maintain equipment	7.1. Material that can be reused is collected and stored in the appropriate designated area and 7.2. Waste and scrap are removed following workplace procedures and disposed of according to environmental regulations 7.3. Equipment and work area are cleaned and inspected for serviceable condition according to workplace procedures 7.4. Faulty equipment is identified, tagged and isolated according to workplace procedures and WHS regulations 7.5. Operator maintenance is completed according to manufacturer and component supplier specifications, site procedures and ARC code of practice 7.6. Tools and equipment are maintained according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow verbal and written instructions
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to:
  - apply learning when retrofitting and modifying various air conditioning and HVAC systems
  - recognise a workplace problem or potential problem and take action
- learning skills to identify sources of information, assistance and expert knowledge to expand skills, knowledge and understanding
- literacy skills to:
  - read and follow information in written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document required repairs and parts
- numeracy skills to:
  - test, measure and analyse test equipment results compared to desired system performance
  - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise them
- problem-solving skills to:
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
  - follow workplace documentation, such as codes of practice and operating procedures
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace technology and tools relating to the retrofit and modification of air conditioning and HVAC systems, including:
  - specialist tools and equipment

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- measuring equipment
- computerised technology
- technology skills to:
  - operate diagnostic and test equipment
  - use technology to collect, analyse and provide information

Required knowledge

- WHS regulations, requirements, equipment, material and personal safety requirements, including:
  - legislation
  - ARC code of practice
- principles of operation of automotive air conditioning and HVAC systems, including:
  - piston, scroll and rotary vane compressors
  - electric compressors
  - variable displacement compressors
  - clutchless compressors
- application, purpose and operation of air conditioning and HVAC systems, including:
  - climate control
  - multi-zone systems
- technical information relating to air conditioning and HVAC systems, including:
  - refrigerant saturation temperatures in relation to ambient temperatures and changing levels of humidity
  - graphic symbols and diagrams
- diagnostic and testing procedures, including:
  - use of manifold gauges and surface probe thermocouples for complete system analysis
  - diagnostic procedures for air conditioning and HVAC systems, including:
    - accessing and interpreting diagnostic trouble codes
    - diagnostic flow charts
  - analysis of system operation using gauges, temperature probes, electrical test equipment, scan tools, oscilloscopes and other industry-relevant test equipment
  - visual, aural and functional assessments, including:
    - component damage and wear
    - component corrosion
    - vacuum and leaks
- repair procedures, including:
  - component removal and replacement procedures
  - component and associated system adjustment procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements, in particular the dangers associated with handling refrigerants • select methods and techniques appropriate to the retrofit and modification of an air conditioning system • conduct performance testing to establish viability of retrofit and modification • complete preparatory activity in a systematic manner • apply full retrofit and modify sequence in line with scope of work • accurately interpret air conditioning performance test results • conduct refrigerant recovery and evacuation of refrigerant operations according to industry codes of practice and legislation, and charge the system with the appropriate refrigerant and oil type • complete a retrofit and modification of air conditioning system and associated components within workplace time frames • present vehicle and equipment in a condition that complies with workplace requirements • complete workplace and equipment documents to ARC code of practice requirements • clean up work area and maintain equipment to workplace standards.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

	• applying environmental constraints.
	Assessment is to comply with relevant:
	• regulatory requirements
	• Australian standards
	• industry codes of practice
	• ARC code of practice.
	The following resources must be made available for the assessment of this unit:
	• workplace location or simulated workplace
	• light and heavy vehicles with air conditioning and HVAC systems relevant to the qualification being sought
	• material relevant to perform a retrofit and modification of air conditioning systems
	• equipment appropriate for the retrofit or modification of light and heavy vehicle air conditioning and HVAC systems, including:
	  • manifold and gauge set
	  • recovery unit
	  • vacuum pump
	  • electronic leak detector
	  • nitrogen cylinder and regulator
	  • digital vacuum gauge (vacrometer)
	  • digital multimeter
	  • electronic scales
	  • oil injector
	  • infra-red thermometer (pyrometer)
	  • electronic temperature probe
	  • valve core removing/replacement tool
	  • psychrometer (humidity detector)
	  • various refrigerant hoses and couplers
	  • diagnostic scan tool
	• specifications and work instructions
	• service procedures for above equipment appropriate for the retrofit and modification of vehicle air conditioning and HVAC

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Scope of work may include:	• type of system fitted
	• refrigerant type
	• oil type
	• system variables, including:
	  • refrigerant leak detecting
	  • refrigerant recovery and charging
	  • system evacuation
	  • mechanical removal and replacement of components
	  • system and component testing
	  • performance testing.

Workplace health and safety requirements may include:	• material safety data sheets (MSDS) • first aid kit • personal protective clothing and equipment • use of tools and equipment • safe handling of material • use of fire-fighting equipment • workplace safety policies and procedures • workplace first aid equipment • water shower or equivalent • hazard control, including control of hazardous materials and toxic substances • dangers associated with handling refrigerants and oils.
Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins and memos • MSDS • diagrams and sketches • safe work procedures relating to the retrofit and modification to air conditioning and HVAC systems • regulatory and legislative requirements relating to automotive industry • Australian Design Rules

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• engineer's design specifications and instructions • workplace work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • ARC code of practice • vehicle service requirements and repair manuals.

Retrofit options may include:	• change of refrigerant gas from R12 to R134a:
	  • receiver dryer filter replacement
	  • change of system fittings for gauge fitment
	• change of refrigerant gas from R134a to R1234yf:
	  • change of system fittings for gauge fitment.

Tools and equipment:	• are to include the following specialist tools, which are mandatory under the ARC code of practice:
	  • manifold and gauge set
	  • recovery unit
	  • vacuum pump
	  • electronic leak detector
	  • electronic scales
	• may include:
	  • normal hand tools
	  • nitrogen cylinder and regulator
	  • digital vacuum gauge (vacrometer)
	  • oil injector
	  • infra-red thermometer (pyrometer)
	  • electronic temperature probe
	  • valve core removing/replacement tool
	  • psychrometer (humidity detector)
	  • various refrigerant hoses and couplers
	  • digital multimeter
	  • diagnostic scan tool.

Critical precautions may include:	• dangers associated when working with refrigerants and lubricants, including: • frostbite (refrigerant boiling point -36.7ºC)

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• carcinogenic oil • care taken with some flammable refrigerants.

Post-retrofit testing may include:	• validating the effectiveness of the retrofit and modification action, including the following checks:
	  • ambient temperature
	  • centre vent temperature
	  • condenser and suction line temperature
	  • manifold gauge pressure readings
	  • refrigerant leaks
	• confirming that reported faults have been rectified
	• confirming that no other faults are present as a result of the retrofit and modification action.

Information on ***decal sticker*** must include:	• name of the service organisation • quantity of refrigerant added • refrigerant and oil type • service date • technician's licence number • vehicle odometer reading.

Unit Sector(s)

Unit sector	Electrical

Co-requisite units

Not applicable.

Competency field

Competency field	Technical – Air Conditioning and HVAC

AURHTB3001 Repair air braking systems

Modification History

Release	Comment
Release 1	Replaces AURT311166A Repair air braking systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out the repair of air braking systems and associated components. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, testing, analysis and repair of air braking systems and associated components and completion of work finalisation processes, including clean-up and documentation. Work involves vehicles equipped with air braking systems. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to repair air braking system and associated components	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and/or calibration requirements for repair of air braking systems are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with air braking systems are observed
2. Test air braking systems and analyse results	2.1. Methods for tests are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Air braking test results are compared with manufacturer/ component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is forwarded to persons for action in accordance with workplace procedures
3. Repair air braking system	3.1. Methods for repair are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 3.2. Adjustments made during the repair are in accordance with manufacturer/component supplier specifications
4. Prepare vehicle for use or storage	4.1. Repair schedule documentation is completed 4.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 4.3. Final inspection is made to ensure work is to workplace expectations 4.4. Vehicle is cleaned for use or storage to workplace expectations 4.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the repair of air braking systems, including the use of measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- dangers of working with air braking systems
- operating principles of air braking systems and their relationship to each other
- types and layout of service/repair manuals (hard copy and electronic)
- test procedures
- repair procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • testing air braking system for faults including internal and external air leaks • interpreting test results • conducting repair in accordance with workplace and manufacturer/component supplier requirements • completing repair of air braking systems and associated components within workplace timeframes • vehicle presentation to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the repair of air braking systems • equipment, hand and power tooling appropriate to the repair of air braking systems • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package

EVIDENCE GUIDE	
	Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Components	Components may include compressors, actuators, pressure lines, receivers and valves
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice

RANGE STATEMENT	
Tooling and equipment	Tooling and equipment may include hand tooling, pressure gauges and brake testing devices
Materials	Materials may include spare parts and cleaning materials
Communications	Communications are to include but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the repair of air braking systems and associated components • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical - Heavy Vehicle

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Brakes

AURHTB3002 Diagnose and repair heavy vehicle hydraulic braking systems

Modification History

Release	Comment
Release 1	Replaces AURT310166A - Repair hydraulic braking systems Performance Criteria, Range Statement and Critical Aspects of Evidence updated to modern heavy vehicle technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair hydraulic braking systems fitted to heavy vehicles. It involves diagnosing deviations from correct operation, repairing hydraulic braking system components and associated systems, and undertaking post-repair testing procedures. Licencing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to the hydraulic braking systems of heavy vehicles in the road transport, mining, construction and agricultural environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose and repair a heavy vehicle hydraulic braking system	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed and applied throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. Diagnosis options are analysed and those most appropriate to the circumstances are selected 1.5. Appropriate diagnostic tools and equipment are selected and prepared
2. Diagnose a heavy vehicle hydraulic braking system	2.1. ***Diagnostic tests*** are performed according to workplace procedures and without causing damage to components or systems 2.2. ***Faults*** are identified from diagnostic test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair a heavy vehicle hydraulic braking system	3.1. ***Repair options*** are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tools, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage to components or systems and according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation
4. Clean up work area and finalise work processes	4.1. Final inspection is made to ensure work is to workplace expectations and vehicle is presented ready for use 4.2. Tools and equipment are checked and stored according to workplace expectations 4.3. Workplace documentation is processed according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to adapt to new and emerging situations in the workplace
- learning skills to identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- literacy skills to:
  - understand quality procedures
  - read and follow information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document repairs and parts required
- numeracy skills to assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise risk
- problem-solving skills to:
  - determine the underlying causes of faults
  - recognise a workplace problem or a potential problem and take action
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace tools relating to the repair of heavy vehicle hydraulic braking systems, including the use of:
  - specialised tools and equipment
  - measuring equipment
- technology skills to:
  - operate diagnostic and test equipment
  - use technology to collect, analyse and provide information.

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required knowledge

- WHS regulations, requirements, equipment and material, and personal safety requirements relating to diagnosing and repairing heavy vehicle hydraulic braking systems
- legislation and regulatory requirements
- dangers of working with heavy vehicle hydraulic braking systems
- application, purpose and operating principles of heavy vehicle hydraulic braking systems
- testing procedures for heavy vehicle hydraulic braking systems
- repair procedures for heavy vehicle hydraulic braking systems
- post-repair testing procedures for heavy vehicle hydraulic braking systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • diagnose and repair a range of heavy vehicle hydraulic braking systems • diagnose and repair heavy vehicle hydraulic braking systems according to workplace, manufacturer and component supplier requirements • present vehicle in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • heavy vehicles with hydraulic braking faults relevant to the qualification being sought • equipment appropriate for the testing of heavy vehicle hydraulic

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	braking systems • specifications and workplace instructions • tools appropriate for the repair, replacement and adjustment of heavy vehicle hydraulic braking systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• computer-generated instructions • verbal instructions • written instructions.
Job requirements may include:	• heavy vehicle braking system diagnosis and repair methods, processes and equipment.

***Workplace health and safety (WHS) requirements*:**	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures
	• may include:
	  • protective clothing and equipment
	  • use of tools and equipment
	  • handling of material
	  • use of fire-fighting equipment
	  • first aid equipment
	• hazard control, including control of hazardous materials and toxic substances.

Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins or memos • material safety data sheets (MSDS) • diagrams or sketches • safe work procedures relating to the repair and replacement of heavy vehicle hydraulic braking systems • regulatory and legislative requirements relating to the automotive industry • Australian Design Rules • Engineer’s design specifications and instructions • organisational work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • heavy vehicle hydraulic brake service requirements and repair manuals.
Diagnostic tests may	• visual inspection of braking system components

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
include:	• measurement of linkage and actuator adjustments • disc rotor thickness, parallelism and run-out measurements • brake drum diameter, out-of-round, and bell-mouthing measurements • brake fluid evaluation
Faults may include:	• poor braking performance • braking system leaks • dragging brakes • excessive braking pedal travel • abnormal braking system noise • worn, damaged or badly-adjusted components.

Repair options may include:	• component repair procedures, including:
	  • removal, replacement and adjustment procedures
	  • dismantle, repair, re-assembly and adjustment procedures.

Post-repair testing may include:	• mobile or stationary tests to evaluate braking system performance.

Unit Sector(s)

Competency field	Mechanical – Heavy Vehicle
Unit sector	Technical - Brakes

Custom Content Section

Not applicable.

AURHTB3007 Diagnose and repair heavy vehicle electronic braking systems

Modification History

Release	Comment
Release 1	New unit of competency

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair electronically controlled braking systems fitted to heavy vehicles. It involves diagnosing deviations from correct operation, repairing electronic braking system components and associated systems, and undertaking post-repair testing procedures. Licencing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to the electronic braking systems of heavy vehicles in the road transport industry.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose and repair a heavy vehicle electronic braking system	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed and applied throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. ***Diagnosis options*** are analysed and those most appropriate to the circumstances are selected and prepared
2. Diagnose a heavy vehicle electronic braking system	2.1. Diagnostic tests are performed according to workplace procedures and without causing damage to components or system 2.2. ***Faults*** are identified from diagnostic test results and causes of faults are determined 2.3. ***Diagnosis findings*** are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair a heavy vehicle electronic braking system	3.1. ***Repair options*** are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tools, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage to components or systems and according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation
4. Clean up work area and finalise work processes	4.1. Final inspection is made to ensure work is to workplace expectations and vehicle is presented ready for use 4.2. Tools and equipment are checked and stored according to workplace procedures 4.3. Workplace documentation is processed according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to adapt to new and emerging situations in the workplace
- learning skills to identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- literacy skills to:
  - understand quality procedures
  - read and follow information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document repairs and parts required
- numeracy skills to:
  - interpret gauges, diagnostic and test equipment
  - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise risk
- problem-solving skills to:
  - determine the underlying causes of faults
  - recognise a workplace problem or a potential problem and take action
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to:
  - use workplace tools and equipment relating to the repair of electronic braking systems, including the use of specialist tooling and equipment, measuring equipment, computerised technology and communication devices
- technology skills to:

REQUIRED SKILLS AND KNOWLEDGE
• operate diagnostic and test equipment • use technology to collect, analyse and provide information
Required knowledge
• WHS regulations, requirements, equipment and material, and personal safety requirements relating to heavy vehicle electronic braking system • dangers of working with heavy vehicle electronic braking systems • legislation and regulatory requirements of heavy vehicle electronic braking systems • operating principles of heavy vehicle electronic braking systems • application, purpose and operation of heavy vehicle electronic braking systems • effects of associated systems on vehicle's electronic braking system • techniques for reading and interpreting electrical circuit diagrams of electronic braking systems • testing procedures of heavy vehicle electronic braking systems • repair procedures of heavy vehicle electronic braking systems • post-repair testing procedures of heavy vehicle electronic braking systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • diagnose and repair a range of heavy vehicle electronic braking systems • conduct diagnosis and repair procedures of heavy vehicle electronic braking systems according to workplace, manufacturer and component supplier requirements • present vehicle in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • heavy vehicles with electronic braking faults relevant to the qualification being sought • equipment appropriate for the testing of heavy vehicle electronic braking systems

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	• specifications and workplace instructions • tools appropriate for the repair, replacement and adjustment of heavy vehicle electronic braking systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• computer-generated instructions • verbal instructions • written instructions.
Job requirements may include:	• heavy vehicle electronic braking system diagnosis and repair methods, processes and equipment.

***Workplace health and safety requirements*:**	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures
	• may include:
	  • protective clothing and equipment
	  • use of tools and equipment
	  • handling of material
	  • use of fire-fighting equipment
	  • first aid equipment
	• hazard control, including control of hazardous materials and toxic substances.

Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins or memos • material safety data sheets (MSDS) • diagrams or sketches • safe work procedures relating to the repair and replacement of heavy vehicle electronic braking systems • regulatory and legislative requirements relating to the automotive industry • Australian Design Rules • engineer's design specifications and instructions • organisational work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • National Environment Protection Measure for Diesel Vehicles (Guidelines) • heavy vehicle service requirements and repair manuals.

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Diagnosis options may include:	• isolation of faults • component inspection and evaluation.
Faults may include:	• steering axle or drive axle brake modulator faults • sensor faults • electronic control unit (ECU) faults.
Diagnosis findings may include:	• comparison of test results with manufacturer specifications • recommendations for repair, adjustment or replacement of parts.

Repair options may include:	• component repair procedures, including:
	  • removal, replacement and adjustment procedures
	  • dismantle, repair, re-assembly and adjustment procedures.

Post-repair testing may include:	• on-board diagnostic system assessment procedures.

Unit Sector(s)

Competency field	Mechanical – Heavy Vehicle
Unit sector	Technical – Brakes

Custom Content Section

Not applicable.

AURHTD3002 Repair steering systems (heavy vehicle)

Modification History

Release	Comment
Release 1	Replaces AURTH315166A Repair steering systems (heavy vehicle) Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out repairs to wheeled and/or tracked type steering systems and associated components. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, tests and analysis of results, completion of repairs and completion of work finalisation processes, including clean-up and documentation. This unit of competence should be contextualised to the qualification to which it is being applied. Work involved includes wheeled and/or tracked type vehicles and heavy vehicles. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to undertake repair of steering system	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and/or operational requirements for inspecting and repairing steering systems are sourced and support tooling and equipment are identified and prepared 1.6. Warnings in relation to working with wheeled and tracked vehicles are observed
2. Conduct test and analyse results	2.1. Methods for steering system tests are implemented in accordance with workplace procedures and manufacturer/ component supplier specifications 2.2. Inspection/test results are compared with manufacturer/ component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is forwarded to persons for action in accordance with workplace procedures
3. Carry out repairs	3.1. Methods for repair are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 3.2. Adjustments, including wheel bearing adjustments are made during the repair are in accordance with manufacturer/component supplier specifications
4. Prepare vehicle/ equipment for customer and/or storage	4.1. Repair schedule documentation is completed 4.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 4.3. Final inspection is made to ensure work is to workplace expectations 4.4. Vehicle/equipment is cleaned for use or storage to workplace expectations 4.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology, including the use of measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- operating principles of mechanical and hydraulic steering systems and their relationship to each other
- types and layout of service/repair manuals (hard copy and electronic)
- dangers of working with wheeled and tracked vehicles
- steering systems testing and adjusting procedures
- steering systems repair procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • interpreting test results • completing repair to a range of steering systems to manufacturer/component supplier requirements • completing repairs within workplace timeframes • vehicle/equipment presentation to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the repair of steering systems • equipment, hand and power tooling appropriate to the repair of steering systems • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge

EVIDENCE GUIDE	
	Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Repair of steering systems and equipment	Repair of steering systems and equipment may include: • component and / or system adjustments • ball joints, struts, idler arms, steering boxes, steering columns, steering racks, king pin and steering actuators • electronic controlled steering systems • full power steering, including articulated vehicles • tracked type vehicles
Methods	Methods are to include: • operational testing, electrical testing and hydraulic testing • visual, aural and functional assessments (including: damage, corrosion, wear) • principles, angles and geometry of vehicle wheel alignment
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental	Environmental requirements are to include but are not limited to

RANGE STATEMENT	
requirements	waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges, testing equipment and devices, including camber, caster, KPI and toe out on turns measuring systems
Materials	Materials may include spare parts, lubricants, fluids and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the repair of steering systems • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical - Heavy Vehicle

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Steering and Suspension

AURHTD3003 Repair suspension systems (heavy vehicle)

Modification History

Release	Comment
Release 1	Replaces AURTH316166A Repair suspension systems (heavy vehicle) Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out the repairs to suspension systems and associated components. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, inspections/testing and analysis of outcomes and completion of repair actions and work finalisation processes, including clean-up and documentation. This unit of competence should be contextualised to the qualification to which it is being applied. Work involves wheeled vehicles, including chain drive and tracked type vehicles. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to undertake repairs to suspension systems and associated components	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and/or measurement requirements for suspension systems are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with wheeled and tracked vehicles are observed
2. Conduct inspection/test and analysis	2.1. Methods for inspection/test procedures and manufacturer/ component supplier specifications 2.2. Inspection/test results are compared with manufacturer/ component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is forwarded to persons for action in accordance with workplace procedures
3. Carry out repairs	3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information are identified and sourced 3.3. Technical and tool requirements for repair are identified and support equipment is identified and prepared 3.4. Methods for repair are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 3.5. Adjustments made during the repair are in accordance with manufacturer/component supplier specifications
4. Prepare vehicle for use or storage	4.1. Repair schedule documentation is completed 4.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 4.3. Final inspection is made to ensure work is to workplace expectations 4.4. Vehicle/equipment is cleaned for use or storage to

ELEMENT	PERFORMANCE CRITERIA
	workplace expectations 4.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology, including the use of measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- dangers of working with equipment on chassis
- types and layout of service/repair manuals (hard copy and electronic)
- repair procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • interpreting inspection/test results • conducting repair of a range of systems in accordance with manufacturer/component supplier and workplace requirements • completing repairs within workplace timeframes • vehicle/equipment presentation to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the repair of suspensions systems • equipment, hand and power tooling appropriate to the repair of suspensions systems • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge

EVIDENCE GUIDE	
	Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

Suspension systems	• Suspension systems may be gas, hydraulic, pneumatic, mechanical or rubber suspension
	• Suspension systems may include:
	  • lateral and longitudinal arms, independent suspension
	  • ball joints
	  • self-levelling device, ride control, height control

Repair methods	Methods are to include: • functional testing, pressure testing, electrical testing • visual, aural and functional assessments (including: damage, corrosion, fluid levels, fluid leaks, air leaks, wear, alignment) • adjustment of shock absorbers • accumulators
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental	Environmental requirements are to include but are not limited to

RANGE STATEMENT	
requirements	waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges, load testing devices, computerised diagnostic equipment and shock absorber testers
Materials	Materials may include spare parts, lubricants, fluids and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the repair of suspension systems • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical - Heavy Vehicle

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Steering and Suspension

AURHTD3004 Carry out wheel alignment operations (heavy vehicle)

Modification History

Release	Comment
Release 1	Replaces AURTH317108A Carry out wheel alignment operations (heavy vehicle) Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit identifies the competence required to carry out wheel alignment operations. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, carrying out wheel alignment operations and completion of work finalisation processes, including clean-up and documentation. This unit of competence should be contextualised to the qualification to which it is being applied. Wheel alignment operations may be for heavy vehicles. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Carry out wheel alignment pre-checks	1.1. Information is gained from customer outlining handling characteristics and history 1.2. Nature and scope of work requirements are identified and confirmed 1.3. Procedures and information such as workshop manuals and specifications, and tools required, are sourced 1.4. Vehicle/equipment tests are performed to confirm need for alignment 1.5. Vehicle wheel alignment pre-checks are carried out in accordance with manufacturer/component supplier procedures and workplace requirements
2. Perform vehicle wheel alignment	2.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 2.2. Wheel alignment measuring equipment is connected to vehicle in accordance with manufacturer/component supplier specifications 2.3. Wheel alignment is completed without causing damage to any component or system 2.4. Corrective adjustments/repairs are carried out in accordance with manufacturer/component supplier specifications 2.5. Vehicle/equipment is tested to confirm accuracy of adjustments according to manufacturer/component supplier specifications and customer requirements 2.6. Wheel alignment testing and adjustment is carried out according to industry regulations/guidelines, WHS legislation, legislation and enterprise procedures/policies 2.7. Workplace documentation is completed and dealt with relevant to alignment outcomes
3. Complete documentation and service history documents	3.1. Service history is updated in accordance with workplace requirements 3.2. Before and after alignment measurements are documented and included in customer documentation 3.3. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology, including the use of measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- operating principles of steering geometry and wheel alignment
- wheel alignment procedures
- relationships between fault symptoms and component defects
- chassis alignment checks
- wheel alignment system types and their construction
- use of measuring tools and testing equipment
- use of hand tools and specialised equipment
- pre-check procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • conducting the alignment of a range of wheels in accordance with workplace and manufacturer/component supplier requirements • accurately interpreting wheel alignment measurements • completing wheel alignment within workplace timeframes • vehicle/equipment is presented to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to wheel alignment operations • equipment, hand and power tooling appropriate to wheel alignment operations • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of

EVIDENCE GUIDE	
	performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Wheel alignment operations	Wheel alignment operations are to include one or more of the following systems: • drive axles • two and four wheel steer, tandem steer • single wheel steer • trailer axle • Methods are to include: • chassis/underframe alignment checks • measurement and adjustment • road testing (before and after adjustments) • visual, aural and functional assessment (including: damage, corrosion, wear, measurement) • alignment equipment operation • string lining
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation

RANGE STATEMENT	
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tools, tyre gauge and/or specialist tools for removal/adjustment, mechanical and/or electronic wheel alignment equipment, measuring equipment, lifting equipment, two head and four head wheel aligner
Materials	Materials may include minor parts and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to wheel alignment operations • regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical - Heavy Vehicle

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Steering and Suspension

AURHTE2001 Remove and install heavy vehicle engine assemblies

Modification History

Release	Comment
Release 1	Replaces AURT201164A Remove and install engine assemblies Performance Criteria, Range Statement and Critical Aspects of Evidence updated to reflect modern heavy vehicle technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to remove and install engine assemblies fitted to heavy vehicles. It involves the identification of work requirements, preparation for work, removal of assemblies, installation of engine assemblies and completion of work finalisation processes, including cleaning and documentation, and post-installation testing procedures. Licencing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to the removal and installation of engine assemblies of heavy vehicles in the road transport, mining, construction, agricultural and marine environments.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to remove heavy vehicle engine assemblies	1.1. ***Workplace instructions*** are used to determine ***job requirements*** relating to removing heavy vehicle engine assemblies 1.2. ***Workplace health and safety (WHS) requirements*** are observed and applied throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. ***Removal options*** are analysed and those most appropriate to the circumstances are selected 1.5. Warnings in relation to working with lifting and jacking equipment are observed
2. Carry out the removal of heavy vehicle engine assemblies	2.1. Engine assembly is removed according to workplace procedures and manufacturer and component supplier specifications and without causing damage to components or systems 2.2. ***Observations*** are noted and documented during the removal of engine assembly
3. Install heavy vehicle engine assemblies	3.1. ***Installation options*** are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tools and equipment are selected and prepared 3.3. Engine assembly is installed according to workplace procedures and manufacturer and component supplier specifications and without causing damage to components or systems
4. Carry out post-installation tests and adjustments	4.1. ***Post-installation adjustments*** are carried out according to workplace procedures and manufacturer and component supplier specifications 4.2. ***Post-installation tests*** are carried out according to workplace procedures and manufacturer and component supplier specifications
5. Clean up work area and finalise work processes	5.1. Final inspection is made to ensure work is to workplace expectations and vehicle is presented ready for use 5.2. Tools and equipment are checked and stored according to workplace expectations 5.3. Workplace documentation is completed according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- learning skills to identify sources of information, assistance and expert knowledge
- literacy skills to
  - read, interpret and follow information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - follow workplace documentation, such as codes of practice or operating procedures
  - document work performed during inspection and servicing operations
- numeracy skills to:
  - assess tolerances and apply accurate measurements and adjustments
  - interpret gauges, instruments and measuring equipment
- planning and organising skills to ensure tasks are completed within an acceptable timeframe
- problem-solving skills to seek information and assistance as required to solve problems
- self-management skills to:
- select and use appropriate equipment, materials, processes and procedures
- follow workplace documentation, such as codes of practice or operating procedures
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace tools and equipment relating to the removal and installation of heavy vehicle engine assemblies
- technology skills to use technology to collect and provide information

Required knowledge

- WHS regulations, requirements, equipment and material, and personal safety requirements
- dangers of working with lifting and jacking equipment
- methods of disconnecting related systems, including:
  - air conditioning system
  - cooling system
  - electrical systems
  - exhaust system
  - fuel system
  - power steering system
  - transmission systems, including:
    - automatic transmission

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- manual transmission
- removal procedures for heavy vehicle engine assemblies, including:
  - correct use of lifting and supporting equipment
  - item tagging procedures
  - correct disposal methods of hazardous substances
- installation procedures for heavy vehicle engine assemblies
- post-installation testing and adjustment procedures for heavy vehicle engine assemblies, including:
  - pre-start procedures
  - operational testing and run-in procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • remove and install a range of heavy vehicle engine assemblies according to workplace, manufacturer and component supplier requirements • present heavy vehicle in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • heavy vehicles and heavy vehicle engine assemblies • tools and equipment appropriate for the removal and installation of heavy vehicle engine assemblies • specifications and workplace instructions.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• computer-generated instructions • verbal instructions • written instructions.
Job requirements may include:	• removal and installation methods, processes and equipment.

***Workplace health and safety (WHS) requirements*:**	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures
	• may include:
	  • protective clothing and equipment
	  • use of tools and equipment
	  • handling of material
	  • use of fire-fighting equipment
	  • first aid equipment
	• hazard control, including control of hazardous materials and toxic substances.

Procedures and information may include:	• safe work procedures relating to the removal and installation of heavy vehicle engine assemblies • verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins or memos • material safety data sheets (MSDS) • diagrams or sketches • regulatory and legislative requirements relating to the automotive industry • Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards • heavy vehicle service requirements and repair manuals.
Removal options may	• removal of the engine assembly alone or with the transmission assembly

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
include:	• removal with the engine attached to chassis.
Observations may include:	• routing of system components • damaged or faulty components • components and parts required for engine installation.
Installation options may include:	• installation of the engine assembly alone or with the transmission assembly • installation with the engine attached to chassis.
Post-installation adjustments may include:	• throttle adjustments • coolant replacement • oil replacement • tappet adjustment • re-tensioning of cylinder head bolts.

Post-installation tests may include:	• stationary and mobile engine performance tests
	• testing of associated systems, including:
	  • air conditioning system
	  • cooling system
	  • power steering system
	  • ancillary systems
	  • transmission system.

Unit Sector(s)

Competency field	Mechanical – Heavy Vehicle
Unit sector	Technical - Engines

Custom Content Section

Not applicable.

AURHTE3002 Repair engines and associated engine components (heavy vehicle)

Modification History

Release	Comment
Release 1	Replaces AURTH301166A Repair engines and associated engine components (heavy vehicle) Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out repair of an engine, and associated engine components on compression ignition engines. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, engine system testing and analysis, repair of engines and associated components and completion of work finalisation processes, including clean-up and documentation. This unit of competence should be contextualised to the qualification to which it is being applied. Engines may include those for, heavy vehicles, mobile plant, agricultural machinery and marine craft. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to undertake repair of engines	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. National Environmental Protection Measure for Diesel Vehicles (Guidelines) is sourced and observed throughout the work as applicable to tasks 1.4. Procedures and information such as workshop manuals and specifications, and tools, are sourced 1.5. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.6. Technical and/or calibration requirements for engine systems repair are sourced and support equipment is identified and prepared 1.7. Warnings in relation to working with engines and associated systems are observed
2. Conduct engine systems tests and analyse results	2.1. Methods for engine systems tests are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Engine is started and run up to operating temperature and checked for leaks, abnormal noises and pressures 2.3. Test results are compared with manufacturer/component supplier specifications to indicate compliance or non-compliance 2.4. Results are documented with evidence and supporting information and recommendation(s) made 2.5. Report is forwarded to persons for action in accordance with workplace procedures
3. Carry out repair	3.1. Methods for repair are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 3.2. Adjustments made during the repair are in accordance with manufacturer/component supplier specifications
4. Prepare vehicle/ equipment for use or storage	4.1. Repair schedule documentation is completed 4.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 4.3. Final inspection is made to ensure work is to workplace expectations 4.4. Vehicle/equipment is cleaned for use or storage to

ELEMENT	PERFORMANCE CRITERIA
	workplace expectations 4.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology, including the use of measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- National Environmental Protection Measures for Diesel Vehicles as applicable to tasks
- engine construction and operation relevant to application
- types and layout of service/repair manuals (hard copy and electronic)
- engine/component repair procedures
- engine removal and replacement procedures
- measuring and testing procedures
- equipment/component safety requirements
- work organisation and planning processes
- enterprise quality processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • dismantling, evaluating, assembling, adjustment, measuring and testing • repairing a range of engines and associated components to workplace requirements and specifications • repairing of engine and associated components completed within workplace guidelines and timeframes
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the repair of engines and associated engine components • equipment, hand and power tooling appropriate to the repair of engines and associated engine components • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge

EVIDENCE GUIDE	
	Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Engines	Engines may be: • four stroke compression ignition engines for heavy vehicle, agricultural machinery, mobile plant and marine craft • two stroke compression ignition for heavy vehicle, agricultural machinery, mobile plant, and marine craft
Repair methods	Repair methods are to include identification of component wear/damage, fluid leakage, removal, dismantling, reassembly, refitting, adjusting and testing
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tools and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company

RANGE STATEMENT	
	quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tools, power tools, lifting and jacking equipment, specialist tooling and lubricant dispensing equipment
Materials	Materials may include spare parts, consumables, lubricants and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to repairing engines and associated components • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules, Environment Protection Regulations (Diesel Fuels), National Environment Protection For Diesel Vehicle Guidelines Engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical - Heavy Vehicle

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Engines

AURHTJ2002 Select heavy vehicle tyres and rims for specific applications

Modification History

Release	Comment
Release 1	Replaces AURT317968A Identify and fit tyres and rims for specific applications (heavy) and AURT217985A Fit tyres and rims for specific applications (heavy) Performance Criteria, Range Statement and Critical Aspects of Evidence updated to reflect modern heavy vehicle technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to select heavy vehicle tyres and rims to suit specific applications. It involves identifying and confirming work requirements, preparing for work, selecting tyres and rims and completing work finalisation processes. Licencing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to the heavy vehicle tyres and rims of heavy vehicles in the road transport, mining, construction, agricultural and other industrial environments.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to select tyres and rims for specific applications	1.1. Workplace instructions are used to determine job requirements 1.2. Workplace Health and Safety (WHS) requirements are observed and applied throughout the work 1.3. Procedures and information for selecting tyres and rims are sourced
2. Select tyre and rims for specific applications	2.1. Information required for selecting heavy vehicle tyres and rims is accessed from manufacturer and component supplier specifications and correctly interpreted 2.2. Tyre and rim options are analysed to identify technical compliance and economic benefits 2.3. Selection procedures are carried out according to legislation, industry and workplace policies 2.4. Selected products are those which most closely meet customer requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow oral instructions
  - ask questions to clarify instructions or procedures
  - report inspection results
- learning skills to identify sources of information and assistance
- literacy skills to:
  - read, interpret and follow information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - document repairs and parts required
  - complete job card
- numeracy skills to interpret numerical information printed on tyres
- problem-solving skills to:
  - recognise limitations and seek timely advice
  - seek information and assistance as required to solve problems

Required knowledge

- WHS regulations, requirements, equipment and material, and personal safety requirements relating to heavy vehicle tyres and rims
- Australian Design Rules relating to heavy vehicle tyres and rims
- heavy vehicle tyre and rim terminology and codes
- heavy vehicle tread patterns, rim and tyre types and their applications

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • access and interpret information required for selecting tyres and rims • select a range of heavy vehicle tyres and rims for heavy vehicle according to workplace, manufacturer and component supplier requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • heavy vehicles with tyres and rims relevant to the qualification being sought • equipment and material suitable for sourcing information related to selecting heavy vehicle tyres and rims • workplace instructions.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• computer-generated instructions • verbal instructions • written instructions.

***Workplace health and safety (WHS) requirements*:**	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures
	• may include:
	  • protective clothing and equipment
	  • use of tools and equipment
	  • handling of material
	  • use of fire-fighting equipment
	  • first aid equipment
	• hazard control, including control of hazardous materials and toxic substances.

Procedures and information may include:	• verbal or written and graphical instructions, signage, work schedules, plans, specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • regulatory and legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards • heavy vehicle service requirements and repair manuals.

Unit Sector(s)

Competency field	Mechanical – Heavy Vehicle
Unit sector	Technical – Wheels and Tyres

Custom Content Section

Not applicable.

AURHTJ2003 Remove, inspect, and refit heavy vehicle wheel assemblies

Modification History

Release	Comment
Release 1	Replaces AURT217665A - Remove, fit and inspect wheel assemblies Performance Criteria, Range Statement and Critical Aspects of Evidence updated to reflect modern heavy vehicle technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to remove, inspect and fit wheel assemblies fitted to heavy vehicles. It involves diagnosing deviations from correct operation, removal, inspection and fitting procedures of wheel assemblies. Licencing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to the wheel assemblies of heavy vehicles in the road transport, mining, construction and agricultural environments.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to remove wheel assembly	1.1. ***Workplace instructions*** are used to determine job requirements relating to removing heavy vehicle wheel assemblies 1.2. ***Workplace health and safety (WHS) requirements*** are observed and applied throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. ***Removal options*** are analysed and those most appropriate to the circumstances are selected 1.5. Appropriate tools and equipment are selected and prepared
2. Remove and inspect wheel assembly	2.1. Wheel assembly is removed according to workplace procedures and manufacturer and component supplier specifications and without causing damage to components or systems 2.2. ***Inspection of wheel assembly***, mounting points and fittings for damage and wear is carried out 2.3. Inspection findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Fit wheel assembly	3.1. ***Fitting options*** are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tools and equipment are selected and prepared 3.3. Wheel assembly is fitted according to workplace procedures and manufacturer and component supplier specifications and without causing damage to components or systems 3.4. Wheel operation is checked for correct assembly, run-out and alignment according to workplace procedures and manufacturer and component supplier specifications
4. Clean up work area and finalise work processes	4.1. ***Final inspection*** is made to ensure work is to workplace expectations and vehicle is presented ready for use 4.2. Tools and equipment are checked and stored according to workplace expectations 4.3. Workplace documentation is completed according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- learning skills to identify sources of information, assistance and expert knowledge
- literacy skills to
  - read, interpret and follow information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - follow workplace documentation, such as codes of practice or operating procedures
  - document work performed during inspection and servicing operations
- numeracy skills to interpret gauges, instruments and measuring equipment
- planning and organising skills to ensure tasks are completed within an acceptable timeframe
- problem-solving skills to seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - follow workplace documentation, such as codes of practice or operating procedures
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace tools and equipment relating to the removal, inspection and fitting of heavy vehicle wheel assemblies
- technology skills to use technology to collect and provide information.

Required knowledge

- WHS regulations, requirements, equipment and material, and personal safety requirements
- dangers of working with heavy vehicle wheel assemblies
- lifting and supporting procedures for heavy vehicles
- types and applications of wheels and rims, including:
  - cast-spoke wheels
  - disc wheels, including:
    - stud-piloted wheels
    - hub-piloted wheels
  - single-piece tyre-to-rim assemblies
  - two-piece tyre-to-rim assemblies
  - three-piece tyre-to-rim assemblies
- removal, inspection and fitting procedures of heavy vehicle wheel assemblies
- post-fitting procedures and checks of heavy vehicle wheel assemblies

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • remove, inspect and fit a range of heavy vehicle wheel assemblies • remove, inspect and fit heavy vehicle wheel assemblies according to workplace, manufacturer and component supplier requirements • present vehicle in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • heavy vehicles and heavy vehicle wheel assemblies • tools and equipment appropriate for the removal, inspection and fitting of heavy vehicle wheel assemblies • specifications and workplace instructions.

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• computer-generated instructions • verbal instructions • written instructions.

***Workplace health and safety (WHS) requirements*:**	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures
	• may include:
	  • protective clothing and equipment
	  • use of tools and equipment
	  • handling of material
	  • use of fire-fighting equipment
	  • first aid equipment
	• hazard control, including control of hazardous materials and toxic substances.

Procedures and information may include:	• safe work procedures relating to the removal, inspection and fitting of heavy vehicle wheel assemblies • verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins or memos • material safety data sheets (MSDS) • diagrams or sketches • regulatory and legislative requirements relating to the automotive industry • Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards • heavy vehicle service requirements and repair manuals
Removal options may include:	• front wheel removal • rear wheel removal • dual wheel removal • removal of other systems to gain access to wheel

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Inspection of wheel assembly may include:	• tyre condition • rim condition • wheel bearing condition
Fitting options may include:	• manual handling or motor-assisted handling of wheel assemblies • manual or power-tool tightening of wheel nuts
Final inspection may include:	• wheel assembly run-out and alignment testing • correct operation is ensured of vehicle systems affected by the removal and fitting of wheel assemblies

Unit Sector(s)

Competency field	Mechanical – Heavy Vehicle
Unit sector	Technical – Wheels and Tyres

Custom Content Section

Not applicable.

AURHTJ2006 Remove, inspect, repair and fit tyres and tubes (heavy)

Modification History

Release	Comment
Release 1	Replaces AURT217966A Remove, inspect, repair and fit tyres and tubes (heavy) Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to remove and refit heavy vehicle tyres and tubes from rims, inspect tyres and tubes to assess serviceability and carry out tyre and tube repairs. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, removal, repair and fitting of heavy tyres and tubes and completion of work finalisation processes, including clean-up and documentation. Work involved includes all single or dual wheel heavy vehicles other than those requiring wheel ballast. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to remove, repair and fit heavy tyres and tubes	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling required, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical requirements for repair and fitting of tyres and tubes are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with rims, tyres and tubes are observed
2. Conduct inspection and analyse results	2.1. Methods for the inspection are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Inspection results are compared with manufacturer/ component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is processed in accordance with workplace procedures
3. Carry out removal, repair and refit	3.1. Methods for the removal, repair and refit are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 3.2. Adjustments made during the removal, repair and refit are in accordance with manufacturer/component supplier specifications
4. Prepare equipment for use or storage	4.1. Repair schedule documentation is completed 4.2. Final inspection is made to ensure safety features are in place 4.3. Final inspection is made to ensure work is to workplace expectations 4.4. Equipment is cleaned for use or storage to workplace expectations 4.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- Apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the removal, repair and fitting of heavy tyres and tubes, including the use of measuring equipment, computerised technology, specialist tooling and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- dangers of working with tyre and tube repair equipment
- operating principles of tyre and tube repair equipment and their relationship to each other
- types and layout of service/repair manuals (hard copy and electronic)
- inspection procedures
- repair procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • accurately interpreting inspection results • conducting the removal, repair and refit of tyres and tubes in accordance with workplace and manufacturer/component supplier requirements • completing removal, repair and refit of wheels, tyres and tubes and associated components within workplace timeframes • equipment is presented to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the removal, repair and fitting of heavy tyres and tubes • equipment, hand and power tooling appropriate to the removal, repair and fitting of heavy tyres and tubes • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package

EVIDENCE GUIDE	
	Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, breaker devices, gauges, jacks, hoists and pressure testing devices

RANGE STATEMENT	
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the removal, repair and fitting of heavy tyres and tubes • regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical - Heavy Vehicle

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Wheels and Tyres

AURHTQ3002 Repair final drive assemblies (heavy vehicle)

Modification History

Release	Comment
Release 1	Replaces AURTH312666A Repair final drive assemblies (heavy vehicle) Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out repairs to final drive assemblies. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, testing, analysis of results and carrying out repairs to final drive assemblies and associated components and completion of work finalisation processes, including clean-up and documentation. Work involved may include heavy vehicles and agricultural machinery and earthmoving equipment. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to undertake repairs to final drive assemblies	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and/or calibration requirements for final drive assembly repair are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with final drive assemblies are observed
2. Conduct final drive assembly tests and analyse results	2.1. Methods for test on final drive assembly are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Test results are compared with manufacturer/component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is forwarded to persons for action in accordance with workplace procedures
3. Carry out repairs	3.1. Methods for repairs are implemented in accordance with workplace procedures and manufacture/component supplier specifications 3.2. Adjustments made during the repair are in accordance with manufacturer/component supplier specifications
4. Prepare vehicle for use or storage	4.1. Repair schedule documentation is completed 4.2. Final inspection is made to ensure protective guards, safety features are in place 4.3. Final inspection is made to ensure work is to workplace expectations 4.4. Vehicle is cleaned for use or storage to workplace expectations 4.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology, including the use of measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- dangers of working with wheeled and tracked vehicles and equipment
- the identification of application, purpose and operation
- types and layout of service/repair manuals (hard copy and electronic)
- inspection and test procedures
- repair procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • identification of application, purpose and operation • application of full repair sequence as per the Range Statement to a final drive assembly relative to the qualification being sought • interpreting test results • repair of final drive assembly and associated components completed within workplace timeframes • vehicle presentation to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the repair of final drive assemblies • equipment, hand and power tools appropriate to the repair of final drive assemblies • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package

EVIDENCE GUIDE	
	Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Variables	Variables may include bevel, spiral bevel and hypoid gearing
Repair methods and sequence	Repair methods and sequence are to include isolation of fault(s), dismantling, inspection and evaluation, replacement of components parts, assembly and completion of operational tests and records
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations

RANGE STATEMENT	
authorities	and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges, pulling, pushing and load testing devices
Materials	Materials may include lubricants, spare parts and cleaning materials
Communications	Communications are to include but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to repair of final drive assemblies and associated components • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical - Heavy Vehicle

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Driveline and Final Drives

AURHTQ3003 Repair final drive - driveline (heavy vehicle)

Modification History

Release	Comment
Release 1	Replaces AURTH313166A Repair final drive – driveline (heavy vehicle) Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out repairs to the driveline and its components. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, testing and analysis of results, completion of repairs to final drive and completion of work finalisation processes, including clean-up and documentation. Work involved includes heavy vehicles and agricultural machinery and earthmoving equipment. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to undertake repairs to final drive driveline	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and/or calibration requirements for repair of drivelines are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with rotating components are observed
2. Test driveline and analyse results	2.1. Methods for tests associated with drivelines is implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Driveline test results are compared with manufacturer/ component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is processed in accordance with workplace procedures
3. Carry out repairs	3.1. Methods for repair are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 3.2. Adjustments made during the repair work are in accordance with manufacturer/component supplier specifications
4. Prepare equipment for use or storage	4.1. Repair schedule documentation is completed 4.2. Final inspection is made to ensure protective guards, safety features are in place 4.3. Final inspection is made to ensure work is to workplace expectations 4.4. Equipment is cleaned for use or storage to workplace expectations 4.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology, including the use of measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- the identification of application, purpose and operation
- dangers of working with rotating shafts and gear systems
- types and layout of service/repair manuals (hard copy and electronic)
- testing procedures, including balancing shaft
- repair procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • identification of application, purpose and operation • application of full repair sequence as per the Range Statement to a driveline relative to the qualification being sought • interpreting test results • conducting repair in accordance with workplace and manufacturer/component supplier requirements • completing repair of driveline and associated components within workplace timeframes • equipment presentation to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to repairing final drivelines • equipment, hand and power tooling appropriate to repairing final drivelines • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the

EVIDENCE GUIDE	
	automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Variables	Variables may include universal joints, constant velocity joints and centre bearings
Repair methods and sequence	Repair methods and sequence are to include isolation of fault(s), dismantling, inspection and evaluation, replacement of components parts, assembly and completion of operational tests and records
Faults	Faults to include: • driveline vibration • abnormal noises
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company

RANGE STATEMENT	
	quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tools, meters, gauges and load testing devices
Materials	Materials may include spare parts and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the repair of final drive (driveline) and associated components • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical - Heavy Vehicle

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Driveline and FInal Drives

AURHTX3001 Repair transmissions - manual (heavy vehicle)

Modification History

Release	Comment
Release 1	Replaces AURTH306666A Repair transmissions – manual (heavy vehicle) Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out removal, repair and replacement of manual transmissions. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, testing and analysis of systems, removal, repair and replacement of manual transmissions and completion of work finalisation processes, including clean-up and documentation. For repairs to electronic controlled drive management refer to AURETR3044 Service and repair electronic drive management systems. This unit of competence applies to the following and should be contextualised to the qualification to which it is being applied: • heavy vehicles, agricultural machinery and mobile plant equipment. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to undertake testing of manual transmission	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and/or calibration requirements for testing of manual transmissions are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with manual transmissions are observed
2. Test manual transmission and analyse results	2.1. Methods for tests are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Road/site test is conducted for abnormalities 2.3. Results are compared with manufacturer/component supplier specifications to indicate compliance or non-compliance 2.4. Results are documented with evidence and supporting information and recommendation(s) made 2.5. Report is processed in accordance with workplace procedures
3. Prepare to repair manual transmissions	3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information are identified and sourced 3.3. Technical and tool requirements for repair are identified and support equipment is identified and prepared
4. Carry out repairs	4.1. Methods for repairs are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 4.2. Adjustments made during repairs are in accordance with manufacturer/component supplier specifications
5. Prepare vehicle/ equipment for use or storage	5.1. Repair schedule documentation is completed 5.2. Road/site test is conducted to ensure transmission operation is to manufacturer/component supplier specifications

ELEMENT	PERFORMANCE CRITERIA
	5.3. Final inspection is made to ensure protective guards, safety features and cowlings are in place 5.4. Final inspection is made to ensure work is to workplace expectations 5.5. Vehicle/equipment is cleaned for use or storage to workplace expectations 5.6. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology, including the use of measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- dangers of working with transmissions
- the identification of application, purpose and operation
- types and layout of service/repair manuals (hard copy and electronic)
- diagnostic procedures
- repair procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques, appropriate to the circumstances • completing preparatory activity in a systematic manner • interpreting testing results • identification of application, purpose and operation • application of full repair sequence as per the Range Statement to a manual transmission relative to the qualification being sought • conducting repairs in accordance with workplace and manufacturer/component supplier requirements • completing repair of transmissions and associated components within workplace timeframes • vehicle/transmission presentation to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to repairing manual transmissions • equipment, hand and power tooling appropriate to repairing manual transmissions • activities covering mandatory task requirements • specifications and work instructions

EVIDENCE GUIDE	
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Methods	Methods include: • road testing, test under operating conditions • visual, aural and functional assessment (including: fluid leakage, gear selection, wear, damage, corrosion)
Specific requirements	Specific requirements: • manual transmissions, front and/or rear wheel drive configurations • transmission must be of multiple speed constant mesh or synchromesh design Other variables may include: • belt drive transmission • power take off assemblies • multiple forward and reverse gears • multi countershaft • synchronised and non-synchronised gear selection • metal and non-metal gears • electrical/pneumatic control • transverse/longitudinal mounting • helical, double helical and spur gears • transfer case
Repair methods and sequence	Repair methods and sequence are to include isolation of fault(s); dismantling, inspection and evaluation; replacement of component parts; assembly and completion of operational tests and records
Faults	Faults to include noisy operation, jumping out of gear, external oil leaks, loss of drive
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tools and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and

RANGE STATEMENT	
	substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tools, meters, gauges and load testing devices
Materials	Materials may include fluids, spare parts and cleaning materials
Communications	Communications are to include but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to repair, removal and replacement of manual transmissions and/or associated components • regulatory/legislative requirements pertaining to automotive

RANGE STATEMENT	
	industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical - Heavy Vehicle

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Transmission

AURHTX3002 Inspect, test and replace transmissions - automatic (heavy vehicle)

Modification History

Release	Comment
Release 1	Replaces AURTH307165A Inspect, test and replace transmissions - automatic (heavy vehicle) Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out the inspection, testing and replacement of automatic and semi-automatic transmissions and associated components. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, inspecting, testing and analysis of systems, replacement of and automatic and semi-automatic transmissions and completion of work finalisation processes, including clean-up and documentation. Work involved includes automatic and semi-automatic transmissions in heavy vehicles, agricultural machinery and mobile plant equipment. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to inspect and test transmission	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tools, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and/or calibration requirements for testing of transmissions are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with semi automatic, automatic transmissions are observed
2. Inspect and test the transmission and analyse results	2.1. Methods for system inspection are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Methods for system tests are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.3. Road/site test is conducted to identify transmission operational abnormalities 2.4. Results are compared with manufacturer/component supplier specifications to indicate compliance or non-compliance 2.5. Results are documented with evidence and supporting information and recommendation(s) made 2.6. Report is processed in accordance with workplace procedures
3. Prepare to remove and replace transmission	3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information are identified and sourced 3.3. Technical and tool requirements for removal and replacement are identified and support equipment is identified and prepared
4. Carry out removal and replacement	4.1. Methods for removal and replacement are implemented in accordance with workplace procedures and manufacturer/ component supplier specifications 4.2. Adjustments made during the removal and replacement are

ELEMENT	PERFORMANCE CRITERIA
	in accordance with manufacturer/component supplier specifications
5. Prepare vehicle/ equipment for use or storage	5.1. Removal and replacement schedule documentation is completed 5.2. Final inspection is made to ensure protective guards, safety features are in place 5.3. Final inspection is made to ensure work is to workplace expectations 5.4. Vehicle/equipment is cleaned for use or storage to workplace expectations 5.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology, including the use of measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- dangers of working with transmissions
- operating principles of automatic and semi automatic transmissions and their relationship to other systems
- types and layout of service/repair manuals (hard copy and electronic)
- diagnostic procedures
- removal and replacement procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques, appropriate to the circumstances • completing preparatory activity in a systematic manner • interpreting diagnosis results • conducting repair and/or replacement of a range of transmissions in accordance with workplace and manufacturer/component supplier requirements • completing work within workplace timeframes • vehicle/transmissions presentation to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to carrying out repairs to automatic and semi-automatic transmissions and associated components • equipment, hand and power tooling appropriate to carrying out repairs to automatic and semi-automatic transmissions and associated components • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package

EVIDENCE GUIDE	
	Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Transmissions	Transmissions may include: • automatic and semi automatic transmissions, power shift transmissions • power take off assemblies • pre-selective transmissions • electronically controlled transmissions
Testing methods	Methods are to include: • operational testing, testing under operating conditions, test bench testing, electrical testing • visual, aural and functional assessment (including fluid leakage, speed and range selection, wear, damage, corrosion, electrical circuits faults)
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tools and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental	Environmental requirements are to include but are not limited to

RANGE STATEMENT	
requirements	waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tools, meters, gauges and load and pressure testing devices
Materials	Materials may include transmission fluids, spare parts and cleaning materials
Communications	Communications are to include but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the repair of automatic and semi-automatic transmissions and associated components • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical - Heavy Vehicle

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Transmission

AURHTX3003 Repair transmissions - automatic (heavy vehicle)

Modification History

Release	Comment
Release 1	Replaces AURTH307166A Repair transmissions - automatic (heavy vehicle) Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out the repair of automatic and semi-automatic transmissions and associated components. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, testing and analysis of systems, repair and replacement of and automatic and semi-automatic transmissions and completion of work finalisation processes, including clean-up and documentation. For repairs to electronic control drive management systems refer to AURETR3044 Service and repair electronic drive management systems. Work involved includes automatic and semi-automatic transmissions in heavy vehicles, agricultural machinery and mobile plant equipment. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to test transmission	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tools, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and/or calibration requirements for testing of transmissions are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with semi automatic, automatic transmissions are observed
2. Test transmission and analyse results	2.1. Methods for system tests are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Road/site test is conducted to identify transmission operational abnormalities 2.3. Results are compared with manufacturer/component supplier specifications to indicate compliance or non-compliance 2.4. Results are documented with evidence and supporting information and recommendation(s) made 2.5. Report is processed in accordance with workplace procedures
3. Prepare to repair and replace transmission	3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information are identified and sourced 3.3. Technical and tool requirements for repair are identified and support equipment is identified and prepared
4. Carry out repair and replacement	4.1. Methods for repair and replacement are implemented in accordance with workplace procedures and manufacturer/ component supplier specifications 4.2. Adjustments made during the repair and replacement are in accordance with manufacturer/component supplier specifications
5. Prepare vehicle/ equipment for use or	5.1. Repair and replacement schedule documentation is completed

ELEMENT	PERFORMANCE CRITERIA
storage	5.2. Final inspection is made to ensure protective guards, safety features are in place 5.3. Final inspection is made to ensure work is to workplace expectations 5.4. Vehicle/equipment is cleaned for use or storage to workplace expectations 5.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology, including the use of measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- dangers of working with transmissions
- operating principles of automatic and semi automatic transmissions and their relationship to other systems
- types and layout of service/repair manuals (hard copy and electronic)
- diagnostic procedures
- repair and replacement procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques, appropriate to the circumstances • completing preparatory activity in a systematic manner • interpreting diagnosis results • conducting repair and replacement of a range of transmissions in accordance with workplace and manufacturer/component supplier requirements • completing work within workplace timeframes • vehicle/transmissions presentation to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to carrying out repairs to automatic and semi-automatic transmissions and associated components • equipment, hand and power tooling appropriate to carrying out repairs to automatic and semi-automatic transmissions and associated components • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package

EVIDENCE GUIDE	
	Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Transmissions	Transmissions include automatic and semi automatic transmissions, power shift transmissions
Variables	Other variables may include: • transfer case • power take off assemblies • pre-selective transmissions • electronically controlled transmissions
Testing methods	Methods are to include: • operational testing, testing under operating conditions, test bench testing, electrical testing • visual, aural and functional assessment (including fluid leakage, speed and range selection, wear, damage, corrosion, electrical leakage, short circuits, broken circuits)
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tools and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site

RANGE STATEMENT	
	evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tools, meters, gauges and load and pressure testing devices
Materials	Materials may include transmission fluids, spare parts and cleaning materials
Communications	Communications are to include but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the repair of automatic and semi-automatic transmissions and associated components • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical - Heavy Vehicle

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Transmission

AURHTX3004 Diagnose and repair heavy vehicle clutch systems

Modification History

Release	Comment
Release 1	Replaces AURT306170A Inspect, service and/or repair clutch assemblies and associated operating system components Performance Criteria, Range Statement and Critical Aspects of Evidence updated to reflect modern heavy vehicle technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair clutch systems fitted to heavy vehicles. It involves diagnosing deviations from correct operation, repair operations of the clutch system and associated components, and post-repair testing procedures. Licencing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to the clutch systems of heavy vehicles in the road transport, mining, construction, and agricultural environments.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose and repair a heavy vehicle clutch system	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed and applied throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. Diagnosis options are analysed and those most appropriate to the circumstances are selected 1.5. Appropriate diagnostic tools and equipment are selected and prepared
2. Diagnose a heavy vehicle clutch system	2.1. ***Diagnostic tests*** are performed according to workplace procedures and without causing damage to components or systems 2.2. ***Faults*** are identified from diagnostic test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair a heavy vehicle clutch system	3.1. ***Repair options*** are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tooling, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage to components or systems and according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation.
4. Clean up work area and finalise work processes	4.1. Final inspection is made to ensure work is to workplace expectations and vehicle is presented ready for use 4.2. Tools and equipment are checked and stored according to workplace procedures 4.3. Workplace documentation is processed according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise to adapt to new and emerging situations in the workplace
- learning skills to identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- literacy skills to:
  - understand quality procedures
  - read and follow information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document repairs and parts required
- numeracy skills to:
  - carry out measurements
  - assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise risk
- problem-solving skills to:
  - determine the underlining causes of faults
  - recognise a workplace problem or a potential problem and take action
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace tools relating to the repair of heavy vehicle clutch systems, including the use of:
  - specialised tools and equipment
  - measuring equipment
- technology skills to:

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- operate diagnostic and test equipment
- use technology to collect, analyse and provide information.

Required knowledge

- WHS regulations, requirements, equipment, material and personal safety requirements, relating to the diagnosing and repairing heavy vehicle clutch systems
- dangers of working with heavy vehicle clutch systems
- application, purpose and operating principles of heavy vehicle clutch systems, including:
  - single-disc clutch assemblies
  - two-disc clutch assemblies
  - coil spring clutches
  - diaphragm spring clutches
- maintenance procedures of heavy vehicle clutch systems
- testing procedures of heavy vehicle clutch systems
- repair procedures of heavy vehicle clutch systems
- post-repair testing procedures of heavy vehicle clutch systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • diagnose and repair a range of heavy vehicle clutch systems relative to the qualification being sought • diagnose and repair heavy vehicle clutch systems according to workplace, manufacturer and component supplier requirements • present vehicle in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • heavy vehicles with clutch system faults relevant to the qualification being sought • equipment appropriate for the testing of heavy vehicle clutch systems

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	• specifications and workplace instructions • tools appropriate for the repair, replacement and adjustment of heavy vehicle clutch systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of an holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• computer-generated instructions • verbal instructions • written instructions.
Job requirements may include:	• heavy vehicle clutch systems diagnosis and repair methods, processes and equipment

Workplace Health and Safety (WHS) requirements	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures
	• may include:
	  • protective clothing and equipment
	  • use of tools and equipment
	  • handling of material
	  • use of fire-fighting equipment
	  • first aid equipment
	• hazard control, including control of hazardous materials and toxic substances.

Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins or memos • material safety data sheets (MSDS) • diagrams or sketches • safe work procedures relating to the repair and replacement of heavy vehicle clutch systems • regulatory and legislative requirements relating to the automotive industry • Australian Design Rules • Engineer's design specifications and instructions • organisational work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • heavy vehicle clutch service requirements and repair manuals.
Diagnosis tests may include:	• component inspection and evaluation. • hydraulic and mechanical systems

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Faults may include:	• clutch slippage • clutch drag and binding • clutch chatter • clutch pedal pulsation • clutch vibration • clutch system noise.

Repair options may include:	• component repair procedures, including
	  • removal, replacement and adjustment procedures
	  • dismantle, repair, re-assembly and adjustment procedures.

Post-repair testing may include:	• mobile or stationary tests to evaluate clutch performance

Unit Sector(s)

Not applicable.

Custom Content Section

Competency field	Mechanical - Heavy Vehicle
Unit sector	Technical - Transmission

AURHTZ3001 Diagnose and repair heavy vehicle emission control systems

Modification History

Release	Comment
Release 1	Replaces AURT304666A Repair and replace emission control systems Performance Criteria, Range Statement and Critical Aspects of Evidence updated to reflect modern heavy vehicle technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair emission control systems fitted to heavy vehicles. It involves diagnosing deviations from correct operation, repair operations of emission control components and associated systems, and post-repair testing procedures. Licencing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to the emission control systems of heavy vehicles in the road transport, mining, construction, agricultural and marine environments.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose and repair a heavy vehicle emission control system	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed and applied throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. National Environment Protection Measure for Diesel Vehicles (Guidelines) is sourced and observed throughout the work 1.5. Diagnosis options are analysed and those most appropriate to the circumstances are selected 1.6. Appropriate diagnostic tools and equipment are selected and prepared
2. Diagnose a heavy vehicle emission control system	2.1. ***Diagnostic tests*** are performed according to workplace procedures and without causing damage to components or systems 2.2. ***Faults*** are identified from diagnostic test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair a heavy vehicle emission control system	3.1. ***Repair options*** are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tooling, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage to components or systems and according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation
4. Clean up work area and finalise work processes	4.1. Final inspection is made to ensure work is to workplace expectations and vehicle is presented ready for use 4.2. Tools and equipment are cleaned and stored according to workplace expectations 4.3. Workplace documentation is processed according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to adapt to new and emerging situations in the workplace
- learning skills to identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- literacy skills to:
  - understand quality procedures
  - read and follow information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document repairs and parts required
- numeracy skills to interpret instruments, gauges and other measuring equipment
  - planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
- identify risk factors and take action to minimise risk
- problem-solving skills to:
- determine the underlying causes of faults
- recognise a workplace problem or a potential problem and take action
- refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace tools relating to the repair of heavy vehicle emission control systems, including the use of:
  - specialised tools and equipment
  - measuring equipment
  - computerised technology
- technology skills to:
  - operate diagnostic and test equipment
  - use technology to collect, analyse and provide information.

REQUIRED SKILLS AND KNOWLEDGE

Required knowledge

- WHS regulations, requirements, equipment and material, and personal safety requirements relating to diagnosing and repairing heavy vehicle emission control systems
- dangers of testing exhaust gases
- legislation and regulatory requirements for heavy vehicle emissions
- identification of motor vehicle emissions and their effects on the environment and health
- application, purpose and operating principles of heavy vehicle emission control systems
- identification of the effects of associated systems on vehicle emissions
- interpretation of technical information, graphic symbols and diagrams
- diagnostic and testing procedures for heavy vehicle emission control systems
- repair procedures for heavy vehicle emission control systems
- post-repair testing procedures of heavy vehicle emission control systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • diagnose and repair a range of heavy vehicle emission control systems relative to the qualification being sought • diagnose and repair heavy vehicle emission control systems according to workplace, manufacturer and component supplier requirements • present vehicle in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • heavy vehicles with emission control faults relevant to the qualification being sought • equipment appropriate for the testing of heavy vehicle emission

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	control systems • specifications and workplace instructions • tools appropriate for the repair, replacement and adjustment of heavy vehicle emission control systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• computer-generated instructions • verbal instructions • written instructions.
Job requirements may include:	• heavy vehicle emission control system diagnosis and repair methods, processes and equipment.

***Workplace health and safety requirements*:**	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures
	• may include:
	  • protective clothing and equipment
	  • use of tools and equipment
	  • handling of material
	  • use of fire-fighting equipment
	  • first aid equipment
	• hazard control, including control of hazardous materials and toxic substances.

Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins or memos • material safety data sheets (MSDS) • diagrams or sketches • safe work procedures relating to the repair and replacement of heavy vehicle emission control systems • regulatory and legislative requirements relating to the automotive industry • National Environment Protection Measure for Diesel Vehicles (Guidelines) • Australian Design Rules • Engineer’s design specifications and instructions • organisational work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • heavy vehicle service requirements and repair manuals.

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Diagnostic tests may include:	• visual inspection of emission control system components • evaporative emission control • crankcase ventilation • exhaust gas recirculation • diesel exhaust fluid • catalytic converters • diesel particulate filters.
Faults may include:	• rough running • poor performance • excessive fuel consumption • excessive emissions (particulates, hydrocarbons, carbon monoxide, oxides of nitrogen) • excessive oil consumption.

Repair options may include:	• component repair procedures, including
	  • removal, replacement and adjustment procedures
	  • dismantle, repair, re-assembly and adjustment procedures.

Post-repair testing may include:	• exhaust gas colour assessment • exhaust gas composition analysis • on-board diagnostic system assessment procedures.

Unit Sector(s)

Competency field	Mechanical – Heavy Vehicle
Unit sector	Technical – Emission and Exhaust

Custom Content Section

Not applicable.

AURKTR3001 Diagnose and repair electric-over-hydraulic control systems

Modification History

Release	Comment
Release 1	New unit of competency

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to carry out repairs to electric over hydraulic control systems fitted to vehicles. It involves identifying and confirming safety requirements, diagnosing deviations from correct operation, repair operations of electric over hydraulic control systems and associated systems, and post-repair testing procedures. Licencing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to the electric over hydraulic control systems of vehicles in the road transport, mining, construction, agricultural, marine and other industrial environments.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
• 1. Prepare to diagnose and repair an electric over hydraulic control system	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed and applied throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. Diagnosis options are analysed and those most appropriate to the circumstances are selected 1.5. Appropriate diagnostic tools and equipment are selected and prepared
2. Diagnose an electric over hydraulic control system	2.1. ***Diagnostic tests*** are performed according to workplace procedures and without causing damage to components or systems 2.2. ***Faults*** are identified from diagnostic test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair an electric over hydraulic control system	3.1. ***Repair options*** are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tools, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage to components or systems and according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation
4. Clean up work area and finalise work processes	4.1. Final inspection is made to ensure work is to workplace expectations and vehicle is presented ready for use 4.2. Tools and equipment are checked and stored according to workplace expectations 4.3. Workplace documentation is processed according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
  - coordinate work with site supervisor and other workers
  - report work outcomes and problems
- initiative and enterprise skills to adapt to new and emerging situations in the workplace
- learning skills to identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- literacy skills to:
  - understand quality procedures
  - read and follow information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document repairs and parts required
- numeracy skills to:
  - assess tolerances and apply accurate measurements and adjustments
  - interpret instruments, gauges and other measuring equipment
  - measure and calculate length, area and volume
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise risk
- problem-solving skills to:
  - determine the underlying causes of faults
  - recognise a workplace problem or a potential problem and take action
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace tools relating to the repair of electric over hydraulic control systems, including the use of:

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- specialised tools and equipment
- measuring equipment
- technology skills to:
  - operate diagnostic and test equipment
  - use technology to collect, analyse and provide information.

Required knowledge

- WHS regulations, requirements, equipment and material, and personal safety requirements relating to diagnosing and repairing electric over hydraulic control systems
- legislation and regulatory requirements
- dangers of working with electric over hydraulic control systems
- application, purpose and operating principles of electric over hydraulic control systems
- testing procedures for electric over hydraulic control systems
- repair procedures for electric over hydraulic control systems
- post-repair testing procedures for electric over hydraulic control systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • diagnose and repair a range of electric over hydraulic control systems • diagnose and repair electric over hydraulic control systems according to workplace, manufacturer and component supplier requirements • present vehicle in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • heavy vehicles with electric over hydraulic control systems relevant to the qualification being sought • equipment appropriate for the testing of electric over hydraulic

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	control systems • specifications and workplace instructions • tools appropriate for the repair, replacement and adjustment of electric over hydraulic control systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• computer-generated instructions • verbal instructions • written instructions.
Job requirements may include:	• electric over hydraulic control system diagnosis and repair methods, processes and equipment

***Workplace health and safety (WHS) requirements*:**	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures
	• may include:
	  • protective clothing and equipment
	  • use of tools and equipment
	  • handling of material
	  • use of fire-fighting equipment
	  • first aid equipment
	• hazard control, including control of hazardous materials and toxic substances.

Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins or memos • material safety data sheets (MSDS) • diagrams or sketches • safe work procedures relating to the repair and replacement of electric over hydraulic control systems • regulatory and legislative requirements relating to the automotive industry • Australian Design Rules • Engineer’s design specifications and instructions • organisational work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • electric over hydraulic control system service requirements and repair manuals.
Diagnosis options may	• isolation of faults

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
include:	• component inspection and evaluation.
Fault may include:	• hydraulic component faults • electrical component faults.

Repair options may include:	• component repair procedures, including:
	  • removal, replacement and adjustment procedures
	  • dismantle, repair, re-assembly and adjustment procedures.

Post-repair testing may include:	• hydraulic pressure checks • electrical checks, such as voltage drop, resistance and current flow.

Unit Sector(s)

Competency field	Mechanical – Mobile Plant
Unit sector	Technical – Electrical and Electronic

Custom Content Section

Not applicable.

AURLTB3003 Diagnose and repair light vehicle hydraulic braking systems

Modification History

Release	Comment
Release 1	Replaces AURT310166A Repair hydraulic braking systems Performance Criteria, Range Statement and Critical Aspects of Evidence updated to reflect modern light vehicle technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair hydraulic braking systems fitted to light vehicles. It involves identifying and confirming safety requirements, diagnosing deviations from correct operation, repairing light vehicle braking system components and associated systems, and undertaking post-repair testing procedures. Licencing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to the braking systems of light vehicles, four-wheel drive and light commercial vehicles. This unit does not apply to work related to antilock braking systems (ABS) or to air braking systems.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose and repair a light vehicle braking system	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed and applied throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. Diagnosis options are analysed and those most appropriate to the circumstances are selected 1.5. Appropriate diagnostic tools and equipment are selected and prepared
2. Diagnose a light vehicle braking system	2.1. ***Diagnostic tests*** are performed according to workplace procedures and without causing damage to components or systems 2.2. ***Faults*** are identified from diagnostic test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair a light vehicle braking system	3.1. ***Repair options*** are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tools, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage to components or systems and according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation
4. Clean up work area and finalise work processes	4.1. Final inspection is made to ensure work is to workplace expectations and vehicle is presented ready for use 4.2. Tools and equipment are checked and stored according to workplace expectations 4.3. Workplace documentation is processed according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

- communication skills to:
- clarify w**orkplace instructions and determine job requirements**
- **gain infor**mation from appropriate persons and assistance as required
- initiative and enterprise skills to adapt to new and emerging situations in the workplace
- learning skills to:
  - identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
  - participate in self-improvement activities
- literacy skills to:
  - understand quality procedures
  - read and follow information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document repairs and parts required
- numeracy skills to assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise risk
- problem solving skills to:
  - determine the underlying causes of faults
  - recognise a workplace problem or a potential problem and take action
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
- technical skills to use workplace tools relating to the repair of light vehicle braking systems, including the use of:
  - specialised tools and equipment
  - measuring equipment
- technology skills to:
  - operate diagnostic and test equipment
  - use technology to collect, analyse and provide information

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required knowledge

- WHS regulations, requirements, equipment and material, and personal safety requirements relating to light vehicle braking systems, including:
  - lifting and supporting procedures for light vehicles
  - dangers of working with brake dust and brake fluid
- operating principles of light vehicle braking systems
- application, purpose and operation of light vehicle braking systems
- testing procedures for light vehicle braking systems
- repair procedures for light vehicle braking systems
- post-repair testing procedures for light vehicle braking systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • diagnose and repair a range of light vehicle hydraulic braking systems, including disc brake and drum brake systems • diagnose and repair light vehicle hydraulic braking systems according to workplace, manufacturer and component supplier requirements • present vehicle in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • light vehicles with hydraulic braking faults relevant to the qualification being sought • equipment appropriate for the testing of light vehicle hydraulic

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	braking systems • specifications and workplace instructions • tools appropriate for the repair, replacement and adjustment of light vehicle hydraulic braking systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• computer generated instructions • verbal instructions • written instructions.
Job requirements may include:	• light vehicle braking system diagnosis and repair methods, processes and equipment.

***Workplace health and safety (WHS) requirements*:**	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures
	• may include:
	  • protective clothing and equipment
	  • use of tools and equipment
	  • handling of material
	  • use of fire-fighting equipment
	  • first aid equipment
	• hazard control, including control of hazardous materials and toxic substances.

Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins or memos • material safety data sheets (MSDS) • diagrams or sketches • safe work procedures relating to the diagnosis and repair of light vehicle braking systems • regulatory and legislative requirements relating to the automotive industry • Australian Design Rules • Engineer's design specifications and instructions • organisational work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • light vehicle service requirements and repair manuals.
Diagnostic tests may	• friction material wear • brake drum component serviceability

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
include:	• disc brake component serviceability • vehicle braking efficiency.
Faults may include:	• poor braking performance • worn, damaged or badly-a*d*justed components.
Repair options may include:	• removal, replacement and adjustment procedures • dismantle, repair, re-assembly and adjustment procedures.
Post-repair testing may include:	• mobile or stationary tests to evaluate braking system performance.

Unit Sector(s)

Competency field	Mechanical – Light Vehicle
Unit sector	Technical – Brakes

Custom Content Section

Not applicable.

AURLTJ2001 Select tyres and rims for specific applications (light)

Modification History

Release	Comment
Release 1	Replaces AURT217668A Select tyres and rims for specific applications (light) Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to select tyres and rims to suit specific applications in an automotive retail, service and/or repair context. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, selection of tyres and rims and completion of work finalisation processes, including clean-up and documentation. Tyres and rims may be those covered by the RS&R Training Package and may include, but are not limited to light vehicles, motorcycles, trailers that are used on sealed and unsealed surfaces. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment within the scope of this unit. This includes an understanding of the level of work to be performed.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to select tyres and rims for specific applications	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals specifications, and tooling required, are sourced 1.4. Methods appropriate to the circumstances are selected and prepared in accordance with standard operating procedures
2. Select tyre and rims for specific applications	2.1. Information required for the work is accessed from manufacturer/component supplier specifications and correctly interpreted 2.2. Tyre and rim options are analysed to identify technical compliance and economic benefits 2.3. Selection procedures are carried out in accordance with legislation, industry and enterprise policies/procedures guidelines 2.4. Selected products are those which most closely meet customer requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to

REQUIRED SKILLS AND KNOWLEDGE
customers • apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance • interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal • establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage • use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks • use workplace technology related to the selection of tyres and rims, including the use of measuring equipment, computerised technology and communication devices and the reporting/ documenting of results
Required knowledge
• WHS regulations/requirements, Australian Design Rules equipment, material and personal safety requirements • tyre and rim terminology and codes • differing rim and tyre types and tread patterns and their applications • safe handling and storage procedures • enterprise quality procedures • work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • accurately interpreting information upon which selection is based • conducting selection in accordance with customer and workplace requirements • achieving the closest possible match between products and requirements • completing selection within workplace timeframes
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the selection of tyres and rims • equipment, hand and power tooling appropriate to the selection of tyres and rims • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning

EVIDENCE GUIDE	
	knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Tyres	Tyres may include tube, tubeless, dual sizing, radial, belted bias or directional
Specific applications	Specific applications may include varying terrain and soils, weather conditions and tracking requirements
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, machinery movement working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but not limited operating safely in the event of fires, enterprise first aid requirements and plant evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian

RANGE STATEMENT	
	Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment are to include a range of different tyres and wheels for different applications
Communications	Communications are to include but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the selection of tyres and rims • regulatory/legislative requirements pertaining to the Automotive manufacturing • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical - Light

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Wheels and Tyres

AURLTJ3004 Provide advice on the effects of wheel and tyre combinations

Modification History

Release	Comment
Release 1	Replaces AURT318054A Provide advice on the effects of wheel and tyre combinations Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence to effectively advise customers on how specific wheel and tyre combinations can affect their vehicle's ride and handling characteristics. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit applies to light vehicles, including 4WDs, light commercial vehicles and various types of motorsport vehicles. It includes identification and confirmation of work requirement, preparation for work, confirmation of customer needs, technical analysis of needs and options, provision of advice on compliance, recommendation as to a plan of action and completion of work finalisation processes, including clean-up and documentation. Work involves advising customers how specific non-standard wheel and tyre combinations can affect ride and handling characteristics of their vehicle. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Confirm facts relating to customer enquiry	1.1. Customer is consulted to determine if wheel and tyre modifications are actual or proposed 1.2. Reasons for requiring alternative wheel and tyre combinations are discussed and confirmed with customer 1.3. Specifications of proposed or actual wheel and tyre combinations are clarified with customer
2. Access and confirm data to make an informed technical opinion	2.1. Technical product persons from identified wheel and tyre manufacturer/component supplier are consulted to access technical information and advice 2.2. Proposed or actual modifications are confirmed if they contravene Australian Design Rules 2.3. Technical product information to assist with providing information about wheel and tyre modifications is researched and accessed 2.4. Colleagues are consulted who may be able to assist through previous technical knowledge and experience
3. Recommend a plan of action to meet customer requirements	3.1. An explanation is given to the customer on how specifications relate to intended use of vehicle 3.2. Implications of wheel and tyre combination not complying with a specific Australian Design Rules regulation is discussed with customer 3.3. Suitability of proposed or actual wheel and tyre combination is discussed with customer and advice is given based on experience or facts derived from product sources 3.4. Suitable plan of action is discussed and clarified to meet customer needs

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• apply research and interpretive skills sufficient to locate, interpret and apply

REQUIRED SKILLS AND KNOWLEDGE
manufacturer/component supplier procedures, workplace policies and procedures • apply analytical skills for identification and analysis of technical information • apply plain English literacy and communication skills in relation to dealing with customers and team members • apply questioning and active listening skills for example when obtaining information from customers • apply oral communication skills sufficient to convey information and concepts to customers • apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance • interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal • establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage • use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks • use workplace technology related to advising on wheel and tyre combinations, including the use of measuring equipment, computerised technology and communication devices and the documenting/recording of results
Required knowledge
A working knowledge of: • WHS regulations/requirements, equipment, material and personal safety requirements • the implications of contravening Australian Design Rules • principles of wheel and tyre technology • types, characteristics, uses and limitations of wheel and tyre combinations • methods of effectively discussing technical information with customers • work organisation and planning processes • enterprise quality processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • confirming facts relating to wheel and tyre modifications • accessing sources of wheel and tyre technical information • developing a plan of action which satisfies customer requirements in the most economical and legal fashion • presenting automotive wheel and tyre technical information and specifications at an understandable level to customer
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to advising on wheel and tyre combinations • equipment and tooling appropriate to advising on wheel and tyre combinations • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy

EVIDENCE GUIDE	
	of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Wheel and tyre specifications	Types of wheel and tyre specifications are to include wheel rim sizes, wheel material, wheel diameters, tyre sizes, tyre compounds and tyre tread designs
Product sources	Product sources are to include specialist tyre retail outlets, specialist wheel retail outlets, specialist

RANGE STATEMENT	
	wheel and tyre repairers, wheel and tyre manufacturer/component suppliers
Colleagues	Colleagues may include other mechanics or technicians, supervisory staff and contacts made with wheel and tyre manufacturer/component suppliers
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, breaker devices, gauges, jacks, hoists and pressure testing devices
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and

RANGE STATEMENT	
	pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Technical

Co-requisite units

Not applicable.

Competency field

Competency field	

AURREA2001 Apply environmental and sustainability best practice in a marine workplace

Modification History

Release	Comment
Release 1	Replaces AURR271103A Apply environmental regulations in the marine service industry Performance Criteria updated to reflect sustainability

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to identify and apply environmental regulations and sustainability best practice to work safely and avoid potential environmental hazards in the maintenance and service of marine vessels. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work involves the theory, knowledge and application of skills related to environmental regulations and sustainability best practice in a marine workplace while maintaining and servicing marine vessels. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in undertaking environmentally sound work practices.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify and apply environment regulations	1.1. Reasons for ***ethical environmental practice*** in an marine mechanical workplace are identified 1.2. Environmental responsibilities and penalties for individual breaches of legislation and regulations are identified 1.3. ***Documents and procedures*** relevant to environmental safety and ***hazards*** are located and determined 1.4. ***Safety equipment and other material*** necessary to support environmentally sound practices are identified and sourced
2. Identify and avoid hazards to water, foreshores and marine environments	2.1. Wastewater or ***contaminants*** are contained to restrict entry to water systems, foreshores or marine environments 2.2. Vessel and component maintenance, service and repair is undertaken in an environmentally responsible manner to avoid hazards to water systems, foreshores and marine environments 2.3. Preparation areas are checked to ensure accidental spillage cannot escape into water systems, foreshores and marine environments 2.4. Spill kit is identified and located in preparation to prevent damage to the marine environment 2.5. Waste containment areas are identified and inspected to avoid contamination of the surrounding area
3. Identify and avoid hazards to air quality	3.1. Hazardous airborne particles, including anti-foulant are identified, minimised and contained 3.2. Hazardous gases and fumes are identified, minimised and contained 3.3. Clean-up of guns, general tools, equipment and spray and painting equipment is conducted in an environmentally safe manner
4. Identify and avoid noise hazards	4.1. Hazardous noise activities are identified, prevented, reduced and contained 4.2. Hazardous noise activities are carried out within approved operating hours and regulations
5. Identify and apply sustainability best practice	5.1. ***Sustainability best practice*** is identified and applied to minimise waste and potential damage to the environment according to workplace policies and procedures 5.2. Methods to reduce resource consumption (water, electricity, fossil fuels, chemicals) are identified and applied 5.3. Environmental damage and breaches of environmental regulations are reported

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - follow oral instructions
  - communicate verbal and written ideas and information as they relate to environmental regulations and sustainability best practice of a marine mechanical workplace
- initiative and enterprise to:
  - identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- literacy skills to:
  - identify and apply workplace environmental procedures
  - read and apply environmental regulations for a marine mechanical workplace
- numeracy skills to measure and calculate length, area and volume
- planning and organising skills to:
  - identify risk factors and actions to minimise risk
  - identify planning, checking and inspection techniques to avoid environmental contamination and wastage
- problem-solving skills to:
  - recognise a workplace problem or a potential problem
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - identify processes which contribute to improvements for sustainability best practice
- self-management skills to:
  - identify appropriate safety and environmental response equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
- teamwork skills to:
  - collaborate and cooperate with other team members relating to environmental and sustainability issues
- technical skills to:
  - collect, organise and interpret technical information relating to recognising workplace situations that are potentially harmful to the environment
  - use spill kits
- technology skills to:
  - use workplace environmental and safety-related technology to assist with clean and safe work practices

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- effects of pollution and methods to minimise it
- environmental regulations and their implications for work being undertaken in a marine mechanical service and repair workplace
- characteristics and potential environmental impact of products used in the maintenance, repair and service of marine vessels, components and electrical systems
- philosophy of prevention, reuse, reduce, recycle
- awareness of the environmental effects of chemicals and contaminants on the marine environment
- procedures for use of spill kit
- reporting procedures for environmental damage and breaches of environmental regulations

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • apply environmental regulations and sustainability best practice in a marine mechanical service and repair workplace • identify materials used in an marine mechanical workplace and assess their potential environmental impact • use a spill kit • report environmental damage and breaches of environmental regulations.
Context of and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • access to environmental legislation, regulations and best practice models including access to workplace documents and reference images • access to a marine maintenance and service workplace or simulated environment that accurately reflects workshop working conditions, including conditions for the removal and application of anti-foulants, recycling bins, liquid, sludge and

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	solid wastes • access to PPE and other equipment of the type intended to be used in response to an environmental incident or accident.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of an holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Ethical environmental practice may include:	• correct disposal methods for waste and cleaning and/or washing of internal and external surfaces, glass surfaces and wet areas • painting with anti-foulant based products • compliance with legislative obligations • hazardous materials handling best practice applications • organisation insurance requirements • discretion, judgement and problem-solving skills in undertaking environmentally sound work practices.
Documents and procedures may include:	• material safety data sheets (MSDS) • environmental legislation • health regulations • hazardous substances register • site environmental policy • workplace environmental procedures and safety instructions • dangerous goods code safe operating procedures.
Hazards may include:	• toxic fumes and substances • flammable materials and fire hazards • spillages • waste and debris especially on floors, ladders, trolleys • electricity and water • toxic substances • damaged packing material or containers • broken or damaged equipment • unsafe lifting practices.

Safety equipment and other material may include:	• personal protective equipment (PPE) including:
	  • eye protection
	  • hearing protection
	  • gloves
	  • other suitable protective clothing
	  • safety footwear
	• spill kit
	• absorbent materials
	• drip and catchment trays

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• waste bags • waste segregation systems
Contaminants may include:	• solid or liquid wastes • oil, fuel and grease • hydrocarbon based degreasing agents and solvents • acids • alkaline wastes • tributylin, arsenic, mercury and DDT • paint, lacquer, varnish • anti-foulant based products • glues and adhesive compounds • household chemicals and pesticides.
Sustainability best practice may include:	• recycling waste • energy conservation practices • natural resources (water, etc.) conservation practices • reusing • environmental (green) purchasing practices • noise minimisation.

Unit Sector(s)

Competency field	Marine
Unit sector	Environment

Custom Content Section

Not applicable.

AURRGA3001 Launch and recover a vessel using a trailer

Modification History

Release	Comment
Release 1	Replaces AURR346336A Launch and recover a vessel using a trailer Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to use a trailer to launch and recover a motor driven vessel in an estuary or seaway. It requires the ability to operate equipment to launch and recover a vessel and the ability to understand safety and pre-launch requirements. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions (e.g. boat licence requirements for each state and territory). Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit applies to marine mechanics who undertake the launching and recovering of a vessel in an estuary or seaway using a trailer so as to water test the vessel to confirm that repairs have been successfully undertaken.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for vessel launch	1.1. Read and interpret job requirements and specifications 1.2. Locate workplace health and safety (WHS) requirements, including personal protection needs 1.3. Collect tools and equipment and check for their safe and effective operation 1.4. Outline procedures to minimise task time 1.5. Check weather, tidal and launch site for safe launching conditions
2. Conduct pre-launch safety inspection	2.1. Audit vessel safety equipment 2.2. Inspect systems and components for seaworthiness and conformity to manufacturer and component supplier specifications and regulations to ensure vessel safety 2.3. Check vessel for safety using testing equipment, as appropriate 2.4. Repair systems and components that fail the safety inspection in accordance with manufacturer and component supplier specifications and site procedures
3. Launch vessel	3.1. Manoeuvre appropriate vehicle to position trailer in suitable depth of water on launch way 3.2. Secure trailer as required by state and territory regulations 3.3. Operate tilting and winch mechanisms and remove safety chain and winch strap from vessel 3.4. Tether vessel to trailer using suitable rope and knots 3.5. Move vessel from launch way to a safe area in the water 3.6. Park vehicle and trailer in suitable area
4. Recover vessel	4.1. Manoeuvre vehicle to position trailer in suitable depth of water on launch way 4.2. Remove detachable trailer fixtures and fit trailer retrieval guide poles 4.3. Manoeuvre vessel into recovery area and align with trailer guides and rollers 4.4. Tether vessel to trailer using suitable rope and knots 4.5. Operate tilting and winch mechanisms and attach safety chain and winch strap to vessel

ELEMENT	PERFORMANCE CRITERIA
	4.6. Secure vessel and trailer safely 4.7. Recover vessel according to WHS and environmental legislation, manufacturer specifications, industry regulations, and enterprise policies and procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use a trailer winch and tilt mechanism, launch and recover a vessel, and use safety inspection tools and computerised equipment
- communication skills to the level required to communicate effectively regarding work requirements, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to read and understand vessel specifications and operation
- literacy skills to the level required to locate and understand information related to work orders and WHS and organisational policies and procedures related to launching and recovering a vessel using a trailer
- numeracy skills to the level required to read weather charts and to complete tests and measurements to determine vessel seaworthiness
- problem-solving skills to the level required to identify technical and procedural problems related to launching and recovering a vessel using a trailer
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity
- planning skills to the level required to use pre-checking and seaworthiness inspection techniques to anticipate problems and avoid wastage of time and material

Required knowledge

Required knowledge includes:

- tare weight, gross vehicle mass and aggregate trailer mass regulations related to trailer weights on single, dual and tri axle trailers
- inspection requirements and standards for safety equipment, hull and fittings
- daily maintenance requirements for vessels
- manufacturer and/or component supplier specifications, including workshop manuals
- water depth required for vessel flotation
- pre-launch inspection procedures
- equipment requirements and standards
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to marine launch site and trailer winch and tilt mechanisms
- organisational policies and procedures, including quality requirements, reporting and recording procedures, and work organisation and planning processes, related to marine operations

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparation for launch in a systematic manner • inspect a vessel for safe operation in an estuary or seaway • follow legislative, state and territory regulations and organisational requirements • launch a range of vessels using a trailer • recover a range of vessels vessel using a trailer.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • appropriate vessels
	  • trailer
	  • equipment and tools appropriate to checking, launching and recovering vessel
	  • technical specifications.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of

EVIDENCE GUIDE	
	workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Inspecting seaworthiness of vessel	Inspecting seaworthiness of vessel may include: • checking safety equipment and fitment • checking currency and accessibility of vessel safety equipment • checking vessel hull and fittings for safety and journey suitability • checking fuel and battery • ensuring fresh water is onboard • checking other resources • inspecting hull for secured watertight mechanisms (e.g. seacocks, drain plugs and

RANGE STATEMENT	
	watertight flotation chambers)
Conditions	Conditions may include: • coastal • estuary • day and night • salt and fresh water • tides and currents • varying water depths • climatic conditions • launch site (e.g. beach launch and boat ramp surfaces)
Vessels	Vessels may include: • vessels up to 10 metres in length with a maximum beam of 2.5 metres • single or multi-hulled • flat bottomed • planing and displacement hulls
Safe operating procedures	Safe operating procedures may include operational risk assessments associated with marine licence requirements and the International Regulations for Preventing Collisions at Sea 1972 (COLREGS), and include: • rope, chain and steel cable dangers • vessel and dockside flammable materials • fire prevention • rope, chain and steel cable dangers • vessel and dockside flammable materials • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Tooling and equipment	Tooling and equipment may include: • communication equipment (e.g. Emergency Position Indicating Radio Beacon (EPIRB)) • suitable ropes, chains, shackles and tie-downs • general hand tools and lubricants • specialist hand tools (e.g. electric winch harness and remote, winch handles and

RANGE STATEMENT	
	leather gloves) • tow vehicle suitable for the task
Information/documents	Information/documents may include: • vessel manufacturer and/or component supplier specifications (operational), seaworthiness vessel and equipment checklist and vessel operational checklist • safe work procedures related to the driving and manoeuvring of motorised vessel • regulatory/legislative requirements pertaining to marine craft • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external personnel • Australian standards • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard)
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • International Regulations for Preventing Collisions at Sea 1972 (COLREGS) • award and enterprise agreements • tare weight, gross vehicle mass and aggregate trailer mass (ATM) regulations • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care

RANGE STATEMENT	
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	

AURRGA3002 Launch and recover a vessel from crane, gantry and forklift

Modification History

Release	Comment
Release 1	Replaces AURR346435B Launch and recover vessel from crane, gantry and forklift Unit code updated to meet policy requirements Minor changes to unit title Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to launch and recover a vessel from a crane, gantry or forklift. It requires the ability to identify and confirm work requirements, launch and recover the vessel and complete work finalisation processes. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions (e.g. forklift licence and vessel operation licence). Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the launching and recovery of a vessel from a crane, gantry or forklift in a marine environment.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area 1.6. Carry out pre-launch check 1.7. Carry out pre-launch vessel check
2. Launch vessel	2.1. Attach and position slings and lifting equipment to hull 2.2. Manoeuvre and operate crane, gantry or forklift to place vessel in suitable depth of water at launch site avoiding damage to vessel and the environment 2.3. Remove slings and lifting equipment 2.4. Move vessel from launch site to safe area 2.5. Move crane, gantry or forklift from launch site 2.6. Carry out all activities according to industry regulations and guidelines, WHS and environmental legislation, and enterprise policies and procedures
3. Recover vessel	3.1. Position crane, gantry or forklift to lift point ensuring suitable depth of water is present 3.2. Manoeuvre vessel into recovery area and align with lifting equipment 3.3. Attach and position slings and lifting equipment to hull to prevent hull damage 3.4. Operate lifting equipment avoiding damage to vessel and environment 3.5. Secure vessel 3.6. Carry out all activities according to industry regulations and guidelines, WHS and environmental legislation, and enterprise policies and procedures
4. Clean up work area and finalise work	4.1. Clean and inspect equipment and tooling according to workplace requirements 4.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 4.3. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with

ELEMENT	PERFORMANCE CRITERIA
	workplace procedures 4.4. Finalise and process work completion documentation and give to appropriate persons, as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to vessel launching and recovery, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and diagnosis and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements and calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes

- water depth requirements for vessel flotation
- pre-launch inspection procedures, equipment requirements and standards
- lifting sling equipment and vessel attachment points
- techniques for manoeuvring a crane, gantry, forklift and attached vessel
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to the vessel launching and recovery from a crane, gantry and forklift, including safe lifting requirements and launch site licensing requirements
- organisational policies and procedures, including quality, reporting and recording procedures, related to vessel launching and recovery from a crane, gantry and forklift

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • launch and recover a vessel using a crane, gantry and forklift • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location
	  • vessel and a crane, gantry and forklift
	  • materials relevant to the launching and recovery of vehicles using crane, gantry or forklift
	  • equipment, hand and power tools appropriate to the launching and recovery of vessel using crane, gantry forklift
	  • specifications and work instructions.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package.

EVIDENCE GUIDE	
	• Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Vessels	Vessels may include: • vessels up to 10 metres in length with a maximum beam of 2.5 metres • single or multi-hulled • flat bottomed • planing and displacement hulls
Conditions	Conditions may include: • coastal

RANGE STATEMENT	
	• estuary • day and night • salt and/or freshwater • varying water depth • climatic conditions
Lifting equipment	Lifting equipment may include: • crane • gantry • forklift • slings • specialised lift equipment
Launch site surface	Launch site surface may include: • sand • gravel • bitumen • concrete
Launch site location	Launch site location may include: • ramp • slipway • marina • harbour in saltwater or freshwater
Pre-launch check	Pre-launch check may include: • obtaining climate information and tidal conditions • checking launch site • site inspection
Pre-launch vessel check	Pre-launch vessel check may include: • checking safety equipment • checking hull condition • checking propulsion unit • checking fuel status • checking equipment is secured
Securing vessel	Securing vessel may include: • transporting vessel from the recovery area to a safe position (storage or trailer) • lowering vessel onto storage location or trailer

RANGE STATEMENT	
	• removing slings and lifting equipment after vessel is moved from launch site to safe area • moving vessel to storage rack (or trailer)
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Safe operating procedures	Safe operating procedures may include operational risk assessments associated with marine licence requirements and the International Regulations for Preventing Collisions at Sea 1972 (COLREGS), and include: • rope, chain and steel cable dangers • vessel and dockside flammable materials • fire prevention • rope, chain and steel cable dangers • vessel and dockside flammable materials • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards

RANGE STATEMENT	
	• workplace specifications and requirements • current boating licence
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including

RANGE STATEMENT	
	Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	

AURRGA3003 Moor a motor-driven vessel

Modification History

Release	Comment
Release 1	Replaces AURR346543A Moor a motor driven vessel Unit code updated to meet policy requirements Minor changes to unit title Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to moor and dock a motor driven vessel to or from a dockside or swing mooring. It requires the ability to operate equipment to moor and dock a vessel and the ability to understand the safety requirements. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions (e.g. boat licence requirements for each state and territory). Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit applies to marine mechanics who undertake the launching and mooring of a vessel for water testing so as to confirm vessel repairs have been successfully undertaken. This would occur at a fixed dock or a swing mooring in a marine environment.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare vessel	1.1. Read and interpret job requirements and specifications 1.2. Locate workplace health and safety (WHS) requirements, including personal protection needs 1.3. Collect appropriate tools and equipment and check for their safe and effective operation 1.4. Outline procedures to minimise task time 1.5. Check weather, tidal conditions and launch site for safe launching conditions
2. Conduct safety inspection prior to moving off	2.1. Audit vessel safety equipment 2.2. Inspect hull and vessel systems and components for seaworthiness and conformity to manufacturer and component supplier specification and regulations to ensure vessel safety 2.3. Check vessel for safety using testing equipment, as appropriate 2.4. Start and check engines, controls, autopilot and failsafe systems 2.5. Repair systems and components that fail the safety inspection in accordance with manufacturer, industry and component supplier specifications, and site procedures
3. Move off mooring	3.1. Remove and attach appropriate lines using suitable knots, taking into account weather conditions, currents, tides, tidal flows and safety 3.2. Manoeuvre vehicle avoiding damage to vessel and environment 3.3. Move vessel off dockside
4. Dock and moor vessel	4.1. Select mooring site and attachment equipment as appropriate for vessel and mooring site 4.2. Locate suitable attachment points on the mooring dock and vessel 4.3. Manoeuvre vessel avoiding damage to vessel and environment 4.4. Link vessel to the mooring and secure attachment equipment in accordance with Maritime Regulations 4.5. Secure vessel alongside using appropriate docklines and knots and in accordance with regulatory requirements

ELEMENT	PERFORMANCE CRITERIA
	4.6. Use buffering equipment, as required 4.7. Moor vessel according to WHS and environmental legislation, manufacturer specifications, industry regulations and enterprise policies and procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to launch and recover a vessel from a dockside, use safety inspection tools and computerised equipment and tie appropriate knots
- communication skills to the level required to communicate effectively regarding work requirements, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to read and understand vessel specifications and operation
- literacy skills to the level required to locate and understand information related to work orders and WHS and organisational policies and procedures related to launching and recovering a vessel from a dockside
- numeracy skills to the level required to read weather charts and to complete tests and measurements to determine vessel seaworthiness
- problem-solving skills to the level required to identify technical and procedural problems related to launching and recovering a vessel from a dockside
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity
- planning skills to the level required to use pre-checking and seaworthiness inspection techniques to anticipate problems, and avoid wastage of time and materials

Required knowledge

Required knowledge includes:

- knot types for a variety of situations including dock, fixed pier, jetty, public or private wharf, concrete pontoon and plastic pontoon
- swing mooring types and construction methods as required by regulating authority and vessel size
- inspection requirements and standards for safety equipment, hull and fittings
- daily maintenance requirements for vessels and mooring docklines
- manufacturer and component supplier specifications, including workshop manuals
- inspection procedures related to moving away or off a swing mooring or dockside
- equipment requirements and standards
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to marine dockside launching and mooring
- organisational policies and procedures, including quality requirements, reporting and recording procedures, and work organisation and planning processes, related to marine operations

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparation of launch in a systematic manner • inspect a vessel for seaworthiness • follow legislative, state and territory regulations and organisational requirements • safely and responsibly move a vessel to a position alongside a dockside • safely and responsibly move a vessel off/away from a dockside • safely and responsibly move a vessel toward a swing mooring, retrieving and securing the mooring buoy and securely attaching the mooring chain in accordance with Maritime Regulations • safely and responsibly move a vessel away from a swing mooring and inspect and release the mooring buoy and chain in accordance with Maritime Regulations • safely moor a vessel to a dock.
Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment. • Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints. • Assessment is to comply with relevant regulatory requirements, including specified Australian standards. • Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.

EVIDENCE GUIDE	

	• The following resources should be made available:
	  • appropriate workplace (i.e. dockside)
	  • appropriate vessel
	  • equipment and tools appropriate to launching and mooring a motorised vessel
	  • organisational procedures, including WHS requirements.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

RANGE STATEMENT	
Check safety equipment	Check safety equipment may include: • checking navigation lights • checking bilge pump capacity • checking rope and cable size and length
Manoeuvre and secure vessel	Manoeuvre and secure a vessel may include manoeuvring and securing: • to a dock • to a swing mooring • off a dock • off and away from a swing mooring
Inspecting seaworthiness of vessel	Inspecting seaworthiness of vessel may include: • checking safety equipment for fitment • checking currency and accessibility of vessel • checking vessel hull and fittings for safety and journey suitability • checking fuel • checking other resources
Conditions	Conditions may include: • coastal • estuary • day and night • salt and/or fresh water • varying water depth • climatic conditions
Vessel	Vessel may include: • vessels up to 90 metres • single or multi-hull • powered or non-powered propulsion system • open, half or full cabin • wood, aluminium or composite material construction
Safe operating procedures	Safe operating procedures may include operational risk assessments associated with marine licence requirements and the International Regulations for Preventing Collisions at Sea 1972 (COLREGS), and includes: • rope, chain and steel cable dangers

RANGE STATEMENT	
	• vessel and dockside flammable materials • fire prevention • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Tooling and equipment	Tooling and equipment may include: • communication equipment (e.g. emergency position indicating radio beacon (EPIRB)) • suitable ropes, chains and tie-downs • general hand tools and lubricants • specialist tools (e.g. electric winch harness and remote, winch handles and leather gloves) • tow vehicle suitable for the task
Information/documents	Information/documents may include: • vessel manufacturer and/or component supplier specifications (operational), seaworthiness vessel and equipment checklist and vessel operational checklist • safe work procedures related to the driving and manoeuvring of motorised vessel • regulatory/legislative requirements pertaining to marine craft • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external personnel • Australian standards • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard)
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include:

RANGE STATEMENT	
	• International Regulations for Preventing Collisions at Sea 1972 (COLREGS) award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care • current boating licence
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures

RANGE STATEMENT	
	• reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	

AURRTA2001 Service deck, hull and cabin equipment

Modification History

Release	Comment
Release 1	Replaces AURR246870B Service deck, hull and cabin equipment Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to perform servicing procedures to the vessel deck, hull and cabin equipment. It requires the ability to identify and confirm work requirements, prepare for and service deck, hull and cabin equipment and fittings and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the return to serviceable condition of deck, hull and cabin equipment and fittings on vessels of varying types and sizes in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Source service procedures and relevant workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Determine service method in accordance with WHS, environmental and industry regulations, and guidelines and enterprise procedures 1.6. Set up work area
2. Service deck, hull and cabin equipment and fittings	2.1. Carry out service and adjustments to deck and hull in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.2. Carry out service and adjustments to cabin equipment and fittings in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.3. Test systems for correct operation, make required adjustments and re-test
3. Clean up work area and maintain equipment	3.1. Clean and inspect equipment and tooling according to workplace requirements 3.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 3.3. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons, as required 3.4. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to servicing procedures of marine deck, hull and cabin equipment and fittings and to use workplace computerised technology for the reporting and recording of actions
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customer, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology and safety procedures, to interpret technical information and specifications, and to record servicing details
- numeracy skills to the level required to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- vessel classifications and component types
- operating principles and construction of marine deck, hull and cabin equipment
- mechanical, hydraulic, electrical and electronic principles and procedures applicable to service procedures
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to servicing procedures of marine deck, hull and cabin equipment and fittings, including power lifting equipment
- organisational policies and procedures, including quality, reporting and recording procedures, related to servicing procedures of marine deck, hull and cabin equipment and fittings

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • service the deck, hull and cabin equipment and fittings of a range of vessels to workplace and manufacturer and component supplier requirements within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • deck, hull and cabin equipment and fittings requiring repair
	  • equipment, hand and power tools appropriate to the servicing of deck, hull and cabin equipment and related equipment and fittings
	  • activities covering the mandatory task requirements

EVIDENCE GUIDE	
	• specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Fittings	Fittings may include: • bollards, ferrules, runners, clamps, cleats, turnbuckles and press studs • winches and capstans • bow and stern rails, rudder and steering

RANGE STATEMENT	
	bushes and bearings • fishing rods, bait boxes and cabin fixtures
Servicing methods	Servicing methods may include: • on- and off-site repairs • minor adjustments and operational testing • replacement of fluids and filters
Marine engines	Marine engines may include: • 2-stroke petrol • 4-stroke diesel and petrol
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Materials	Materials may include: • spare parts • lubricants • fluids • cleaning materials
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems

RANGE STATEMENT	
	• material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy

RANGE STATEMENT	
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURRTA3002 Carry out hull repairs

Modification History

Release	Comment
Release 1	Replaces AURR346108B Carry out hull repairs Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to inspect the hull of a vessel for deterioration and damage and complete repairs using approved methods, materials and equipment. It requires the ability to identify and confirm work requirements, inspect and repair the hull of a vessel and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake an inspection of the hull of a vessel for deterioration and damage and complete repairs in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices, applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Inspect hull deterioration and damage and complete repairs	2.1. Inspect hull and identify deterioration and damage 2.2. Carry out repairs in accordance with vessel manufacturer and component specifications, and WHS and workplace environmental and sustainable procedures and practices 2.3. Test repairs, make required adjustments and re-test 2.4. Determine the need for water testing
3. Clean up work area and maintain equipment	3.1. Clean and inspect equipment and tooling according to workplace requirements 3.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 3.3. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures 3.4. Finalise and process work completion documentation and give to appropriate persons, as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the diagnosis and repair of marine hulls, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and diagnosis and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements and calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- vessel classification, component types and identification
- repair requirements and standards as specified by the manufacturer and component supplier
- types of materials used in vessel hulls
- repair methods related to vessel hulls
- use and application of testing, measuring and specialised servicing equipment
- inspection techniques
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to the diagnosis and repair of vessel hulls, including safety precautions, properties and use of repair materials and products used in repair procedures
- organisational policies and procedures, including quality, reporting and recording

REQUIRED SKILLS AND KNOWLEDGE
procedures, related to the repair of vessel hulls

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • carry out repairs to a range of faults in vessel hulls and using a variety of materials, including aluminium, wood and composite materials within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • materials to the repair of marine hulls
	  • equipment, hand and power tools appropriate to the repair of marine hulls
	  • specifications and work instructions.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and

EVIDENCE GUIDE	
	accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Repairs	Repairs may include: • wood repairs • plastic repairs • composite material repairs • aluminium repairs • steel repairs • fibreglass repairs
Tooling and equipment	Tooling and equipment may include:

RANGE STATEMENT	
	• hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS

RANGE STATEMENT	
	• the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURRTA3003 Winterise vessel and engine systems

Modification History

Release	Comment
Release 1	Replaces AURR346650A Winterise vessel and engine systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to winterise or prepare a vessel and its engine systems for seasonal shutdown and storage. It requires the ability to identify and confirm work requirements, winterise the vessel and engine systems and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the preparation and winterisation of vessels and their engine systems in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Use work instructions to determine the job requirements and specifications, including method, process and equipment 1.2. Locate workplace health and safety (WHS) requirements, including personal protection needs 1.3. Check equipment and tools for safe and effective operation 1.4. Determine procedures to minimise task time
2. Winterise vessel systems	2.1. Test vessel systems and compare to system specifications prior to winterising 2.2. Report vessel systems that fail testing and gain rectification approval from customer 2.3. Carry out winterising procedures in accordance with vessel manufacturer and component specifications and guidelines, WHS and environmental legislation, and enterprise policies and procedures 2.4. Prepare report for the customer detailing work undertaken and technical and/or regulatory requirements
3. Winterise engine systems	3.1. Test engine systems and compare to system specifications prior to winterising 3.2. Report engine systems which fail testing to the customer and obtain rectification approval 3.3. Carry out winterising procedures in accordance with manufacturer and component specifications and guidelines, WHS and environmental legislation, and enterprise policies and procedures 3.4. Seal engine openings against ingress of foreign matter 3.5. Prepare report for the customer detailing work undertaken and technical and/or regulatory requirements
4. Clean up work area and finalise work	4.1. Clean and inspect equipment and tooling according to workplace requirements 4.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 4.3. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures 4.4. Finalise and process work completion

ELEMENT	PERFORMANCE CRITERIA
	documentation and give to appropriate persons, as required 4.5. Prepare report for the customer detailing work undertaken and technical or regulatory requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the preparation and winterisation of a vessel and its engine systems for seasonal shutdown and storage, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and to identify diagnose and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements and calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- vessel classification, system type and component identification
- engine classification, system types and component identification
- engine system requirements and their relationship to vessel systems and associated components
- propulsion system requirements and their relationship to vessel systems and associated components
- mechanical, hydraulic, electrical and electronic principles and application
- properties and use of servicing fluids, and lubricants and anti-corrosion products used in winterising procedures
- servicing requirements as specified by manufacturer's and component suppliers
- use and application of testing, measuring and specialised servicing equipment
- manufacturer and component supplier specifications, including workshop manuals

REQUIRED SKILLS AND KNOWLEDGE
and repair guides • applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to the preparation and winterisation of a vessel and its engine systems • organisational policies and procedures, including quality, reporting and recording procedures, related to the preparation and winterisation of a vessel and its engine systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • test, winterise and store a range of vessels • test, winterise and store a range of marine engine systems • complete clean-up activity in a systematic manner • safely operate power lifting equipment • complete workplace records.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • appropriate vessels and engine systems
	  • materials relevant to the preparation and winterising of vessels and engine systems
	  • equipment, hand and power tools appropriate to the winterising of vessel and engine systems
	  • specifications and work instructions.

Method of assessment	• Assessment must satisfy the endorsed Assessment

EVIDENCE GUIDE	
	Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Preparing to winterise	Preparing to winterise may include: • inspecting engine • reading service data • compiling report • testing, inspecting, adjusting, cleaning, and weatherproofing components and systems
Vessels	Vessels may include:

RANGE STATEMENT	
	• single or multi-hull • inboard or outboard drive • powered or non-powered propulsion system • open, half or full cabin • wood, aluminium or composite material construction
Engine systems	Engine systems may include: • inboard or outboard • 2- or 4-stroke • single or multi-cylinder • water or air cooled • electrical or electronic • remote or local controlled
Fuel systems	Fuel systems may include • petrol • diesel • gas • carburetion or fuel injection • manual or electric start
Tooling and equipment	Tooling and equipment may include: • hand tooling • testing equipment, including multimeters • power tooling • air tooling • specialist tooling and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues

RANGE STATEMENT	
	• inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements • current boating licence
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures

RANGE STATEMENT	
	• road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURRTA3004 Recommission vessel systems

Modification History

Release	Comment
Release 1	Replaces AURR346660B Recommission vessel systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to prepare a vessel system for use after seasonal shutdown and storage. It requires the ability to identify and confirm work requirements, test and recommission vessel systems and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the recommissioning of a vessel system for use after seasonal shutdown and storage in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Recommission vessel systems	2.1. Carry out recommissioning procedures in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.2. Test vessel systems and compare to manufacturer and component specifications 2.3. Determine and report vessel systems which fail testing and gain rectification approval from customer 2.4. Repair and test failed systems 2.5. Commission vessel system 2.6. Determine the need for water testing
3. Clean up work area and finalise work	3.1. Clean and inspect equipment and tooling according to workplace requirements 3.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 3.3. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures 3.4. Finalise and process work completion documentation and give to appropriate persons, as required 3.5. Prepare report for the customer detailing work undertaken and technical or regulatory requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the recommissioning of vessel systems, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and diagnosis and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements and calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- vessel classification, system type and component identification
- principles and application of mechanical, hydraulic, electrical and electronic principles
- propulsion system requirements and relationship to vessel systems and associated components
- properties and use of servicing fluids and lubricants products used in recommissioning procedures
- recommissioning requirements and specifications as specified by the manufacturer and component supplier, including workshop manuals and repair guides
- use and application of testing, measuring and specialised servicing equipment
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to the recommissioning of vessel systems, including power lifting requirements and licensing

REQUIRED SKILLS AND KNOWLEDGE
• organisational policies and procedures, including quality, reporting and recording procedures, related to the recommissioning of vessel systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • recommission and test a range of vessel systems to manufacturer and component supplier requirements within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • vessel systems requiring recommissioning
	  • equipment, hand and power tools appropriate to the recommissioning of vessel systems
	  • specifications and work instructions.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and

EVIDENCE GUIDE	
	accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive • powered or non-powered propulsion system • open, half or full cabin • wood, aluminium or composite material construction
Marine engines	Marine engines may include: • 2-stroke petrol

RANGE STATEMENT	
	• 4-stroke diesel and petrol
Recommissioning	Recommissioning may include: • engine system inspection • reading service data • compiling reports • testing, inspecting, adjusting, cleaning, and repairing components and systems
Systems	Systems may include: • propeller or jet drive propulsion systems with tilt, trim and manual adjustment
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard)

RANGE STATEMENT	
	• Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including

RANGE STATEMENT	
	Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURRTA3005 Repair deck, hull and cabin equipment

Modification History

Release	Comment
Release 1	Replaces AURR346866B Repair deck, hull and cabin equipment Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to repair vessel deck, hull and cabin equipment and fittings using approved methods, materials and equipment. It requires the ability to identify and confirm work requirements, repair deck, hull and cabin equipment and fittings, test and recommission vessel and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the repairing of vessel deck, hull and cabin equipment and fittings using approved methods, materials and equipment in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices, applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Repair deck and hull	2.1. Inspect deck and hull and identify deterioration and damage 2.2. Perform repairs and adjustment operations in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.3. Test repairs, make required adjustments and re-test 2.4. Determine the need for water testing
3. Repair cabin equipment and fittings	3.1. Inspect cabin equipment and fittings and identify deterioration and damage 3.2. Perform repairs and adjustment operations in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices
4. Test and recommission vessel	4.1. Test deck, hull and cabin equipment and fittings for correct operation in accordance with manufacturer and component supplier specifications 4.2. Repair and test failed systems 4.3. Determine and report vessel deck, hull and cabin equipment and fittings which fail testing and gain rectification approval from customer 4.4. Determine the need for water testing 4.5. Carry out recommissioning procedures in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices
5. Clean up work area and finalise work	5.1. Clean and inspect equipment and tooling according to workplace requirements 5.2. Tag unserviceable equipment and faults identified in

ELEMENT	PERFORMANCE CRITERIA
	accordance with workplace requirements 5.3. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures 5.4. Finalise and process work completion documentation and give to appropriate persons, as required 5.5. Prepare report for the customer detailing work undertaken and technical or regulatory requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the repair of deck, hull and cabin equipment and fittings, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and diagnosis and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements and calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- vessel classification, component type and identification
- principles and application of mechanical, hydraulic, electrical and electronic principles, as applicable to cabin and deck equipment
- properties and use of repair materials and products used in repair procedures
- inspection techniques
- types of materials used in deck, hull and cabin equipment and fittings
- repair methods related to deck, hull and cabin equipment and fittings and the relationship of these parts and fittings to the integrity of the vessel
- use and application of testing, measuring and specialised servicing equipment
- recommissioning requirements and specifications as specified by the manufacturer and component supplier, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to the

REQUIRED SKILLS AND KNOWLEDGE
repair of deck, hull and cabin equipment and fittings • organisational policies and procedures, including quality, reporting and recording procedures, related to the repair and recommissioning of deck, hull and cabin equipment and fittings

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • repair and recommission and test a range of deck, hull and cabin equipment and fittings to manufacturer and component supplier requirements within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • deck, hull and cabin equipment and fittings requiring repair
	  • materials relevant to the repair of deck, hull and cabin equipment and fittings
	  • equipment, hand and power tools appropriate to the repair of deck, hull and cabin equipment and fittings

EVIDENCE GUIDE	
	• specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Equipment and fittings	Equipment and fittings may include: • fittings (bollards, ferrules, runners, clamps, cleats, turnbuckles and press studs) • winches and capstans • bow and stern rails, rudder, and steering

RANGE STATEMENT	
	bushes and bearings • fishing rods and bait boxes • cabin fixtures
Repairs	Repairs may include: • wood repairs • plastic repairs • composite material repairs • aluminium repairs • steel repairs • glass repairs • low voltage wiring and lighting repairs • functional operation/testing (e.g. water and tank)
Recommissioning methods	Recommissioning methods may include: • engine system inspection • engine system commissioning • reading service data • compiling reports • testing, inspecting, adjusting, cleaning, and repairing components and systems • equipment and fittings inspection
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external

RANGE STATEMENT	
	persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying

RANGE STATEMENT	
	• emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURRTA3006 Water test a vessel

Modification History

Release	Comment
Release 1	Replaces AURR346931A Water test a vessel Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to water test a vessel so as to meet specific customer performance specifications and ensure conformity to statutory regulations. It requires the ability to establish customer requirements, conduct pre-water safety inspection, water test and repair failed system and components, and complete work processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the water testing of a vessel after service, repair or installation work to ensure that the work meets specific customer performance specifications and conformity to statutory regulations.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Establish vessel configuration performance to be checked with customer 1.2. Select test procedure and equipment required for water testing 1.3. Check manufacturer and component supplier specifications 1.4. Check equipment and tools for safe and effective operation 1.5. Locate workplace health and safety (WHS) requirements, including personal safety needs, for the work activity
2. Conduct pre-water test safety inspection	2.1. Check safety of vessel according to industry regulations and guidelines, WHS and environmental legislation, and enterprise policies and procedures 2.2. Repair systems and components that fail the safety inspection prior to vessel leaving mooring
3. Water test vessel	3.1. Test and document engine performance 3.2. Test and document propulsion unit 3.3. Test and document hull and hull fittings 3.4. Compare water test performance data with manufacturer and component supplier specifications 3.5. Prepare customer test report and recommend any additional repairs and/or modifications required 3.6. Present vessel to customer as required by workplace procedures 3.7. Carry out all activities according to industry regulations and guidelines, WHS and environmental legislation, and enterprise policies and/or procedures
4. Clean up work area and maintain equipment	4.1. Collect and store material that can be reused 4.2. Remove waste and scrap following workplace procedures 4.3. Clean and inspect equipment and work area for serviceable condition in accordance with workplace procedures 4.4. Tag unserviceable equipment and faults identified in accordance with workplace requirements 4.5. Complete operator maintenance in accordance with manufacturer and component supplier specifications and site procedures

ELEMENT	PERFORMANCE CRITERIA
	4.6. Maintain tooling and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to safety and water testing a vessel, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and diagnosis and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements and calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- vessel, component and system performance assessment standards based on manufacturer and component supplier specifications and regulatory requirements
- vessel operating systems, components and fittings
- inspection techniques
- test report compilation and presentation
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to water testing a vessel so as to meet specific customer performance specifications and conformity to statutory regulations
- organisational policies and procedures, including quality, reporting and recording procedures, related to water testing a vessel

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate • complete preparatory activity in a systematic manner • conduct water testing of configuration and vessel in accordance with workplace and manufacturer and component supplier requirements for a range of vessels • accurately record and interpret the test data for a range of vessel testings • complete the testing within workplace timeframes • present equipment to customer in compliance with workplace requirements • complete the configuration checking within workplace timeframes.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • appropriate vessels for water testing
	  • materials relevant to the water testing of vessels
	  • equipment, hand and power tools appropriate to the water testing of vessels

EVIDENCE GUIDE	
	• specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Water testing	Water testing may include: • testing engine performance by operating the engine through the full operating range • testing propulsion unit by operating through the full range of speeds and directions

RANGE STATEMENT	
	• testing hull and hull fittings by operating through the full range of performance conditions • testing to establish that current configuration is performing to manufacturer and component supplier specification • testing components • checking hull performance • checking faults as referred by the customer
Factors influencing vessel performance	Factors influencing vessel performance may include: • hull design • engine and hull match • engine propeller match • engine set-up • aerodynamics • vessel type, size, age, modifications, developmental and additions to existing vessel • engine type, size, single or multi • propulsion unit installed propeller or jet drive • hull type, including planing, displacement, single, multi-hull and hull fittings • variance between performance data and specifications • climatic (e.g. time of day, saltwater or freshwater, coastal, estuary or marine, water depth and weather)
Safety check of vessel	Safety check of vessel my include: • auditing vessel safety equipment • visually inspecting systems and components for conformity to manufacturer and component supplier specification • inspecting for conformity to regulations • adequate fuel and freshwater for journey
Test report	Test report may include: • recommendations for repairs and/or modifications • component conformity to manufacturer and supplier specifications

RANGE STATEMENT	
	• performance enhancing components which may satisfy the customer requirement • conformity to and implications of local, state and territory regulations and laws which may influence customer decisions • component manufacturer and component supplier warranty considerations
Tooling and equipment	Tooling and equipment may include: • hand tooling • testing equipment, including multimeters • power tooling • air tooling • specialist tooling and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements • current boating licence
Legislative requirements	Legislative requirements are to be in accordance

RANGE STATEMENT	
	with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice

RANGE STATEMENT	
	• safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURRTD3001 Diagnose and repair marine steering systems

Modification History

Release	Comment
Release 1	Replaces AURR346267A Diagnose and repair marine steering systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to diagnose and repair wire/rope, push pull cable, hydraulic and chain marine steering systems to a safe working condition. It requires the ability to identify and confirm work requirements, diagnose and repair marine steering systems and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the diagnosis and repair of steering systems on boats and vessels in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Diagnose faults	2.1. Develop a diagnosis strategy 2.2. Undertake tests in accordance with workplace procedures and manufacturer and component supplier specifications 2.3. Compare test results with manufacturer and component supplier specifications to identify compliance or non-compliance 2.4. Decide upon a plan of action to rectify faults 2.5. Document results, including evidence, relevant information and recommendations 2.6. Forward report to persons for action in accordance with workplace procedures 2.7. Finalise repair requirements
3. Repair rope, cable, chain systems and associated components	3.1. Perform repair and adjustment operations in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 3.2. Operate rope, cable and chain system through full operating range, noting test results and any non-conformity 3.3. Make required adjustments and re-test 3.4. Check that protective guards, cowlings and safety features are in place according to workplace expectations 3.5. Determine the need for water testing
4. Clean up work area and finalise work	4.1. Clean and inspect equipment and tooling according to workplace requirements 4.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 4.3. Finalise and process work completion

ELEMENT	PERFORMANCE CRITERIA
	documentation, update customer and warranty information and give to appropriate persons, as required 4.4. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the diagnosis and repair of marine steering systems, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and diagnosis and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements, calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- types of rope, cable and chain systems
- purpose and requirements of rope, cable and chain systems and their relationship to vessel and mooring systems
- materials and construction of materials used in rope, cable and chain systems
- measuring and testing procedures
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to the diagnosis and repair of marine steering systems, including the safe working load of ropes, chains and cables
- organisational policies and procedures, including quality, reporting and recording procedures, related to the diagnosis and repair of marine steering systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • diagnose and repair a range of marine steering systems to workplace and manufacturer and component supplier requirements • complete workplace records.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • marine steering systems in need of repair
	  • equipment, hand and power tools appropriate to the diagnosis and repair of vessel rope, cable and chain systems
	  • specifications and work instructions.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of

EVIDENCE GUIDE	
	workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Repair methods	Repair methods may include: • isolation of faults • dismantling, inspection and evaluation • replacement of components parts • assembly • completion of operational tests • completion of records
Marine engines	Marine engines may include: • 2-stroke petrol

RANGE STATEMENT	
	• 4-stroke diesel and petrol
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements • current boating licence
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards

RANGE STATEMENT	
	• Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Steering and Suspension

AURRTE2002 Service outboard engines and components

Modification History

Release	Comment
Release 1	Replaces AURR201103A Service outboard engines and components Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to service outboard engines and components. It requires the ability to identify and confirm work requirements, service marine engines and to complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake and document the servicing of two and four cycle outboard engines and components in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Source service procedures and relevant workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Decide service method in accordance with WHS, environmental and industry regulations, and guidelines and enterprise procedures 1.6. Set up work area
2. Service engines and engine components	2.1. Conduct service in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.2. Conduct pre-start checks, make required adjustments and re-test 2.3. Apply appropriate lubricants to engine 2.4. Check that protective guards, cowlings and safety features are in place according to workplace expectations 2.5. Determine the need for water testing
3. Clean up work area and finalise work	3.1. Seal engine orifices against ingress of foreign matter 3.2. Clean and store engine according to workplace requirements 3.3. Clean and inspect equipment and tooling according to workplace requirements 3.4. Tag unserviceable equipment and faults identified in accordance with workplace requirements 3.5. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons as required 3.6. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to servicing of outboard engines and components, including use of workplace computerised technology for the testing, reporting and recording of results
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology, plans and safety procedures, to interpret technical information and specifications and to prepare reports
- numeracy skills to the level required to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- operating principles, construction and types of two and four cycle outboard engines
- servicing procedures and methodologies for different engines types
- minor adjustment procedures for different engines types
- types of lubricants and application methods
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides related to the servicing of marine engines and engine components
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to the servicing of outboard engines and components
- organisational policies and procedures, including quality requirements, reporting and recording procedures, related to servicing outboard engines and components

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select servicing methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • service a range of two and four cycle outboard engines and components to workplace and manufacturer requirements and within workplace timeframe • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • appropriate worksite
	  • a range of marine two and four cycle engines and components requiring servicing
	  • specifications and work instructions
	  • equipment, hand and power tooling appropriate to repairing marine engines
	  • relevant information, including manufacturer specifications.

EVIDENCE GUIDE	
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Marine engines	Marine engines may include: • 2-stroke petrol and diesel • 4-stroke petrol and diesel
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive

RANGE STATEMENT	
Servicing methods	Servicing methods may include: • on- and off-site repairs • minor adjustments and operational testing • replacement of fluids and filters
Pre-start checking procedures	Pre-start checking procedures may include: • running to operating temperature • priming oil • checking engine fluid levels, including lubrication and coolant • checking fuel system for leaks • checking for abnormal noises • checking for pressures • checking gauges and warning devices for operation
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment • lubricating equipment • measuring equipment • pressure gauges • vacuum gauges • manufacturer's special stools
Materials	Materials may include: • spare parts • lubricants • fluids • cleaning materials
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others

RANGE STATEMENT	
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • Repair Times manuals • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • industry codes of practice • Australian standards • workplace specifications and requirements • current driver's licence
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment

RANGE STATEMENT	
	• first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian Standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Engines

AURRTE2003 Service inboard engines and components

Modification History

Release	Comment
Release 1	Replaces AURR201104A Service inboard engines and components Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to service inboard engines and components. It requires the ability to identify and confirm work requirements, service the inboard engines and to complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake and document the servicing of inboard engines and components in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Source service procedures and relevant workshop manuals and manufacturer's information 1.4. Check and prepare tools, equipment and materials 1.5. Decide service method in accordance with WHS, environmental and industry regulations, and guidelines and enterprise procedures 1.6. Set up work area
2. Service engine and engine components	2.1. Conduct service in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.2. Conduct pre-start checks, make required adjustments and re-test 2.3. Apply appropriate lubricants to engine 2.4. Check that protective guards, cowlings and safety features are in place according to workplace expectations 2.5. Determine the need for water testing
3. Clean up work area and finalise work	3.1. Seal engine orifices against ingress of foreign matter 3.2. Clean engine according to workplace requirements 3.3. Clean and inspect equipment and tooling according to workplace requirements 3.4. Tag unserviceable equipment and faults identified in accordance with workplace requirements 3.5. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons as required 3.6. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to servicing of inboard engines and components, including use of workplace computerised technology for the testing, reporting and recording of results
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology, plans and safety procedures, to interpret technical information and specifications and to prepare reports
- numeracy skills to the level required to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- operating principles, construction and types of inboard engines
- servicing procedures and methodologies for different engines types
- minor adjustment procedures for different engines types
- types of lubricants and application methods
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides related to the servicing of marine engines and engine components
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to the servicing of inboard engines and components
- organisational policies and procedures, including quality requirements, reporting and recording procedures related to servicing inboard engines and components

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select servicing methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • service a range of marine inboard engines and components to workplace and manufacturer requirements and within workplace timeframe • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • appropriate worksite
	  • a range of marine inboard engines and components requiring servicing
	  • specifications and work instructions
	  • equipment, hand and power tooling appropriate to repairing marine engines
	  • relevant information, including manufacturer specifications.

EVIDENCE GUIDE	
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Inboard marine engines	Marine engines may include: • 2-stroke petrol and diesel • 4-stroke petrol and diesel
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive

RANGE STATEMENT	
Servicing methods	Servicing methods may include: • on- and off-site repairs • minor adjustments and operational testing • replacement of fluids and filters
Pre-start checking procedures	Pre-start checking procedures may include: • running to operating temperature • priming oil • checking engine fluid levels, including lubrication and coolant • checking fuel system for leaks • checking for abnormal noises • checking for pressures • checking gauges and warning devices for operation
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment • lubricating equipment • measuring equipment • pressure gauges • vacuum gauges • manufacturer's special stools
Materials	Materials may include: • spare parts • lubricants • fluids • cleaning materials
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others

RANGE STATEMENT	
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • Repair Times manuals • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • industry codes of practice • Australian standards • workplace specifications and requirements • current driver's licence
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment

RANGE STATEMENT	
	• first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian Standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURRTE3005 Diagnose and repair marine electrical systems and components

Modification History

Release	Comment
Release 1	Replaces AURE320066B Diagnose and repair marine electrical systems and components Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to diagnose and repair marine electrical systems and components, including dash instrumentation, switch and fuse panels, bilge pumps and lighting. It requires the ability to identify and confirm work requirements, diagnose and repair marine inboard transmissions and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the diagnosis and repair of electrical systems and components in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Diagnose faults	2.1. Develop a diagnosis strategy 2.2. Undertake system tests in accordance with workplace procedures and manufacturer and component supplier specifications 2.3. Compare test results with manufacturer and component supplier specifications to identify compliance or non-compliance 2.4. Decide upon a plan of action to rectify faults 2.5. Document results, including evidence, relevant information and recommendations 2.6. Forward report to persons for action in accordance with workplace procedures 2.7. Finalise repair requirements
3. Repair marine electrical systems and components	3.1. Perform repair and adjustment operations in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 3.2. Determine the need for water testing
4. Clean up work area and finalise work	4.1. Clean and inspect equipment and tooling according to workplace requirements 4.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 4.3. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons, as required 4.4. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the diagnosis and repair of marine electrical system components, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and diagnosis and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements and calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- operating principles and construction of marine dash instrumentation, switch and fuse panels, bilge pumps and lighting
- electrical principles and procedures applicable to repair procedures
- wiring diagram interpretation
- diagnostic and repair procedures, including component and assembly removal and placement
- measuring and testing procedures
- construction and operation of jet propulsion drive systems
- types of lubricants and their application
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and

REQUIRED SKILLS AND KNOWLEDGE
codes of practice, including WHS, personal safety and environment, relevant to diagnosing and repairing of marine electrical system components • organisational policies and procedures, including quality, reporting and recording procedures, related to diagnosing and repairing of marine electrical system components

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • test marine electrical systems and components • complete diagnosis of faults correctly • diagnose and repair a range of marine electrical systems and components to manufacturer and component supplier requirements, including dash instrumentation, switch and fuse panels, bilge pumps and lighting within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • faulty marine electrical systems and components

EVIDENCE GUIDE	
	• equipment, hand and power tooling appropriate to the diagnosis and repair of faults in marine electrical system components • specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Marine electrical systems	Marine electrical systems may include low voltage:

RANGE STATEMENT	
	• switch and fuse panels • bilge water, grey water, black water and freshwater pumps • pump control systems (e.g. float switches) • battery motorised ventilation • solar systems • carbon monoxide gas alarm systems • low voltage charging stations • lighting (e.g. incandescent, fluorescent and LED)
Marine engines	Marine engines may include: • 2-stroke petrol • 4-stroke diesel and petrol
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive
Repair methods	Repair methods may include: • isolation of faults • dismantling, inspection and evaluation • replacement of components parts • assembly • completion of operational tests • completion of records
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others

RANGE STATEMENT	
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and

RANGE STATEMENT	
	substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Engines

AURRTE3006 Diagnose and repair outboard engines and components

Modification History

Release	Comment
Release 1	Replaces AURR301102A Diagnose and repair outboard engines and components Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to diagnose and repair two and four cycle outboard marine engines and components. It requires the ability to interpret work requirements, diagnose and repair two and four cycle outboard engines and components and finalise work processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the repair of two and four cycle outboard engines and components in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for engine repair work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Conduct engine system tests and analyse results	2.1. Develop a diagnosis strategy 2.2. Undertake engine system tests in accordance with workplace procedures and manufacturer and component supplier specifications 2.3. Start and run engine to operating temperature and check for leaks, abnormal noises and pressures 2.4. Compare test results with manufacturer and component supplier specifications to identify compliance or non-compliance 2.5. Document results, including evidence, relevant information and recommendations 2.6. Forward report to persons for action in accordance with workplace procedures 2.7. Finalise repair requirements
3. Dismantle engine and components	3.1. Dismantle engine and components in a logical sequence without causing damage 3.2. Clean engine and arrange components ready for inspection 3.3. Measure and compare components against supplier specifications and tolerances 3.4. Decide repair method in accordance with WHS, environmental and industry regulations, and guidelines and enterprise procedures 3.5. Source parts as required 3.6. Determine and arrange outsourcing of third-party repair
4. Repair and rebuild engine and engine components	4.1. Perform repair and rebuild operations in accordance with workplace procedures and manufacturer and component supplier specifications and tolerances 4.2. Re-assemble engine and components following manufacturer and component supplier procedures

ELEMENT	PERFORMANCE CRITERIA
	4.3. Measure running clearances against component manufacturer and supplier specifications 4.4. Conduct pre-start checks, make required adjustments and re-test 4.5. Apply appropriate lubricants to engine 4.6. Check that protective guards, cowlings and safety features are in place according to workplace expectations 4.7. Perform hot run testing in test tank or at launching ramp 4.8. Complete workplace documentation and deal with as relevant to repair outcomes
5. Prepare engine for delivery to customer or storage	5.1. Seal engine orifices against ingress of foreign matter 5.2. Determine the need for water testing 5.3. Make final inspection to ensure protective features are in place and according to workplace requirements 5.4. Clean and store engine according to workplace requirements 5.5. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons as required 5.6. Clean work area, dispose of waste and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the testing, diagnosis and repair of marine engines and components, including use of specialist tooling, measuring equipment, use of communication devices and workplace technology to record results of repair work
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology, plans and safety procedures, to interpret technical information and specifications, and to prepare reports
- numeracy skills to the level required to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- operating principles and construction of two and four cycle outboard engines and components
- repair and rebuild procedures and methodologies for different engines types
- testing and adjustment procedures for different engine types
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to testing, diagnosing and repairing two and four cycle outboard engines and components
- organisational policies and procedures, including quality requirements, reporting and recording procedures, WHS regulations and requirements, equipment, material

REQUIRED SKILLS AND KNOWLEDGE
and personal safety requirements related to testing, diagnosing and repairing two and four cycle outboard engines and components

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select repair methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • repair and rebuild a range of two and four cycle outboard engines from single cylinder to current multi-cylinder engines and their components to manufacturer and component specifications • complete the repair of two and four cycle outboard engine and components within workplace timeframes • complete workplace records.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • appropriate worksite
	  • range of two and four cycle marine engines and components
	  • specifications and work instructions
	  • equipment, hand and power tooling appropriate to repairing marine engines
	  • relevant information, including manufacturer

EVIDENCE GUIDE	
	specifications.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Marine engines	Marine engines may include: • 2-stroke petrol • 4-stroke diesel and petrol
Repair and rebuild	Repair and rebuild may include:

RANGE STATEMENT	
	• on- and off-site repairs • dismantling and reassembly • repair and replacement of components • testing and adjustments
Pre-start checking procedures	Pre-start checking procedures may include: • running to operating temperature • priming oil • checking engine fluid levels, including lubrication and coolant • checking fuel system for leaks • checking for abnormal noises • checking for pressures • checking gauges and warning devices for operation
Tooling and equipment	Tooling and equipment may include: • specific service and general workshop equipment and tooling • measuring equipment • lubricating equipment
Materials	Materials may include: • spare parts • lubricants • fluids • cleaning materials
Environmental work practices	Environmental work practices may include: • use of renewable, recyclable, reusable and recoverable resources • minimisation and appropriate disposal of waste and packaging • prevention of contaminants and wastewater entering stormwater drains, waterways or marine environments • minimisation and containment of hazards to air quality • minimisation of noise generating activities • safe storage of parts and components containing environmentally hazardous material • provision of appropriate storage or recycling

RANGE STATEMENT	
	containers for solid and liquid waste • use of impervious paved area for surface cleaning, engine degreasing and preparation • use of an approved parts washer • use of drip trays under vehicles • cleaning hands over drains connected to an oil/water separator or liquid waste collection drums • minimisation of vehicle exhausts and emissions and provision of ventilated work areas • use of a ventilated, enclosed booth or chamber for spray painting and abrasive sanding • recovering CFCs, HCFCs and blends from air conditioning systems for recycling or approved disposal • prevention of tributylin, arsenic, mercury and DDT entering the marine environment
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements • current boating licence
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include:

RANGE STATEMENT	
	• award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures

RANGE STATEMENT	
	• reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Engines

AURRTE3007 Diagnose and repair inboard engines and components

Modification History

Release	Comment
Release 1	Replaces AURR301105A Diagnose and repair inboard engines and components Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to diagnose, repair and rebuild inboard marine engines and components. It requires the ability to interpret work requirements, diagnose, repair and rebuild two and four cycle inboard engines and components and finalise work processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the repair of two and four cycle inboard engines and components in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for engine repair work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Conduct engine system tests and analyse results	2.1. Develop a diagnosis strategy 2.2. Undertake engine system tests in accordance with workplace procedures and manufacturer and component supplier specifications 2.3. Start and run engine to operating temperature and check for leaks, abnormal noises and pressures 2.4. Compare test results with manufacturer and component supplier specifications to identify compliance or non-compliance 2.5. Document results, including evidence, relevant information and recommendations 2.6. Forward report to persons for action in accordance with workplace procedures 2.7. Finalise repair requirements
3. Dismantle engine and components	3.1. Dismantle engine and components in a logical sequence without causing damage 3.2. Clean engine and arrange components ready for inspection 3.3. Measure and compare components against supplier specifications and tolerances 3.4. Decide repair method in accordance with WHS, environmental and industry regulations, and guidelines and enterprise procedures 3.5. Source parts as required 3.6. Determine and arrange outsourcing of third-party repair
4. Repair and rebuild engine and engine components	4.1. Perform repair and rebuild operations in accordance with workplace procedures and manufacturer and component supplier specifications and tolerances 4.2. Re-assemble engine and components following manufacturer and component supplier procedures

ELEMENT	PERFORMANCE CRITERIA
	4.3. Measure running clearances against component manufacturer and supplier specifications 4.4. Conduct pre-start checks, make required adjustments and re-test 4.5. Apply appropriate lubricants to engine 4.6. Check that protective guards, cowlings and safety features are in place according to workplace expectations 4.7. Perform hot run testing in test tank or at launching ramp 4.8. Complete workplace documentation and deal with as relevant to repair outcomes
5. Prepare engine for delivery to customer or storage	5.1. Seal engine orifices against ingress of foreign matter 5.2. Determine the need for water testing 5.3. Make final inspection to ensure protective features are in place and according to workplace requirements 5.4. Clean and store engine according to workplace requirements 5.5. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons as required 5.6. Clean work area, dispose of waste and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the testing, diagnosis and repair of marine inboard engines and components, including use of specialist tooling, measuring equipment, use of communication devices and workplace technology to record results of repair work
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology, plans and safety procedures, to interpret technical information and specifications, and to prepare reports
- numeracy skills to the level required to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- operating principles and construction of two and four cycle inboard engines and components
- repair and rebuild procedures and methodologies for different engines types
- testing and adjustment procedures for different engine types
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to testing, diagnosing and repairing two and four cycle inboard engines and components
- organisational policies and procedures, including quality requirements, reporting and recording procedures, WHS regulations and requirements, equipment, material

REQUIRED SKILLS AND KNOWLEDGE
and personal safety requirements related to testing, diagnosing and repairing two and four cycle inboard engines and components

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select repair methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • repair and rebuild a range of inboard engines and their components to manufacturer and component specifications within workplace timeframes • complete workplace records.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • appropriate worksite
	  • range of marine inboard engines and components
	  • specifications and work instructions
	  • equipment, hand and power tooling appropriate to repairing marine engines
	  • relevant information, including manufacturer specifications.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and

EVIDENCE GUIDE	
	accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Marine engines	Marine engines may include: • 2-stroke petrol • 4-stroke diesel and petrol
Repair and rebuild	Repair and rebuild may include: • on- and off-site repairs • dismantling and reassembly • repair and replacement of components • testing and adjustments

RANGE STATEMENT	
Pre-start checking procedures	Pre-start checking procedures may include: • running to operating temperature • priming oil • checking engine fluid levels, including lubrication and coolant • checking fuel system for leaks • checking for abnormal noises • checking for pressures • checking gauges and warning devices for operation
Tooling and equipment	Tooling and equipment may include: • specific service and general workshop equipment and tooling • measuring equipment • lubricating equipment
Materials	Materials may include: • spare parts • lubricants • fluids • cleaning materials
Environmental work practices	Environmental work practices may include: • use of renewable, recyclable, reusable and recoverable resources • minimisation and appropriate disposal of waste and packaging • prevention of contaminants and wastewater entering stormwater drains, waterways or marine environments • minimisation and containment of hazards to air quality • minimisation of noise generating activities • safe storage of parts and components containing environmentally hazardous material • provision of appropriate storage or recycling containers for solid and liquid waste • use of impervious paved area for surface cleaning, engine degreasing and preparation • use of an approved parts washer

RANGE STATEMENT	
	• use of drip trays under vehicles • cleaning hands over drains connected to an oil/water separator or liquid waste collection drums • minimisation of vehicle exhausts and emissions and provision of ventilated work areas • use of a ventilated, enclosed booth or chamber for spray painting and abrasive sanding • recovering CFCs, HCFCs and blends from air conditioning systems for recycling or approved disposal • prevention of tributylin, arsenic, mercury and DDT entering the marine environment
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements • current boating licence
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules

RANGE STATEMENT	
	• confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Engines

AURRTE3008 Install marine engines, controls and instruments

Modification History

Release	Comment
Release 1	Replaces AURR346131B Install marine engines, controls and instruments Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to install, test and commission inboard and outboard engines, system controls and instrumentation to a vessel. It requires the ability to identify and confirm work requirements, prepare for, install and commission engines, controls or instruments and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake installation, testing and commissioning of inboard and outboard engines, system controls and instrumentation to a vessel in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Source installation procedures and relevant workshop manuals and manufacturer information 1.4. Determine installation method in accordance with WHS, environmental and industry regulations, and guidelines and enterprise procedures 1.5. Set up work area
2. Install inboard/ outboard engine	2.1. Carry out engine installation in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.2. Test inboard or outboard engine for correct operation, make required adjustments and re-test 2.3. Determine the need for water testing
3. Install controls/ steering system	3.1. Carry out installation in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 3.2. Test controls/steering system for correct operation, make required adjustments and re-test 3.3. Determine the need for water testing
4. Install instruments/ accessories	4.1. Carry out installation in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 4.2. Test instruments and accessories for correct operation, make required adjustments and re-test 4.3. Identify the need for water testing
5. Commission the installation	5.1. Test vessel engine/steering system/controls/instruments or accessories under normal conditions for correct operation and in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices
6. Clean up work area and maintain	6.1. Make final inspection 6.2. Clean and inspect equipment and tooling according

ELEMENT	PERFORMANCE CRITERIA
equipment	to workplace requirements 6.3. Tag unserviceable equipment and faults identified in accordance with workplace requirements 6.4. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons, as required 6.5. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the installation of marine engines, controls and instruments, to perform diagnosis and repair actions, and to use workplace computerised technology for the reporting and recording of actions
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology and safety procedures, to interpret technical information and specifications, and to record servicing details
- numeracy skills to the level required to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- construction and operating principles of inboard and outboard engines, control systems and instrumentation
- installation procedures
- measuring and testing procedures
- commissioning procedures
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to installing marine engines, controls and instruments
- organisational policies and procedures, including quality, reporting and recording procedures, related to installing marine engines, controls and instruments

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • install and test prior to placing in service a minimum of three (3) inboard and outboard engines to workplace and manufacturer and component supplier requirements within workplace timeframes • install and test prior to placing in service a minimum of three (3) controls and steering systems to workplace and manufacturer and component supplier requirements within workplace timeframes • install and test prior to placing in service a minimum of three (3) instruments and accessories to workplace and manufacturer and component supplier requirements within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.
Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment. • Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints. • Assessment is to comply with relevant regulatory requirements, including specified Australian standards. • Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability. • The following resources should be made available:

EVIDENCE GUIDE	
	• workplace location or simulated workplace • materials relevant to the installation of marine engines, controls and steering, instruments and accessories • equipment, hand and power tools appropriate to the installation of marine engines, controls and steering, instruments and accessories • specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

RANGE STATEMENT	
Recommissioning	Recommissioning may include: • engine system inspection • reading service data • compiling reports • testing, inspecting, adjusting, cleaning, and repairing components and systems
Installation	Installation may include: • minor adjustments, alignment and operational testing • functional operation • functional operation and testing of components
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Materials	Materials may include: • spare parts • lubricants • fluids • cleaning materials
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS)

RANGE STATEMENT	
	• diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include:

RANGE STATEMENT	
	• waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Engines

AURRTE3009 Recommission marine engine systems

Modification History

Release	Comment
Release 1	Replaces AURR346760B Recommission marine engine systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to prepare a marine engine system for use after seasonal shutdown and storage. It requires the ability to identify and confirm work requirements, test and recommission engine system and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the preparation of an engine system for use after seasonal shutdown and storage in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices, applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Recommission engine systems	2.1. Carry out recommissioning procedures in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.2. Test engine systems and compare to manufacturer and component specifications 2.3. Determine and report engine systems which fail testing and gain rectification approval from customer 2.4. Repair and test failed systems 2.5. Commission engine system 2.6. Determine the need for water testing
3. Clean up work area and finalise work	3.1. Clean and inspect equipment and tooling according to workplace requirements 3.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 3.3. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures 3.4. Finalise and process work completion documentation and give to appropriate persons, as required 3.5. Prepare report for the customer detailing work undertaken and technical or regulatory requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the preparation of an engine for use after seasonal shutdown and storage, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and diagnosis and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements and calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- mechanical, hydraulic, electrical and electronic principles and application
- engine system requirements and their relationship to vessel systems and associated components
- engine classification, system types and component identification
- safety precautions
- properties and use of servicing fluids, and lubricants and anti-corrosion products used in winterising procedures
- recommissioning requirements and specifications as specified by the manufacturer and component supplier, including workshop manuals and repair guides
- use and application of testing, measuring and specialised servicing equipment
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to the preparation of an engine for use after seasonal shutdown and storage, including

REQUIRED SKILLS AND KNOWLEDGE
power lifting requirements and licensing • organisational policies and procedures, including quality, reporting and recording procedures, related to the preparation of an engine for use after seasonal shutdown and storage

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • recommission and test of a range of marine engine systems to manufacturer and component supplier requirements within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • marine engine systems requiring recommissioning
	  • equipment, hand and power tools appropriate to the recommissioning of engine systems
	  • specifications and work instructions.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and

EVIDENCE GUIDE	
	accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Engine systems	Engine systems may include: • inboard or outboard • 2- or 4-stroke • single or multi-cylinder • water or air cooled • electrical or electronic • remote or local controlled
Fuel systems	Fuel systems may include

RANGE STATEMENT	
	• petrol • diesel • gas • carburetion or fuel injection • manual or electric start
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive
Recommissioning	Recommissioning may include: • engine system inspection • reading service data • compiling reports • testing, inspecting, adjusting, cleaning, and repairing components and systems
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions

RANGE STATEMENT	
	• manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust

RANGE STATEMENT	
	• clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Engines

AURRTE3010 Water test engines in tanks

Modification History

Release	Comment
Release 1	Replaces AURR346975B Water test engines in tanks Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to performance test an engine in a water tank. It requires the ability to identify and confirm work requirements, set up testing procedure, performance test an engine in a water tank and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the performance testing of an engine in a water tank in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices, applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Set up testing equipment	2.1. Prepare engine for testing 2.2. Link testing equipment to engine in accordance with manufacturer and component supplier specifications 2.3. Carry out all activities according to industry regulations and guidelines, WHS and environmental legislation, and enterprise policies and procedures
3. Performance test engine	3.1. Conduct test by starting and operating engine through speed ranges as specified in test procedure 3.2. Document performance data during engine test sequence 3.3. Compare engine performance data to manufacturer and component supplier specifications 3.4. Prepare test reports and make recommendations for repairs and/or modifications
4. Clean up work area and finalise work	4.1. Clean and inspect equipment and tooling according to workplace requirements 4.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 4.3. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures 4.4. Finalise and process work completion documentation and give to appropriate persons, as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to marine engine inspection and tank testing, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and diagnosis and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements and calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- marine engine and system components classifications and types
- electronic, electrical and hydraulic controls
- engine operating systems
- engine performance report compilation and presentation
- types and layout of service and/or repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to marine engine inspection and tank testing
- organisational policies and procedures, including quality, reporting and recording procedures, related to marine engine inspection and tank testing

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • performance test a minimum of three (3) ignition engines with fuel and temperature faults within workplace timeframes • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • faulty engines, including engines with fuel and temperature faults
	  • equipment, hand and power tools appropriate to the water testing of engines in tanks
	  • specifications and work instructions.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and

EVIDENCE GUIDE	
	accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Engine systems	Engines systems may include: • 2- or 4-stroke • inboard or outboard engine • fitted or not fitted to a vessel
Prepare engine for testing	Prepare engine for testing may include: • using lifting equipment to locate engine in tank • checking security of water tank • ensuring exhaust emissions are removed as

RANGE STATEMENT	
	required by state and territory laws
Test report	Test report may include: • recommendations for repairs and/or modifications • component conformity to manufacturer and supplier specifications • performance enhancing components which may satisfy the customer requirement • conformity to and implications of local, state and territory regulations and laws which may influence the customer decisions • component manufacturer and component supplier warranty considerations
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine,

RANGE STATEMENT	
	Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements • current boating licence
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management

RANGE STATEMENT	
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Engines

AURRTE4011 Overhaul two and four cycle outboard engines

Modification History

Release	Comment
Release 1	Replaces AURR401103A Overhaul two and four cycle outboard engines Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to overhaul two and four cycle outboard engines and components. It requires the ability to interpret work requirements, logically dismantle the engine system, overhaul and reassemble the engine and finalise work processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the overhauling of two and four cycle water cooled outboard engines with significant repair in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to carry out engine overhaul	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices, applicable to the work 1.3. Access and interpret overhaul method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Dismantle engine and components	2.1. Dismantle engine and components in a logical sequence without causing damage 2.2. Clean engine and arrange components ready for inspection 2.3. Measure and compare components against supplier specifications and tolerances 2.4. Decide serviceability and repair method of each component in accordance with WHS, environmental and industry regulations and guidelines, and enterprise procedures 2.5. Source replacement parts as required 2.6. Determine and arrange outsourcing of third-party repair
3. Overhaul and assemble engine and components	3.1. Perform overhaul operations in accordance with workplace procedures and manufacturer and component supplier specifications and tolerances 3.2. Re-assemble engine following manufacturer and component supplier procedures 3.3. Measure running clearances against component manufacturer and supplier specifications 3.4. Make the necessary adjustments 3.5. Apply appropriate lubricants to engine 3.6. Complete assembly of engine within established industry guidelines and timeframes and without causing damage to system or components
4. Undertake engine pre-start check	4.1. Mount engine securely in preparation for starting 4.2. Conduct pre-start checks, make required adjustments and re-test 4.3. Seal engine openings against ingress of foreign matter 4.4. Make final inspection to ensure protective features

ELEMENT	PERFORMANCE CRITERIA
	are in place and according to workplace requirements 4.5. Determine the need for water testing
5. Clean up work area and finalise work	5.1. Clean and store engine according to workplace requirements 5.2. Clean and inspect equipment and tooling according to workplace requirements 5.3. Tag unserviceable equipment and faults identified in accordance with workplace requirements 5.4. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons as required 5.5. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the overhaul of two and four cycle engines and components, including use of specialist tooling, measuring equipment, use of communication devices and workplace technology to record results of repair work
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology, plans and safety procedures, to interpret technical information and specifications and to prepare reports
- numeracy skills to the level required to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity
- analytical skills to the level required to analyse technical information and issues related to the overhaul of two and four cycle engines and components

Required knowledge

Required knowledge includes:

- operating principles, construction and types of two and four cycle engines and components
- engine overhaul procedures and methodologies
- component evaluation methods
- dismantling, assembling and adjustment methods
- measuring, testing and adjustment procedures
- types of lubricants and application methods
- manufacturer and component supplier specifications and tolerances, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to the

REQUIRED SKILLS AND KNOWLEDGE
overhaul of two and four cycle engines and components • organisational policies and procedures, including quality requirements, reporting and recording procedures, related to repairing engines and components, • WHS regulations and requirements, equipment, and material and personal safety requirements, related to the overhaul of two and four cycle engines and components

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to overhauling marine engines and components • complete preparatory activity in a systematic manner • overhaul a range of two and four cycle outboard engines to industry and manufacturer specifications and within workplace timeframes • test prior to placing in service • complete workplace records as required by the workplace.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • appropriate worksite
	  • range of two and four cycle outboard engines
	  • work instructions
	  • equipment, hand and power tooling appropriate to repairing marine engines
	  • relevant information, including manufacturer

EVIDENCE GUIDE	
	specifications .
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Engines	Engines may include: • 2-stroke spark ignition for marine craft • 4-stroke compression ignition engines for marine craft
Overhaul	Overhaul may include:

RANGE STATEMENT	
	• complete dismantling of an assembly and component parts • measuring and evaluation of wear • the replacement, repair, rebuilding or reconditioning of parts comparable to original parts • re-assembly procedures • performance of functional testing • completion of records
Pre-start checking procedures	Pre-start checking procedures may include: • running to operating temperature • priming oil • checking engine fluid levels, including lubrication and coolant • checking fuel system for leaks • checking for abnormal noises • checking for pressures • checking gauges and warning devices for operation
Safe operating procedures	Safe operating procedures may include operational risk assessments associated with: • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Environmental work practices	Environmental work practices may include: • use of renewable, recyclable, reusable and recoverable resources • minimisation and appropriate disposal of waste and packaging • prevention of contaminants and wastewater entering stormwater drains, waterways or marine environments • minimisation and containment of hazards to air quality • minimisation of noise generating activities • safe storage of parts and components containing environmentally hazardous material

RANGE STATEMENT	
	• provision of appropriate storage or recycling containers for solid and liquid waste • use of impervious paved area for surface cleaning, engine degreasing and preparation • use of an approved parts washer • use of drip trays under vehicles • cleaning hands over drains connected to an oil/water separator or liquid waste collection drums • minimisation of vehicle exhausts and emissions and provision of ventilated work areas • use of a ventilated, enclosed booth or chamber for spray painting and abrasive sanding • recovering chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) and blends from air conditioning systems for recycling or approved disposal • prevention of tributyltin, arsenic, mercury and dichlorodiphenyltrichloroethane (DDT) entering the marine environment
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include:

RANGE STATEMENT	
	• Environment Protection Regulations related to diesel fuels • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying of engine cradles, slings and shackles and the safety ratings against the load to be lifted • emergency procedures
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice

RANGE STATEMENT	
	• safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Engines

AURRTQ2001 Service inboard propeller drive systems

Modification History

Release	Comment
Release 1	Replaces AURR213670A Service inboard propeller drive systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to carry out the service of inboard propeller drive systems and associated components on vessels. It requires the ability to identify and confirm work requirements, prepare for, service and test inboard propeller drive systems and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake servicing of drive systems installation of inboard propeller drive systems.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Source service procedures and relevant workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Determine service method in accordance with WHS, environmental and industry regulations, and guidelines and enterprise procedures 1.6. Set up work area
2. Service propeller drive systems and associated components	2.1. Conduct service in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.2. Conduct pre-start checks, make required adjustments and re-test 2.3. Check that protective guards, cowlings and safety features are in place according to workplace expectations 2.4. Determine the need for water testing
3. Clean up work area and maintain equipment	3.1. Make final inspection 3.2. Clean and inspect equipment and tooling according to workplace requirements 3.3. Tag unserviceable equipment and faults identified in accordance with workplace requirements 3.4. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons, as required 3.5. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the servicing of inboard propeller drive systems, to perform diagnosis and repair actions, and to use workplace computerised technology for the reporting and recording of actions
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology and safety procedures, to interpret technical information and specifications and to record servicing details
- numeracy skills to the level required to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- operating principles of inboard propeller drive systems
- servicing procedures for inboard propeller drive systems
- measuring and testing procedures
- types of lubricants and application methods
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to servicing inboard propeller drive systems
- organisational policies and procedures, including quality, reporting and recording procedures, related to servicing inboard propeller drive systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • service a range of inboard propeller drive systems to workplace and manufacturer and component supplier requirements and within workplace timeframe • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • inboard propeller drive systems
	  • equipment, hand and power tools appropriate to the servicing of inboard propeller drive systems
	  • activities covering the mandatory task requirements
	  • specifications and work instructions.

Method of assessment	• Assessment must satisfy the endorsed Assessment

EVIDENCE GUIDE	
	Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Marine inboard propeller drive systems	Marine inboard propeller drive systems may include: • sterntube • 'A' frame strut • 'I' strut • cutlass bearing • fibre bearing

RANGE STATEMENT	
Marine engines	Marine engines may include: • 2-stroke petrol • 4-stroke diesel and petrol
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive
Servicing methods	Servicing methods may include: • on- and off-site repairs • minor adjustments and operational testing • replacement of fluids and filters
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment • lubricating equipment • measuring equipment • pressure gauges • vacuum gauges • manufacturer's special stools
Materials	Materials may include: • spare parts • lubricants • fluids • cleaning materials
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external

RANGE STATEMENT	
	persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) w • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying

RANGE STATEMENT	
	• emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Drivelines and Final Drives

AURRTQ2002 Service jet drive propulsion systems

Modification History

Release	Comment
Release 1	Replaces AURR214170B Service jet drive propulsion systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to carry out the servicing of jet propulsion systems. It requires the ability to identify and confirm work requirements, prepare for and service jet propulsion systems, and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake servicing of jet propulsion systems as fitted to vessels in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Source service procedures and relevant workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Determine service method in accordance with WHS, environmental and industry regulations, and guidelines and enterprise procedures 1.6. Set up work area
2. Service jet drive propulsion systems and associated components	2.1. Conduct service in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.2. Conduct pre-start checks, make required adjustments and re-test 2.3. Check that protective guards, cowlings and safety features are in place according to workplace expectations 2.4. Determine the need for water testing
3. Clean up work area and maintain equipment	3.1. Clean and inspect equipment and tooling according to workplace requirements 3.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 3.3. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons as required 3.4. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to servicing of jet drive propulsion systems and components, and to use workplace computerised technology for the reporting and recording of actions
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology and safety procedures, to interpret technical information and specifications, and to record servicing details
- numeracy skills to the level required to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- operating principles and construction of jet drive propulsion systems and components
- servicing procedures
- minor adjustment procedures for different system types
- types of lubricants and application methods
- measuring and testing procedures
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to servicing of jet drive propulsion systems and components
- organisational policies and procedures, including quality, reporting and recording procedures, related to servicing of jet drive propulsion systems and components

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • accurately interpret the servicing data • conduct the servicing of a minimum of three (3) jet drive propulsion systems to workplace and manufacturer and component supplier requirements within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • jet drive propulsion systems
	  • equipment, hand and power tools appropriate to servicing of jet drive propulsion systems
	  • activities covering the mandatory task requirements
	  • specifications and work instructions.

EVIDENCE GUIDE	
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Marine jet drive propulsion systems	Marine jet drive propulsion systems may include: • axial • mixed • geared • variable
Marine engines	Marine engines may include:

RANGE STATEMENT	
	• 2-stroke petrol • 4-stroke diesel and petrol
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive
Servicing methods	Servicing methods may include: • on- and off-site repairs • minor adjustments and operational testing • replacement of fluids and filters
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment • lubricating equipment • measuring equipment • pressure gauges • vacuum gauges • manufacturer's special stools
Materials	Materials may include: • spare parts • lubricants • fluids • cleaning materials
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons

RANGE STATEMENT	
	• parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures

RANGE STATEMENT	
	• road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Driveline and Final Drives

AURRTQ3003 Install inboard propeller drive systems

Modification History

Release	Comment
Release 1	Replaces AURR313631A Install inboard propeller drive systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to install and commission inboard propeller drive systems and associated components on vessels. It requires the ability to identify and confirm work requirements, prepare for, install and test inboard propeller systems and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the installation and commissioning of inboard propeller systems in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices, applicable to the work 1.3. Source installation procedures and relevant workshop manuals and manufacturer information 1.4. Determine installation method in accordance with WHS, environmental and industry regulations, and guidelines and enterprise procedures 1.5. Set up work area
2. Install and commission propeller drive systems and associated components	2.1. Carry out propeller drive system installation in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.2. Test propeller drive systems for correct operation, make required adjustments and re-test 2.3. Commission propeller drive system 2.4. Check that protective guards, cowlings and safety features are in place according to workplace expectations 2.5. Determine the need for water testing of vessel's propeller drive system
3. Clean up work area and maintain equipment	3.1. Make final inspection of propeller drive system 3.2. Clean and inspect equipment and tooling according to workplace requirements 3.3. Tag unserviceable equipment and faults identified in accordance with workplace requirements 3.4. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons as required 3.5. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the installation of inboard propeller systems, to perform diagnosis and repair actions, and to use workplace computerised technology for the reporting and recording of actions
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology and safety procedures, to interpret technical information and specifications, and to record servicing details
- numeracy skills to the level required to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- selection and installation procedures, including component and assembly removal and placement
- operating principles of jet propulsion drive systems
- measuring and testing procedures
- types of lubricants and application methods
- commissioning procedures
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to installing inboard propeller systems
- organisational policies and procedures, including quality, reporting and recording

REQUIRED SKILLS AND KNOWLEDGE
procedures, related to installing inboard propeller systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • install a minimum of three (3) inboard propeller drive systems to workplace and manufacturer and component supplier requirements within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • materials relevant to the installation of an inboard propeller drive system
	  • equipment, hand and power tools appropriate to installation of propeller drive systems
	  • specifications and work instructions.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package.

EVIDENCE GUIDE	
	• Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Marine inboard propeller drive systems	Marine inboard propeller drive systems may include: • sterntube • 'A' frame strut • 'I' strut • cutlass bearing • fibre bearing
Marine engines	Marine engines may include:

RANGE STATEMENT	
	• 2-stroke petrol • 4-stroke diesel and petrol
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive
Recommissioning	Recommissioning may include: • engine system inspection • reading service data • compiling reports • testing, inspecting, adjusting, cleaning, and repairing components and systems
Installation	Installation may include: • minor adjustments, alignment and operational testing • functional operation, including tank • functional operation and testing of components, including propeller shaft, skeg, propeller and couplings
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Materials	Materials may include: • spare parts • lubricants • fluids • cleaning materials
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others

RANGE STATEMENT	
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and

RANGE STATEMENT	
	substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Driveline and Final Drives

AURRTQ3004 Diagnose and repair inboard propeller drive systems

Modification History

Release	Comment
Release 1	Replaces AURR313684B Diagnose and repair inboard propeller drive systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to diagnose and repair inboard propeller drive systems and associated components on vessels. It requires the ability to identify and confirm work requirements, diagnose and repair marine inboard transmissions and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the diagnosis and repair of inboard propeller drive systems in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Diagnose faults	2.1. Develop a diagnosis strategy 2.2. Undertake tests in accordance with workplace procedures and manufacturer and component supplier specifications 2.3. Compare test results with manufacturer and component supplier specifications to identify compliance or non-compliance 2.4. Decide upon a plan of action to rectify faults 2.5. Document results, including evidence, relevant information and recommendations 2.6. Forward report to persons for action in accordance with workplace procedures 2.7. Finalise repair requirements
3. Repair inboard propeller drive systems and associated components	3.1. Perform repair and adjustment operations in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 3.2. Test system, make required adjustments and re-test 3.3. Check that protective guards, cowlings and safety features are in place according to workplace expectations 3.4. Determine the need for water testing
4. Clean up work area and maintain equipment	4.1. Clean and inspect equipment and tooling according to workplace requirements 4.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 4.3. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons as required

ELEMENT	PERFORMANCE CRITERIA
	4.4. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the diagnosis and repair of inboard propeller drive systems, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and diagnosis and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customer, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements and calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- diagnostic and repair procedures, including component and assembly removal and placement
- measuring and testing procedures
- construction and operation of inboard propeller drive systems
- types of lubricants and their application
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to diagnosing and repairing inboard propeller drive systems
- organisational policies and procedures, including quality, reporting and recording procedures, related to diagnosing and repairing inboard propeller drive systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • accurately interpret diagnosis results • conduct repair requirements to a range of inboard propeller drive systems to manufacturer and component supplier requirements within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • faulty inboard propeller drive systems
	  • equipment, hand and power tools appropriate to the diagnosis and repair of inboard propeller drive systems
	  • specifications and work instructions.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package.

EVIDENCE GUIDE	
	• Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Marine inboard propeller drive systems	Marine inboard propeller drive systems may include: • sterntube • 'A' frame strut • 'I' strut • cutlass bearing • fibre bearing
Marine engines	Marine engines may include:

RANGE STATEMENT	
	• 2-stroke petrol • 4-stroke diesel and petrol
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive
Repair methods	Repair methods may include: • isolation of faults • dismantling, inspection and evaluation • replacement of components parts • assembly • completion of operational tests • completion of records
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and

RANGE STATEMENT	
	Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management

RANGE STATEMENT	
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Driveline and Final Drives

AURRTQ3005 Install jet drive propulsion systems

Modification History

Release	Comment
Release 1	Replaces AURR314131B Install jet drive propulsion systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to install and commission jet drive propulsion systems and associated components on vessels. It requires the ability to identify and confirm work requirements, prepare for, install and commission inboard jet drive propulsion systems and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake installation and commissioning of jet drive propulsion systems in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices, applicable to the work 1.3. Source installation procedures and relevant workshop manuals and manufacturer information 1.4. Determine installation method in accordance with WHS, environmental and industry regulations, and guidelines and enterprise procedures 1.5. Set up work area
2. Install and commission jet drive propulsion system and associated components	2.1. Carry out jet drive propulsion system installation in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.2. Test jet drive propulsion system for correct operation, make required adjustments and re-test 2.3. Commission jet drive propulsion system 2.4. Check that protective guards, cowlings and safety features are in place according to workplace expectations 2.5. Determine the need for water testing of vessel's jet drive propulsion system
3. Clean up work area and maintain equipment	3.1. Make final inspection of jet drive propulsion system 3.2. Clean and inspect equipment and tooling according to workplace requirements 3.3. Tag unserviceable equipment and faults identified in accordance with workplace requirements 3.4. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons as required 3.5. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the installation of jet drive propulsion systems, to perform diagnosis and repair actions, and to use workplace computerised technology for the reporting and recording of actions
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology and safety procedures, to interpret technical information and specifications, and to record servicing details
- numeracy skills to the level required to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- construction and operating principles of jet propulsion drive systems
- installation procedures, including component and assembly removal and placement
- measuring and testing procedures
- types of lubricants and application methods
- commissioning procedures
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to installing inboard propeller systems
- organisational policies and procedures, including quality, reporting and recording procedures, related to installing inboard propeller systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • install a minimum of three (3) jet drive propulsion systems to workplace and manufacturer and component supplier requirements within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • materials relevant to the installation of jet drive propulsion systems
	  • equipment, hand and power tools appropriate to the installation of jet drive propulsion systems
	  • specifications and work instructions.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package.

EVIDENCE GUIDE	
	• Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Marine jet drive propulsion systems	Marine jet drive propulsion systems may include: • axial • mixed • geared • variable
Marine engines	Marine engines may include: • 2-stroke petrol • 4-stroke diesel and petrol

RANGE STATEMENT	
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive
Recommissioning	Recommissioning may include: • engine system inspection • reading service data • compiling reports • testing, inspecting, adjusting, cleaning, and repairing components and systems
Installation	Installation may include: • minor adjustments, alignment and operational testing • functional operation • functional operation and testing of components
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Materials	Materials may include: • spare parts • lubricants • fluids • cleaning materials
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external

RANGE STATEMENT	
	persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying

RANGE STATEMENT	
	• emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Driveline and Final Drives

AURRTQ3006 Diagnose and repair jet drive propulsion systems

Modification History

Release	Comment
Release 1	Replaces AURR314166B Diagnose and repair jet drive propulsion systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to diagnose and repair jet drive propulsion systems and associated components on vessels. It requires the ability to identify and confirm work requirements, diagnose and repair marine inboard transmissions and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the diagnosis and repair of jet drive propulsion systems in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Diagnose faults	2.1. Develop a diagnosis strategy 2.2. Undertake system tests in accordance with workplace procedures and manufacturer and component supplier specifications 2.3. Compare test results with manufacturer and component supplier specifications to identify compliance or non-compliance 2.4. Decide upon a plan of action to rectify faults 2.5. Document results, including evidence, relevant information and recommendations 2.6. Forward report to persons for action in accordance with workplace procedures 2.7. Finalise repair requirements
3. Repair jet drive propulsion systems and associated components	3.1. Perform repair and adjustment operations in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 3.2. Test systems, make required adjustments and re-test 3.3. Check that protective guards, cowlings and safety features are in place according to workplace expectations 3.4. Determine the need for water testing
4. Clean up work area and finalise work	4.1. Clean and inspect equipment and tooling according to workplace requirements 4.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 4.3. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons as required

ELEMENT	PERFORMANCE CRITERIA
	4.4. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the diagnosis and repair of jet propulsion systems, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and diagnosis and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements and calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- diagnostic and repair procedures, including component and assembly removal and placement
- measuring and testing procedures
- construction and operation of jet propulsion drive systems
- types of lubricants and their application
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to diagnosing and repairing jet propulsion drive systems
- organisational policies and procedures, including quality, reporting and recording procedures, related to diagnosing and repairing inboard propeller drive systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • diagnose and repair a range of jet drive propulsion systems to manufacturer and component supplier requirements within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • faulty jet drive propulsion systems
	  • equipment, hand and power tools appropriate to the diagnosis and repair of jet drive propulsion systems
	  • specifications and work instructions.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required

EVIDENCE GUIDE	
	Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Marine jet drive propulsion systems	Marine jet drive propulsion systems may include: • axial • mixed • geared • variable
Marine engines	Marine engines may include: • 2-stroke petrol • 4-stroke diesel and petrol
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive

RANGE STATEMENT	
Repair methods	Repair methods may include: • isolation of faults • dismantling, inspection and evaluation • replacement of components parts • assembly • completion of operational tests • completion of records
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance

RANGE STATEMENT	
	with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination

RANGE STATEMENT	
	• manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Driveline and Final Drives

AURRTR3002 Install marine electronic systems and components

Modification History

Release	Comment
Release 1	Replaces AURE321831B Install marine electronic systems and components Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to carry out the installation of marine low voltage electronic systems and components, including global positioning systems (GPS), depth sounders, fish finders, communications equipment and radar. It requires the ability to identify and confirm work requirements, prepare for, install and test marine low voltage electronic systems and components and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the installation of marine low voltage electronic systems and components in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Source installation procedures and relevant workshop manuals and manufacturer information 1.4. Determine installation method in accordance with WHS, environmental and industry regulations, and guidelines and enterprise procedures 1.5. Set up work area
2. Install marine electronic systems and components	2.1. Carry out marine electronic systems and components installation in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.2. Conduct pre-start checks, make required adjustments and re-test 2.3. Determine the need for water testing
3. Clean up work area and maintain equipment	3.1. Make final inspection of electronic systems 3.2. Clean and inspect equipment and tooling according to workplace requirements 3.3. Tag unserviceable equipment and faults identified in accordance with workplace requirements 3.4. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons, as required 3.5. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the installation and testing of marine electronic systems and components, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and electrical circuit and component installation procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customer, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology and safety procedures, procedures for circuit and component testing, major repairs, installation and component replacement, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements to determine electrical circuit and component installation requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- the principles of electronics
- the principles of interference suppression
- procedures for the installation of marine electronic systems and components
- wiring diagram interpretation
- measuring and testing procedures
- manufacturer and component supplier specifications and procedures, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to installing marine electronic systems
- organisational policies and procedures, including quality, reporting and recording procedures, related to installing marine electronic systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • install a range a range of electronic systems and components to workplace and manufacturer and component supplier requirements, including GPS, depth sounders, fish finders, communications equipment, audiovisual equipment and radar • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • marine electronic systems and components
	  • equipment, hand and power tooling appropriate to the installation of marine electronic systems and

EVIDENCE GUIDE	
	components • activities covering mandatory task requirements • specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Electronic systems and components	Electronic systems and components may include: • GPS • depth sounders

RANGE STATEMENT	
	• fish finders • communications equipment and radar • audiovisual equipment
Repair and test	Repair and rebuild may include: • on- and off-site repairs • dismantling and reassembly • repair and replacement of components • testing and adjustments
Low voltage marine electronic systems and components	Low voltage marine electronic systems and components may include: • GPS • depth sounders • communications equipment • radar • inverters • alarm systems • digital antenna systems • television • remote phone antenna • coaxial cable appliances
Final inspection procedures	Final inspection procedures may include: • checking operation of electronic system or component • checking that covers are in place on equipment • cabling and wiring is securely fastened • transducers, antennas and receivers are positioned correctly
Installation methods	Installation methods may include: • reading and interpreting wiring diagrams • wiring, soldering and crimping • installing components and wiring • adjustments and post-installation checks • functional operation testing
Tooling and equipment	Tooling and equipment may include: • specific service and general workshop equipment and tooling

RANGE STATEMENT	
	• measuring equipment • termination equipment • analogue and digital meters • crimping tools • soldering equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • Repair Times manuals • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry codes of practice • workplace specifications and requirements • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards

RANGE STATEMENT	
	• Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Electrical and Electronic

AURRTR3003 Test, diagnose and repair marine electronic systems and components

Modification History

Release	Comment
Release 1	Replaces AURE321832A Test, diagnose and repair marine electronic systems and components Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to diagnose and repair marine electronic systems and components. It requires the ability to identify and confirm work requirements, prepare for, test, diagnose and repair marine low voltage electronic systems and components and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the repair of electronic systems and components in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for systems and component repair work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Access and interpret test and repair methods, workshop manuals and manufacturer information 1.4. Check and prepare tools, measuring equipment and materials 1.5. Set up work area
2. Conduct system tests and analyse results	2.1. Develop a diagnosis strategy 2.2. Undertake system tests in accordance with workplace procedures and manufacturer and component supplier specifications 2.3. Compare test results with manufacturer and component supplier specifications to identify compliance or non-compliance 2.4. Document results, including evidence, relevant information and recommendations 2.5. Forward report to persons for action in accordance with workplace procedures 2.6. Finalise repair requirements
3. Dismantle systems and components	3.1. Dismantle electronic system and components in a logical sequence without causing damage 3.2. Clean and arrange components ready for inspection and testing 3.3. Measure and compare components against supplier specifications and tolerances 3.4. Decide repair method in accordance with WHS, environmental and industry regulations, and guidelines and enterprise procedures 3.5. Source parts, as required 3.6. Determine and arrange outsourcing of third-party repair
4. Repair, reassemble and reconnect systems and components	4.1. Perform repair and rebuild operations in accordance with workplace procedures and manufacturer and component supplier specifications and tolerances 4.2. Re-assemble electronic systems and components following manufacturer and component supplier procedures to industry standards

ELEMENT	PERFORMANCE CRITERIA
	4.3. Test systems for correct and safe operation and make required adjustments and re-test 4.4. Complete workplace documentation and deal with as relevant to repair outcomes
5. Prepare for delivery to customer	5.1. Determine the need for water testing 5.2. Make final inspection to ensure protective features are in place and according to workplace requirements 5.3. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons as required 5.4. Clean work area, dispose of waste and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the repair and testing of marine electronic systems and components, including use of specialist tooling, measuring equipment, use of communication devices and workplace technology, to record results of repair work
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology, plans and safety procedures and sufficient to interpret technical information and specifications and to prepare reports
- numeracy skills to the level required to correctly calculate time, assess meter readings, apply accurate measurements, calculate electrical requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- operating principles, construction and types of marine related electronic systems and components
- test and repair procedures and methodologies for different electronic systems and components
- testing and adjustment procedures for different electronic systems and components types
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to repairing and testing electronic systems and components

REQUIRED SKILLS AND KNOWLEDGE
• organisational policies and procedures, including quality requirements, reporting and recording procedures related to repairing and testing electronic systems and components, WHS regulations and requirements, equipment, material and personal safety requirements

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select repair methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • repair and test a range of electronic systems and components to workplace and manufacturer and component supplier requirements, including GPS, depth sounders, fish finders, communications equipment, audiovisual equipment and radar • complete repair of electronic systems and components within workplace timeframes • complete workplace records.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • appropriate worksite
	  • a range of electronic systems and components
	  • specifications and work instructions
	  • equipment, hand and power tooling appropriate to repairing marine engines
	  • relevant information, including manufacturer

EVIDENCE GUIDE	
	specifications.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Electronic systems and components	Electronic systems and components may include: • global positioning systems (GPS) • depth sounders • fish finders • communications equipment and radar

RANGE STATEMENT	
	• audiovisual equipment
Repair and test	Repair and test may include: • on- and off-site repairs • dismantling and reassembly • repair and replacement of components • testing and adjustments
Final inspection procedures	Final inspection procedures may include: • checking operation of electronic system or component • checking that covers are in place on equipment • cabling and wiring is securely fastened • transducers, antennas and receivers are positioned correctly
Tooling and equipment	Tooling and equipment may include: • specific service and general workshop equipment and tooling • measuring equipment • termination equipment • analogue and digital meters • crimping tools • soldering equipment
Materials	Materials may include: • spare parts • cable • terminations • cleaning materials
Environmental work practices	Environmental work practices may include: • use of renewable, recyclable, reusable and recoverable resources • minimisation and appropriate disposal of waste and packaging • prevention of contaminants and wastewater entering stormwater drains, waterways or marine environments • minimisation and containment of hazards to air quality • minimisation of noise generating activities • safe storage of parts and components

RANGE STATEMENT	
	containing environmentally hazardous material • provision of appropriate storage or recycling containers for solid and liquid waste • use of impervious paved area for surface cleaning, engine degreasing and preparation • use of an approved parts washer • cleaning hands over drains connected to an oil/water separator or liquid waste collection drums • minimisation of exhausts and emissions and provision of ventilated work areas • use of a ventilated, enclosed booth or chamber for spray painting and abrasive sanding • recovering CFCs, HCFCs and blends from air conditioning systems for recycling or approved disposal • prevention of tributyltin, arsenic, mercury and DDT entering the marine environment
Information and documents	Information and documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • Repair Times manuals • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry codes of practice • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include:

RANGE STATEMENT	
	• award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Electrical and Electronic

AURRTR3004 Install marine electrical systems and components

Modification History

Release	Comment
Release 1	Replaces AURE320031B Install marine electrical systems and components Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to carry out installation of marine low voltage electrical systems and components, including dash instrumentation, switch and fuse panels, bilge pumps, lighting and navigation aids. It requires the ability to identify and confirm work requirements, prepare for, install and test marine electrical systems and components, and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake installation of marine electrical systems and components in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Source installation procedures and relevant workshop manuals and manufacturer's information 1.4. Determine installation method in accordance with WHS, environmental and industry regulations and guidelines and enterprise procedures 1.5. Set up work area
2. Install marine electrical systems and components	2.1. Install and wire marine electrical systems and components in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.2. Conduct pre-start check, make required adjustments and re-test 2.3. Determine the need for water testing
3. Clean up work area and maintain equipment	3.1. Make final inspection of electrical systems 3.2. Clean and inspect equipment and tooling according to workplace requirements 3.3. Tag unserviceable equipment and faults identified in accordance with workplace requirements 3.4. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons as required 3.5. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the installation and testing of marine electrical systems and components, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and electrical circuit and component installation procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology and safety procedures, procedures for circuit and component testing, major repairs, installation and component replacement, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements to determine electrical circuit and component installation requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- the principles of electricity
- types of installation materials and their application
- electrical connection, crimping and soldering techniques
- installation and testing procedures for marine electrical systems and components
- measuring and testing procedures
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to installing marine electrical systems
- organisational policies and procedures, including quality, reporting and recording

REQUIRED SKILLS AND KNOWLEDGE
procedures, related to installing marine electrical systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • perform electrical connections, including crimping and soldering • install a range of marine electrical systems and components to manufacturer and component supplier requirements, including dash instrumentation, switch and fuse panels, bilge pumps, and lighting and navigation aids within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • marine electrical systems and components
	  • equipment, hand and power tooling appropriate to

EVIDENCE GUIDE	
	the installation of marine electrical systems and components • specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Marine electrical systems	Marine electrical systems may include low voltage: • switch and fuse panels

RANGE STATEMENT	
	• bilge water, grey water, black water and freshwater pumps • pump control systems (e.g. float switches) • battery motorised ventilation • solar systems • carbon monoxide gas alarm systems • low voltage charging stations • lighting (e.g. incandescent, fluorescent and LED)
Marine engines	Marine engines may include: • 2-stroke petrol • 4-stroke diesel and petrol
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive
Installation methods	Installation methods may include: • reading and interpreting wiring diagrams • soldering and crimping • installing components and wiring • adjustments and post-installation checks
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons

RANGE STATEMENT	
	• parts listing prices and catalogues • inventory systems • Repair Times manuals • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements • current driver's licence
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting

RANGE STATEMENT	
	and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Engines

AURRTX2001 Service marine outboard and stern drive transmissions

Modification History

Release	Comment
Release 1	Replaces AURR207670B Service marine outboard and stern drive transmissions Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to carry out the servicing of outboard and stern drive transmissions and associated components on vessels. It requires the ability to identify and confirm work requirements, service marine outboard and stern drive transmissions and to complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake servicing of outboard and stern drive transmissions in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Source service procedures and relevant workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Determine service method in accordance with WHS, environmental and industry regulations, and guidelines and enterprise procedures 1.6. Set up work area
2. Service outboard and stern drive transmissions and associated components	2.1. Conduct service in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.2. Conduct pre-start checks, make required adjustments and re-test 2.3. Check that protective guards, cowlings and safety features are in place according to workplace expectations 2.4. Determine the need for water testing
3. Clean up work area and finalise work	3.1. Make final inspection 3.2. Clean and inspect equipment and tooling according to workplace requirements 3.3. Tag unserviceable equipment and faults identified in accordance with workplace requirements 3.4. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons, as required 3.5. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to servicing of outboard and stern drive marine transmissions and to use workplace computerised technology for the reporting and recording of actions
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology and safety procedures, to interpret technical information and specifications, and to record servicing details
- numeracy skills to the level required to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- operating principles of outboard and stern drive marine transmissions
- servicing procedures
- minor adjustment procedures for different engines types
- types of lubricants and application methods
- measuring and testing procedures
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environments, relevant to servicing outboard and stern drive marine transmissions
- organisational policies and procedures, including quality, reporting and recording procedures, related to servicing outboard and stern drive marine transmissions

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • conduct the servicing of a minimum of two (2) outboard and two (2) stern drive transmissions to workplace and manufacturer and component supplier requirements within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • marine outboard and stern drive transmissions
	  • equipment, hand and power tools appropriate to the servicing of marine transmissions
	  • activities covering the mandatory task requirements
	  • specifications and work instructions.

EVIDENCE GUIDE	
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Outboard and stern drive marine transmissions	Outboard and stern drive marine transmissions may include: • cone clutch • mechanical dog clutch
Marine engines	Marine engines may include: • 2-stroke petrol

RANGE STATEMENT	
	• 4-stroke diesel and petrol
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive
Servicing methods	Servicing methods may include: • on- and off-site repairs • minor adjustments and operational testing • replacement of fluids and filters
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment • lubricating equipment • measuring equipment • pressure gauges • vacuum gauges • manufacturer's special stools
Materials	Materials may include: • spare parts • lubricants • fluids • cleaning materials
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues

RANGE STATEMENT	
	• inventory systems • Repair Times manuals • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry codes of practice • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • workplace specifications and requirements • Australian standards • current driver's licence
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting

RANGE STATEMENT	
	and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Transmission

AURRTX2002 Service marine inboard transmissions

Modification History

Release	Comment
Release 1	Replaces AURR207770B Service marine inboard transmissions Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to carry out the service of marine inboard transmissions and associated components on vessels. It requires the ability to identify and confirm work requirements, prepare for and service marine inboard transmissions and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake servicing of inboard transmissions in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Source service procedures and relevant workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Determine service method in accordance with WHS, environmental and industry regulations, and guidelines and enterprise procedures 1.6. Set up work area
2. Service marine inboard transmissions and associated components	2.1. Conduct service in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 2.2. Conduct pre-start checks, make required adjustments and re-test 2.3. Check that protective guards, cowlings and safety features are in place according to workplace expectations 2.4. Determine the need for water testing
3. Clean up work area and maintain equipment	3.1. Clean and inspect equipment and tooling according to workplace requirements 3.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 3.3. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons as required 3.4. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to servicing of marine inboard transmissions and to use workplace computerised technology for the reporting and recording of actions
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology and safety procedures, to interpret technical information and specifications and to record servicing details
- numeracy skills to the level required to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- operating principles and construction of inboard marine transmissions
- servicing procedures
- minor adjustment procedures for different engines types
- types of lubricants and application methods
- measuring and testing procedures
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to servicing marine inboard transmissions
- organisational policies and procedures, including quality, reporting and recording procedures, related to servicing marine inboard transmissions

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • conduct the servicing requirements on a minimum of one (1) velvet drive and one (1) 'V' drive inboard transmission to workplace and manufacturer and component supplier requirements within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • marine inboard transmissions
	  • equipment, hand and power tools appropriate to the servicing of marine inboard transmissions
	  • activities covering the mandatory task requirements
	  • specifications and work instructions.

EVIDENCE GUIDE	
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Inboard marine transmissions	Inboard marine transmissions may include: • 'V' drive transmissions • step up transmissions • hydraulic transmissions • mechanical transmissions • counter shaft transmissions

RANGE STATEMENT	
	• planetary gear transmissions • mechanical dog clutch
Marine engines	Marine engines may include: • 2-stroke petrol • 4-stroke diesel and petrol
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive
Servicing methods	Servicing methods may include: • on- and off-site repairs • minor adjustments and operational testing • replacement of fluids and filters
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment • lubricating equipment • measuring equipment • pressure gauges • vacuum gauges • manufacturer's special stools
Materials	Materials may include: • spare parts • lubricants • fluids • cleaning materials
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others

RANGE STATEMENT	
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and

RANGE STATEMENT	
	substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Transmission

AURRTX3003 Diagnose and repair marine outboard and stern drive transmissions

Modification History

Release	Comment
Release 1	Replaces AURR307684B Diagnose and repair marine outboard and stern drive transmissions Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to diagnose and repair marine outboard and stern drive transmissions and associated components on vessels. It requires the ability to identify and confirm work requirements, diagnose and repair marine outboard and stern drive transmissions and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake diagnosis and repair of marine outboard and stern drive transmissions in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices, applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Diagnose faults	2.1. Develop a diagnosis strategy 2.2. Undertake transmission tests in accordance with workplace procedures and manufacturer and component supplier specifications 2.3. Compare test results with manufacturer and component supplier specifications to identify compliance or non-compliance 2.4. Decide upon a plan of action to rectify faults 2.5. Document results, including evidence, relevant information and recommendations 2.6. Forward report to persons for action in accordance with workplace procedures 2.7. Finalise repair requirements
3. Repair outboard and stern drive transmissions and associated components	3.1. Perform repair and adjustment operations in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 3.2. Test transmission, make required adjustments and re-test 3.3. Check that protective guards, cowlings and safety features are in place according to workplace expectations 3.4. Determine the need for water testing
4. Clean up work area and finalise work	4.1. Clean and inspect equipment and tooling according to workplace requirements 4.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 4.3. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons as

ELEMENT	PERFORMANCE CRITERIA
	required 4.4. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the diagnosis and repair of marine outboard and stern drive transmissions, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and diagnosis and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements and calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- diagnostic and repair procedures, including component and assembly removal and placement
- measuring and testing procedures
- construction and operation of marine outboard and stern drive transmissions
- types of lubricants and their application
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to diagnosing and repairing marine outboard and stern drive transmissions
- organisational policies and procedures, including quality, reporting and recording procedures, related to diagnosing and repairing marine outboard and stern drive

REQUIRED SKILLS AND KNOWLEDGE
transmissions

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • accurately interpret the diagnosis results • diagnose and repair a minimum of two (2) outboard and two (2) stern drive transmissions to manufacturer and component supplier requirements within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • faulty marine outboard and/or stern drive transmissions
	  • equipment, and hand and power tools appropriate to the diagnosis and repair of marine outboard and stern drive transmissions

EVIDENCE GUIDE	
	• specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Outboard and stern drive marine transmissions	Outboard and stern drive marine transmissions may include: • cone clutch • mechanical dog clutch
Marine engines	Marine engines may include:

RANGE STATEMENT	
	• 2-stroke petrol • 4-stroke diesel and petrol
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive
Repair methods	Repair methods may include: • isolation of faults • dismantling, inspection and evaluation • replacement of components parts • assembly • completion of operational tests • completion of records
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and

RANGE STATEMENT	
	Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements • current driver's licence
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust

RANGE STATEMENT	
	• clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Transmission

AURRTX3004 Diagnose and repair marine inboard transmissions

Modification History

Release	Comment
Release 1	Replaces AURR307784B Diagnose and repair marine inboard transmissions Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to diagnose and repair inboard transmissions and associated components on vessels. It requires the ability to identify and confirm work requirements, diagnose and repair marine inboard transmissions and complete work finalisation processes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake the diagnosis and repair of inboard transmissions in a marine environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Access and interpret repair method, workshop manuals and manufacturer information 1.4. Check and prepare tools, equipment and materials 1.5. Set up work area
2. Diagnose faults	2.1. Develop a diagnosis strategy 2.2. Undertake transmission tests in accordance with workplace procedures and manufacturer and component supplier specifications 2.3. Compare test results with manufacturer and component supplier specifications to identify compliance or non-compliance 2.4. Decide upon a plan of action to rectify faults 2.5. Document results, including evidence, relevant information and recommendations 2.6. Forward report to persons for action in accordance with workplace procedures 2.7. Finalise repair requirements
3. Repair marine inboard transmissions and associated components	3.1. Perform repair and adjustment operations in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices 3.2. Test transmission, make required adjustments and re-test 3.3. Check that protective guards, cowlings and safety features are in place according to workplace expectations 3.4. Determine the need for water testing
4. Clean up work area and finalise work	4.1. Clean and inspect equipment and tooling according to workplace requirements 4.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 4.3. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons, as

ELEMENT	PERFORMANCE CRITERIA
	required 4.4. Clean work area, dispose of waste and scrap, and store tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to the diagnosis and repair of marine inboard transmissions, to use specialist tooling and equipment and computerised measuring equipment, and to report and record actions
- communication skills to the level required to confirm work requirements and diagnosis and repair procedures and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to research, analyse and interpret information related to work orders and manufacturer and component supplier requirements, and to record servicing details
- numeracy skills to the level required to correctly complete tests and measurements, including assessing tolerances, applying accurate measurements and calculating material requirements
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems, and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- diagnostic and repair procedures, including component and assembly removal and placement
- measuring and testing procedures
- construction and operation of marine inboard transmissions
- types of lubricants and their application
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications including workshop manuals and repair guides
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to diagnosing and repairing marine outboard and stern drive transmissions
- organisational policies and procedures, including quality, reporting and recording procedures, related to diagnosing and repairing marine outboard and stern drive

REQUIRED SKILLS AND KNOWLEDGE
transmissions

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques which are appropriate to the circumstances • complete preparatory activity in a systematic manner • accurately interpret diagnosis results • conduct repair requirements to a range of transmission drive systems to manufacturer and component supplier requirements within workplace timeframes • test prior to placing in service • complete workplace and equipment records and workplace clean-up requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • faulty marine inboard transmissions
	  • equipment, hand and power tools appropriate to the diagnosis of faults and the repair of marine inboard transmissions
	  • activities covering the mandatory task requirements
	  • specifications and work instructions.

EVIDENCE GUIDE	
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Repair methods	Repair methods may include: • isolation of faults • dismantling, inspection and evaluation • replacement of components parts • assembly • completion of operational tests

RANGE STATEMENT	
	• completion of records
Inboard marine transmissions	Inboard marine transmissions may include: • 'V' drive transmissions • step up transmissions • hydraulic transmissions • mechanical transmissions • counter shaft transmissions • planetary gear transmissions • mechanical dog clutch
Marine engines	Marine engines may include: • 2-stroke petrol • 4-stroke diesel and petrol
Vessels	Vessels may include: • single or multi-hull • inboard or outboard drive
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • power tools • air tools • specialist tools and equipment
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and

RANGE STATEMENT	
	instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian standards • workplace specifications and requirements
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise

RANGE STATEMENT	
	• dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Marine

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Transmission

AURSAA2001 Process customer complaints

Modification History

Release	Comment
Release 1	Replaces AURS252290A Process customer complaints Unit code updated to meet policy requirements Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the competence to deal with customer complaints in a manner satisfying the customer but complies with enterprise policies and procedures. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Every action or output has a customer and therefore customers may be internal work colleagues or external to the enterprise.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Clarify the nature of complaint	1.1. Details of the complaint are established 1.2. Summary of the complaint is documented accurately 1.3. Any inconvenience to the customer is acknowledged and an apology is made
2. Identify options for complaint resolution	2.1. Options for resolving the complaint are identified 2.2. Complaint is referred to designated officer if resolution is not possible
3. Act to resolve complaint	3.1. Optimal solution is negotiated with customer 3.2. Chosen solution is implemented within agreed timeframe 3.3. Necessary documentation is finalised 3.4. Effectiveness of solution and related outcomes is evaluated 3.5. Any necessary changes to enterprise procedures are identified and passed on to appropriate persons for action

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to:
- technical literacy and interpretive skills to interpret and discern facts related to the customer complaint
- basic research and analytical skills to investigate and identify factors which caused/contributed to the complaint
- communicate ideas and information
- plain English literacy and communication skills in relation to dealing with customers and their complaints
- questioning and active listening skills, for example when obtaining factual information from excitable customers
- plan and organise activities to plan an approach to identify and resolve a complaint
- work with others and in a team by involving a designated officer if solution is not possible
- use mathematical ideas and techniques when options/solutions are costed
- establish diagnostic processes including basic conflict resolution skills for handling difficult or abusive customers, and greeting/farewelling techniques
- use workplace technology related to use of business technology to make changes to enterprise procedures

Required knowledge

- general knowledge of range of enterprise merchandise and services, location of departments/sections and telephone extensions of departments/sections
- general operational knowledge of industry/workplace codes of practice in relation to customer service
- basic working knowledge of legislation and statutory requirements, including consumer law, trade practices and fair trading legislation
- working knowledge of enterprise policies and procedures in regard to:
  - customer service
  - dealing with difficult customers
  - allocated duties/responsibilities
- working knowledge of enterprise complaints handling procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • accurately clarifying the nature and extent of complaint • identifying options for complaint resolution • resolving complaint to customer satisfaction • contributing to avoidance of further complaints • communicating effectively with others involved in or affected by the work.

Context of, and specific resources for assessment	• Elements of competence contain both knowledge and practical components. Knowledge components may be assessed off the job. Practical components should be assessed on the job or in a simulated work environment covering a range of customer types
	• The following are required:
	  • a workplace or simulated workplace
	  • enterprise or equivalent policy and procedures relating to customer service and complaint handling processes
	  • enterprise or equivalent instructions related to legal implications of customer relations and complaints
	  • a range of customers with complaints (real or simulated)
	  • a qualified workplace assessor.

Method of assessment	• This unit may be assessed in conjunction with other units forming part of the job role or function • It is preferable assessment reflects a process rather than an event and occurs over a period of time to cover varying circumstances. Evidence of performance may be provided by customers, team leaders/members or other appropriate persons subject to agreed authentication arrangements • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for	

EVIDENCE GUIDE	
assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Complaints	Complaints may include: • matters related to personal interaction with customers, incorrect products, faulty products, charging/costing policy, delivery system failures, installation deficiencies and service delays
Customers	Customers may be regular or new and may have routine or special requests. They may include persons from a range of social, cultural or ethnic backgrounds and physical and intellectual abilities. Regardless, customers are made feel welcome, valued and, at end of the process, satisfied. Customer contact may be face to face, by telephone, by electronic means or in writing
Customer service	Customer service may include: • enterprise activities, internal and external customers and follow-up in event of delays in service provision
Customer needs	Customer needs may include: • information regarding products or services available, quality of products or services, complementary products or services, enterprise facilities and services and location of specific items
Staff	Staff may be:

RANGE STATEMENT	
	• full-time, part-time or casual and vary in terms of staff training, product knowledge and in staffing levels (e.g. staff shortages) • operating in routine or busy trading conditions
Enterprise	Enterprises may vary in size, type and location, in range of merchandise and services provided and in delivery policies
Communication	Communications may be: • verbal, written, by telephone, by electronic or other available means
Record keeping	Accurate records of information are completed and may be stored manually, electronically or by other means
Resources	Resources may include: • enterprise or equivalent policy and procedures relating to customer service and complaint handling processes • enterprise or equivalent instructions related to legal implications of customer relations and complaints • a range of customers with complaints (real or simulated)
Information/documents	Sources of information/documents may include: • enterprise policies and procedures relating to customer service, equipment and product manufacturer/component supplier specifications, enterprise operating procedures, industry/workplace codes of practice, customer requirements

Unit Sector(s)

Unit sector	Sales and Parts, Administration and Management

Co-requisite units

Not applicable.

Competency field

Competency field	Administration

AURSCA2002 Present stock and sales area

Modification History

Release	Comment
Release 1	Replaces AURS238150A Present stock and sales area Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the competence required to establish and maintain stock and sales area. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit of competency applies to the following and should be contextualised to the qualification it is being applied: • retail, service and repair.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Maximise and maintain presentation of vehicle/ products for sale	1.1. Vehicle/product is clean and prepared to maximise market appeal in accordance with enterprise policies and procedures 1.2. Vehicle/product is placed in correct position to maximise presentation 1.3. Vehicle/product condition is monitored and action taken where necessary to maintain maximum market appeal
2. Maximise presentation of sales area	2.1. Presentation area is defined from floor plan in accordance with enterprise policies and procedures 2.2. Minimum vehicle/product numbers/types are determined and presented 2.3. Display areas are clean, tidy and safe 2.4. Correct handling, storage and display techniques are adopted according to vehicle/product types, enterprise and industry practices
3. Review acceptance of presentation of stock and sales area	3.1. Feedback from customers is sought 3.2. Customer feedback is collated and analysed 3.3. Action is taken

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• collect, analyse and understand information related to feedback from customers • communicate ideas and information to draft presentation to management for support • plan and organise activities to design presentation area • work with others and in a team by involving other members of sales team in design and maintenance • use mathematical ideas and techniques to develop roster to maintain area • establish diagnostic processes for which design is both practical and safe • use workplace technology related to process feedback

REQUIRED SKILLS AND KNOWLEDGE
Required knowledge
• enterprise policies and procedures • enterprise sales presentation area and floor plan arrangements • vehicle/product preparation and presentation techniques • vehicle/product models/types

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • presenting vehicle/products in a manner to maximise market appeal • maintaining suitable sales presentation area • communicating effectively with others involved in or affected by the work.

Context of, and specific resources for assessment	• Underpinning knowledge and skills may be assessed on or off the job
	• The following are required:
	  • vehicle/products for sale
	  • suitable presentation area
	  • sales material (e.g. brochures, pamphlets, banners, flags, stands, ramps, turntables)
	  • a qualified workplace assessor.

Method of assessment	• Assessment of practical skills must take place only after a period of supervised practice and repetitive experience. If workplace conditions are not available, assessment in simulated workplace conditions is acceptable.
	• Prescribed outcome must be able to be achieved without direct supervision.
	• Practical assessments:
	  • present vehicle/products to maximise market appeal
	  • maintain maximum merchandising effect of sales presentation area.
	• Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.

Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Methods	Methods include: • application of vehicle/product preparation/presentation techniques • application of procedures for maximising vehicle/product presentation area
WHS requirements	WHS requirements may include: • state/territory/industry WHS requirements
Resources may include	Resources may include • vehicles/products for sale • suitable presentation area • sales material (e.g. brochures, pamphlets, banners, flags, stands, ramps, turntables)
Information/documents	Sources of information/documents may include: • manufacturer/component supplier specifications • enterprise operating procedures • product manufacturer/component supplier specifications • customer requirements • industry/workplace codes of practice

Unit Sector(s)

Unit sector	Sales and Parts, Administration and Management

Co-requisite units

Not applicable.

Competency field

Competency field	Sales and Marketing

AURSCA2004 Carry out cash, credit and funds transfers

Modification History

Release	Comment
Release 1	Replaces AURS241608A Carry out cash and/or credit/funds transfer transactions Unit code updated to meet policy requirements Minor change to unit title Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the competence required to undertake cash, cheque, credit/funds transfer card transactions. It also includes preparation and dispatch of debtor invoices. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit of competence applies to the following and should be contextualised to the qualification it is being applied: • retail, service and repair administration/sales finance - cash and non-cash transactions.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Handle cash transactions	1.1. Cash is received and counted 1.2. Correct balance is determined, taking price, invoices, discounts, etc. into account, and correct change is given 1.3. Irregularities are noted and referred to appropriate persons for resolution 1.4. Cash is stored according to enterprise policies and procedures 1.5. Receipts are issued and transaction documented according to enterprise policies and procedures
2. Handle credit/funds transfer card transactions	2.1. Correct documentation and equipment for particular credit/funds transfer card is identified and accessed 2.2. Credit/funds transfer card recording device is identified and accessed 2.3. Recording device is operated according to provider procedures and taking into account enterprise credit limits 2.4. Irregularities are noted and referred to appropriate persons for resolution 2.5. Receipts are issued and transaction documented according to enterprise policies and procedures
3. Handle cheque transactions	3.1. Cheques are received and examined for correctness (amount, dates and signature) 3.2. Irregularities are noted and referred to appropriate persons for resolution 3.3. Cheques are stored according to enterprise policies and procedures 3.4. Receipts are issued and transaction documented according to enterprise policies and procedures
4. Carry out invoicing procedures	4.1. Calculations are performed to produce accurate customer invoices 4.2. Documentation is completed to ensure accuracy of content 4.3. Invoices are distributed to appropriate persons/section for certification prior to being dispatched 4.4. Verified invoices are dispatched within designated time limits 4.5. Invoices are copied and filed for auditing purposes

ELEMENT	PERFORMANCE CRITERIA
	according to enterprise policies and procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• collect, organise and understand information related to collation of cheques for processing • communicate ideas and information on irregularities in cash balancing to appropriate persons • plan and organise activities for the development of invoices • work with others and in a team with office persons to develop invoices • use mathematical ideas and techniques to count cash • establish diagnostic processes which re-count cash and credit transactions to balance books • use workplace technology related to record sales
Required knowledge
• money handling security methods • personal safety requirements • applicable legislation • GST information • equipment safety requirements • enterprise transaction policies • cash/credit/funds transfer systems

Evidence Guide

EVIDENCE GUIDE
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • conducting cash and non-cash transactions • preparation of invoices • interpreting and communicating operational information • safe work practices • operation of office/sales equipment • communicating effectively with others involved in or affected by the work.

Context of, and specific resources for assessment	• Underpinning knowledge and skills may be assessed on or off the job
	• The following are required:
	  • cash and non-cash transaction equipment
	  • computer software/hardware, calculator, office equipment, enterprise stationery, safes, cash register, EFTPOS systems, credit card systems, stock scanning/ pricing equipment, postage equipment
	  • a qualified workplace assessor.

Method of assessment	• Assessment of practical skills must take place only after a period of supervised practice and repetitive experience. If workplace conditions are not available assessment in simulated workplace conditions is acceptable
	• Prescribed outcome must be able to be achieved without direct supervision
	• Practical assessments:
	  • recognise denominations of Australian currency notes and coinage
	  • access and apply cash/credit systems
	  • receive cash, perform calculations and give correct change
	  • use equipment
	  • handle cash correctly
	  • use security systems (where applicable)
	  • prepare and dispatch invoices
	• Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.

EVIDENCE GUIDE	
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Methods	Methods include: • conducting sales transactions using cash and non-cash procedures • telephone, fax, written communication, verbal • preparation of debtor invoices Specific requirements may include: • literacy/numeracy
Workplace health and safety (WHS) requirements	WHS requirements may include: • state/territory/industry WHS requirements
Resources	Resources may include: • cash and non-cash transaction equipment • invoice dispatching system • computer software/hardware, calculators, office equipment, enterprise stationery, safes, cash register, EFTPOS systems, credit card systems, stock scanning/ pricing equipment, postage equipment
Information/documents	Sources of information/documents may include: • enterprise operating procedures • job cards • product manufacturer/component supplier specifications • company stationery

RANGE STATEMENT	
	• customer requirements • industry/workplace codes of practice

Unit Sector(s)

Unit sector	Sales and Parts, Administration and Management

Co-requisite units

Not applicable.

Competency field

Competency field	Sales and Marketing

AURTGA3001 Drive and manoeuvre trailers

Modification History

Release	Comment
Release 1	Replaces AURT337119A Drive and manoeuvre trailer(s) Unit code updated to meet policy requirements Minor changes to unit title Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to drive and manoeuvre trailer(s). Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, safe driving, manoeuvring and parking of trailer(s), disconnecting trailer(s) from vehicle and completion of work finalisation processes, including clean-up and documentation. This unit of competence applies to: • safe driving, manoeuvring and parking of trailers • trailer with non-pivoting axle • trailer with pivoting front axle • vehicle with towing hitch. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including personal safety needs, are observed throughout the work 1.3. Equipment and tooling are identified and checked for safe and effective operation 1.4. Procedures are determined to minimise task time
2. Perform a preliminary safety check	2.1. Safety checks are completed without causing damage to trailer or components 2.2. Vehicle and coupling set-up are selected 2.3. Safe condition of towing vehicle is determined 2.4. Security of trailer load is ensured 2.5. Activities are carried out according to industry regulations/guidelines, WHS, environmental and legislation and enterprise policies/procedures
3. Connect trailer to vehicle	3.1. Vehicle to trailer alignment is achieved 3.2. Techniques are used for manual handling of trailer 3.3. Trailer is hitched to vehicle and ancillaries are connected 3.4. Connections are tested and checked 3.5. Activities are carried out according to industry regulations/guidelines, WHS, environmental and legislation and enterprise policies/procedures
4. Drive and manoeuvre trailer	4.1. Brake lockout devices are set correctly 4.2. Techniques are used to safely manoeuvre trailer and vehicle in forward and reverse directions and perform parking functions 4.3. Activities are carried out according to industry regulations/guidelines, WHS, environmental and legislation and enterprise policies/procedures
5. Disconnect trailer from vehicle	5.1. Parking devices are applied 5.2. Techniques are used for manual handling of trailer 5.3. Ancillary devices are disconnected and trailer is unhitched 5.4. Activities are carried out according to industry regulations/guidelines, WHS, environmental and legislation and enterprise policies/procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to work orders, plans and safety procedures for driving and manoeuvre of trailers:
- technical literacy and communication skills sufficient to interpret and apply common industry terminology, and interpret technical information and specifications
- research and interpretive skills to locate, interpret and apply operational and safety information
- communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with site supervisor, other workers and customers, and the documenting of work outcomes and problems
- plain English literacy and communication skills in relation to dealing with others involved in the work
- questioning and active listening skills, for example when obtaining information trailer hitching and manoeuvre techniques
- plan and organise activities, including the preparation and layout of worksite and the obtaining of equipment and materials to avoid backtracking or workflow interruptions
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- use mathematical ideas and techniques to correctly complete tests and measurements to determine trailer load security, trailer hitching and driving
- use pre-checking and inspection techniques to anticipate planning and scheduling problems, avoid wastage of time and material
- manipulative and dexterity skills to perform trailer driving/manoeuvring
- problem-solving skills for a range of differing procedural issues
- use the workplace technology related to:
- trailer safety inspection
- trailer hitching and load security
- trailer driving, manoeuvring and parking

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- different trailer types
- State/Territory regulations for towing trailers
- manufacturer/enterprise policies

REQUIRED SKILLS AND KNOWLEDGE
• loading of trailers and travelling with a loaded trailer • trailer hitching systems • driving and manoeuvring techniques • enterprise quality procedures • work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • applying vehicle and trailer protection requirements • manoeuvring a minimum of two different types of trailers in restricted and non-restricted environments without damage to vehicle, trailer or surroundings
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • suitable area for trailer driving, manoeuvring and parking • material relevant to driving and manoeuvring of trailers • equipment and tooling appropriate to driving and manoeuvring of trailers • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with

EVIDENCE GUIDE	
	questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Methods	Methods are to include: • safety inspection • trailer hitching to vehicle and ancillary connections • securing load • trailer driving, manoeuvring and parking • trailer unhitching
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation

RANGE STATEMENT	
Environmental requirements	Environmental requirements are to include but are not limited to noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions and plans or instructions related to job/task
Information/documents	Sources of information/documents may include: • verbal or written instructions, signage, work schedules/plans/ specifications • safe work procedures related to driving and manoeuvring of trailers • regulatory/legislative requirements pertaining to driving and manoeuvring of trailers

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	

AURTTA2004 Carry out servicing operations

Modification History

Release	Comment
Release 1	Replaces AURT200108A Carry out servicing operations Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out routine and scheduled servicing operations. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	It requires identification of servicing requirements, preparation for work, correct handling of lubricants and fluids, completion of servicing and work finalisation processes, including documentation. Work involved includes the routine and scheduled servicing of wheeled and tracked type vehicles and equipment. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. **Prepare to undertake servicing operations**	1.1. Work requirements, including the nature and scope of servicing, are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling required, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical requirements are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with vehicles and equipment are observed
2. **Apply correct lubricants and/or fluids handling techniques**	2.1. Correct lubricants/fluids are identified for components as per manufacturer/component supplier specifications 2.2. Fluid leaks are inspected in accordance with manufacturer/component supplier procedures 2.3. Used lubricants/fluids are disposed of in accordance with statutory requirements 2.4. Handling of lubricants/fluids is carried out according to industry regulations/guidelines, WHS legislation and legislation
3. **Carry out servicing operations**	3.1. Methods for the servicing operations are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 3.2. Minor adjustments made during the servicing operations are in accordance with manufacturer/component supplier specifications
4. **Prepare vehicle for use or storage**	4.1. Vehicle servicing schedule documentation is completed 4.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 4.3. Final inspection is made to ensure work is to workplace expectations 4.4. Servicing equipment is cleaned for use or storage to workplace expectations

ELEMENT	PERFORMANCE CRITERIA
	4.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to vehicle servicing operations, including the use of diagnostic and specialist tooling and equipment, measuring equipment, computerised technology, and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- dangers of working with vehicles and/or equipment
- operating principles of vehicle systems and their relationship to each other
- types and layout of service/repair manuals (hard copy and electronic)
- workshop procedures
- disposal of lubricants/fluids procedures
- enterprise quality procedures

REQUIRED SKILLS AND KNOWLEDGE
• work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner for a range of servicing requirements: • accurately interpret the servicing data • conduct the servicing operations in accordance with workplace and manufacturer/component supplier requirements • complete the work within workplace timeframes • present equipment to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to vehicle servicing operations • equipment, hand and power tooling appropriate to vehicle servicing operations • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy

EVIDENCE GUIDE	
	of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid,

RANGE STATEMENT	
	hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, measuring devices, job cards, hoists, jacks and lubrication equipment
Materials	Materials may include oils and lubricants, spare parts and cleaning materials
Communications	Communications are to include but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or

RANGE STATEMENT	
	instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to vehicle servicing operations • regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURTTA2005 Select and use bearings, seals, gaskets, sealants and adhesives

Modification History

Release	Comment
Release 1	Replaces AURT200368A Select and use bearings, seals, gaskets, sealants and adhesives Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out the selection and use of bearings, seals, gaskets, sealants and adhesives relevant to the vehicle industry. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, installation of bearings, seals, gaskets, use of sealants and adhesives and completion of work finalisation processes, including documentation. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. **Prepare to select and use bearings, seals, gaskets, sealants and adhesives**	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling required, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical requirements for testing and installation are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with sealants and adhesives are observed
2. **Select and use sealants**	2.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 2.2. Sealants and adhesives selected are those most appropriate for the work requirement 2.3. Sealants and adhesives are used in accordance with manufacturer/component supplier instructions 2.4. Sealants and adhesives are stored in accordance with manufacturer/component supplier instructions
3. **Prepare to install bearings, seals and gaskets**	3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information required are identified and sourced 3.3. Technical and tool requirements for installation are identified and support equipment is identified and prepared
4. **Carry out installation of bearings, seals and gaskets**	4.1. Methods for the installation are implemented in accordance with workplace procedures and manufacturer/ component supplier specifications 4.2. Adjustments made during the service and/or repair are in accordance with manufacturer/component supplier specifications
5. **Prepare vehicle**/	5.1. Selection and installation documentation is

ELEMENT	PERFORMANCE CRITERIA
component for use or storage	completed 5.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 5.3. Final inspection is made to ensure work is to workplace expectations 5.4. Equipment is cleaned for use or storage to workplace expectations 5.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use workplace technology related to the selection and use of bearings, seals, gaskets, sealants and adhesives, including the use of measuring equipment, specialist tooling and equipment, and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- dangers of working with sealants and adhesives
- operating principles of bearings, seals, gaskets and their relationship to other components
- types, characteristics, uses and limitations of sealants and adhesives
- types and layout of service/repair manuals (hard copy and electronic)
- bearings, seals and gaskets installation procedures

REQUIRED SKILLS AND KNOWLEDGE
• sealant and adhesives application techniques • enterprise quality procedures • work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of:
	• observing safety procedures and requirements
	• communicating effectively with others involved in or affected by the work
	• selecting methods and techniques appropriate to the circumstances
	• completing preparatory activity in a systematic manner
	• selecting and installing the following bearings to workplace and manufacturer/component supplier requirements:
	  • plain
	  • anti-friction
	  • adjusting/pre-loading taper roller bearings
	• selecting and using a minimum of three different types of lip seals and 'O' rings to workplace and manufacturer/component supplier requirements
	• selecting and applying two different types of gaskets to manufacturer/component supplier requirements
	• selecting and applying hardening and non-hardening sealants to manufacturer/component supplier requirements
	• selecting and applying a polymer (silicone) adhesives to manufacturer/component supplier requirements
	• vehicle/component is presented to customer in compliance with workplace requirements

Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards

EVIDENCE GUIDE	
	The following resources should be made available: • workplace location or simulated workplace • material relevant to the installation of bearings, seals and gaskets • material relevant to the selection and use of sealants and adhesives • equipment, hand and power tooling appropriate to installation of bearings, seals and gaskets • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Bearings	Bearings are to include plain (bushes and bearing inserts) and anti-friction (ball and roller)
Seals	Seals are to include lip, face and 'O' ring (dynamic and static)
Gaskets	Gaskets are to include special papers, cork, and composite material types used for cylinder head (heat and pressure), cooling system and transmission system
Sealants	Sealants are to include hardening and non-hardening types which may be used with another seal (e.g. special papers) or as the only seal
Adhesives	Adhesives are to include polymers (silicone) which may be used for glass (windscreens) engine and transmission components
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation,

RANGE STATEMENT	
	manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges, and load testing devices
Materials	Materials may include bearings, seals, gaskets, sealants, adhesives and cleaning materials
Communications	Communications are to include but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the selection and use of bearings, seals, gaskets, sealants and adhesives • regulatory/legislative requirements pertaining to the automotive industry, including

RANGE STATEMENT	
	australian design rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURTTA2006 Service hydraulic systems

Modification History

Release	Comment
Release 1	Replaces AURT209170A Service hydraulic systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out the inspection and servicing of hydraulic systems. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, testing of systems, analysis of results and servicing of hydraulic systems and completion of work finalisation processes, including clean-up and documentation. Work involves vehicles fitted with hydraulic systems that are of an earthmoving or lifting and supporting nature. This unit is not intended for drive systems, power steering or hydraulic braking systems. See specific unit of competence for these systems. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. **Prepare to undertake testing and servicing of hydraulic systems**	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling required, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical requirements for testing and servicing of hydraulic systems are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with hydraulics are observed
2. **Test hydraulic systems and analyse results**	2.1. Methods for the system tests and implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Results are compared with manufacturer/component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is processed in accordance with workplace procedures
3. **Carry out servicing**	3.1. Methods for the service implemented in accordance with workplace procedures and manufacturer/component supplier specifications 3.2. Adjustments made during the service are in accordance with manufacturer/component supplier specifications
4. **Prepare vehicle/system for use or storage**	4.1. Servicing schedule documentation completed 4.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 4.3. Final inspection is made to ensure work is to workplace expectations 4.4. Vehicle/system is prepared for use or stored to workplace expectations 4.5. Job card is processed in accordance with workplace

ELEMENT	PERFORMANCE CRITERIA
	procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to servicing hydraulic systems, including the use of measuring equipment, diagnostic and specialist tooling and equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- dangers of working with pressurised fluids
- identification of application, purpose and operating principles
- types and layout of service/repair manuals (hard copy and electronic)
- inspection procedures
- servicing procedures
- enterprise quality procedures

REQUIRED SKILLS AND KNOWLEDGE
• work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • accurately interpreting inspection results • identification of application, purpose and operating principles • conducting inspection, servicing and operational testing in accordance with workplace and manufacturer/component supplier specifications • completing servicing of hydraulic systems and associated components within workplace timeframes • vehicle/hydraulic system is presented to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the inspection and servicing of hydraulic systems • equipment, hand and power tooling appropriate to the inspection and servicing of hydraulic systems • activities covering mandatory task requirements • specifications and work instructions

EVIDENCE GUIDE	
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Servicing	Servicing to include fluids, filters, adjustments and operational testing, visual inspections and documents

RANGE STATEMENT	
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges and fluid dispensing, disposal and load testing devices

RANGE STATEMENT	
Materials	Materials may include fluids, spare parts and cleaning materials
Communications	Communications are to include but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to servicing hydraulic systems • regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURTTA2010 Service and repair trailers up to 4.5 tonnes

Modification History

Release	Comment
Release 1	Replaces AURT237272A Service and repair trailers up to 4.5 tonnes Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation
Release 2	Minor typographical errors corrected

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to service and repair trailers with an aggregate trailer mass (ATM) of up to 4.5 tonnes. It requires the ability to identify and confirm work requirements, to use technical skills to service, repair and/or maintain trailers up to 4.5 tonnes, and to complete the work finalisation processes. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake and document the adjustment, servicing and repair of trailers with an ATM of up to 4.5 tonnes. This includes trailers of varying types and in varying environments.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Confirm nature and scope of work to be carried out 1.2. Locate workplace health and safety (WHS) and workplace environmental and sustainable procedures and practices applicable to the work 1.3. Source service procedures and relevant workshop manuals and manufacturer information 1.4. Access and interpret state and territory regulations and requirements 1.5. Check and prepare tools, equipment and materials 1.6. Decide service and/or repair method in accordance with WHS, environmental and industry regulations and guidelines, and enterprise procedures 1.7. Set up work area
2. Adjust trailer to suit individual applications	2.1. Identify trailer application 2.2. Use methods, equipment and tolerances suitable to the trailer application and in accordance with manufacturer specifications to adjust suspension and chassis 2.3. Carry out adjustment in accordance with manufacturer and component supplier specifications, and WHS and workplace environmental and sustainable procedures and practices
3. Test, service, repair and/or maintain trailer	3.1. Select appropriate diagnostic test 3.2. Undertake testing of trailer 3.3. Identify service, repair and/or maintenance requirements 3.4. Carry out brake adjustment, including handbrake 3.5. Carry out bleeding of hydraulic braking system 3.6. Carry out service, repair and/or maintenance using methods, equipment and tolerances suitable to the trailer application in accordance with manufacturer specifications and WHS and workplace environmental and sustainable procedures and practices
4. Verify system	4.1. Apply and release brakes a number of times 4.2. Test trailer lighting circuits 4.3. Undertake visual and audible tests 4.4. Repair and eliminate identified issues 4.5. Organise for trailer to be tow tested

ELEMENT	PERFORMANCE CRITERIA
5. Clean up work area and maintain equipment	5.1. Clean and inspect equipment and tooling according to workplace requirements 5.2. Tag unserviceable equipment and faults identified in accordance with workplace requirements 5.3. Finalise and process work completion documentation, update customer and warranty information and give to appropriate persons, as required 5.4. Clean work area, dispose of waste and scrap, and store re-useable material, tools and equipment in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to service, repair and/or maintain trailers and components up to 4.5 tonnes, including use of workplace computerised technology for the testing, reporting and recording of results
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities, and to report work outcomes and problems
- literacy skills to the level required to understand information related to work orders, including common industry terminology, plans and safety procedures, to interpret technical information and specifications, and to complete workplace documents
- numeracy skills to the level required to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to identify technical and procedural problems to avoid planning and scheduling problems and time and material wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity

Required knowledge

Required knowledge includes:

- types of load carrying trailers with a gross trailer mass rating (GTMR) or ATM up to 4.5 tonnes
- brake types
- electrical circuit types and related Australian Design Rules
- trailer service, repair and maintenance procedures applicable to the trailer type
- work organisation and planning processes
- transport regulations for each state and territory, including braking requirements for trailers with a GTMR or ATM up to 4.5 tonnes
- documenting and reporting requirements/procedures
- service and repair manuals (hard copy and electronic)
- manufacturer and component supplier specifications, including workshop manuals and repair guides related to the servicing and repairing of trailers up to 4.5 tonnes and components

REQUIRED SKILLS AND KNOWLEDGE
• applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS, personal safety and environment, relevant to the servicing and repairing of trailers up to 4.5 tonnes and components • organisational policies and procedures, including quality requirements and reporting and recording procedures, related to servicing and repairing of trailers up to 4.5 tonnes and components

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select servicing and repair methods and techniques appropriate to the circumstances and trailer type • complete preparatory activity in a systematic manner • adjust, service, repair and maintain three (3) different types of trailers • complete workplace and equipment records and workplace clean-up requirements • present trailer to customer or for storage in compliance with work requirements.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • appropriate worksite
	  • a range of trailers up to 4.5 tonnes requiring servicing, repairing and/or maintaining
	  • specifications and work instructions
	  • equipment, hand and power tooling appropriate to servicing, repairing and/or maintaining trailers up to 4.5 tonnes
	  • relevant information, including manufacturer

EVIDENCE GUIDE	
	specifications.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Trailers	Trailers with a GTMR or ATM less than 4.5 tonnes may include: • boat trailers • car trailers

RANGE STATEMENT	
	• horse floats • plant trailers • farm trailers • mobile home carrier • motor cycle trailers • box trailers • caravan semi trailer • pig trailers • dog trailers
Servicing, repair and/or maintaining	Servicing, repair and/or maintaining may include: • minor adjustments • operational testing • replacement of fluids and filters
Tooling and equipment	Tooling and equipment may include: • hand tools • testing equipment, including multimeters • brake bleeding equipment • power tools • air tools • specialist tools and equipment • lubricating equipment • measuring equipment • pressure gauges • vacuum gauges • manufacturer special stools
Materials	Materials may include: • spare parts • lubricants • fluids • cleaning materials
Safe operating procedures	Safe operating procedures may include: • operational risk assessment and treatments • toxic substances • electrical safety • machinery movement and operation • manual and mechanical lifting and shifting • working in proximity to others

RANGE STATEMENT	
Information/documents	Information/documents may include: • verbal, written and graphical instructions issued by authorised internal and external persons • parts listing prices and catalogues • inventory systems • Repair Times manuals • material safety data sheets (MSDS) • diagrams or sketches • engineer's design specifications and instructions • manufacturer specifications • industry standards (e.g. American Boat and Yacht Council, National Marine, Manufacturer's Association and US Coast Guard) • Australian Road Transport (ARTSA) - Brake Code of Practice • Australian standards • workplace specifications and requirements • current driver's licence
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • duty of care
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing

RANGE STATEMENT	
	• safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • road rules • safe driving policy
Environmental requirements	Environmental requirements may include: • waste management • noise • dust • clean-up management
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures • reporting and recording procedures

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURTTA3013 Repair hydraulic systems

Modification History

Release	Comment
Release 1	Replaces AURT309166A Repair hydraulic systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out the testing and repair of hydraulic systems. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of the work requirement, preparation for work, testing, analysis of results and repair of hydraulic system faults and work finalisation processes, including clean-up and documentation. Work involves vehicles fitted with hydraulic systems. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to undertake testing of hydraulic system	1.1. Nature and scope of the work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals, specifications and tooling, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and/or hydraulic testing requirements for hydraulic systems are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with fluids under pressure are observed
2. Test hydraulic system and analyse results	2.1. Methods for the conduct of the testing implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Results are compared with manufacturer/component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is forwarded to appropriate persons for action in accordance with workplace procedures
3. Prepare to repair hydraulic systems	3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information required are identified and sourced 3.3. Technical and tooling requirements for the repair are identified and support equipment is identified and prepared
4. Carry out repair	4.1. Methods for the conduct of the repair are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 4.2. All adjustments made during the repair are in accordance with manufacturer/component supplier specifications

ELEMENT	PERFORMANCE CRITERIA
5. Prepare vehicle/system for use or storage	5.1. Repair schedule documentation is completed 5.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 5.3. Final inspection is made to ensure work is to workplace expectations 5.4. Vehicle/system is cleaned for use or stored to workplace expectations 5.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the repair of hydraulic systems, including the use of specialist tooling, measuring equipment, computerised technology and communication devices and the documenting/ recording of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- dangers of working with hydraulically operated equipment
- identification of the application, purpose and operation
- identification of component parts to include physical, fluid, gases and heat generation
- identification of hydraulic system schematic symbols
- types and layout of service/repair manuals (hard copy and electronic)
- hydraulic system testing procedures
- hydraulic system repair procedures
- enterprise quality procedures

REQUIRED SKILLS AND KNOWLEDGE
• work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • identification of the application, purpose and operation • application of the full repair sequence as per the Range Statement to a hydraulic system relative to the qualification being sought • interpreting of the system test results • conducting the repair in accordance with workplace and manufacturer/component supplier requirements • completing repair of hydraulic systems and associated components within workplace timeframes • vehicle/hydraulic system presentation to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • materials relevant to carrying out the testing and repair of hydraulic systems

EVIDENCE GUIDE	
	• equipment, hand and power tooling appropriate to carrying out the testing and repair of hydraulic systems • activities covering the mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions (real or simulated) and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable assessment reflects a process rather than an event and occurs over a period of time to cover the varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other appropriate persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Variables	Variables include: • linear or rotary actuators • conductors • pressure flow or directional control valves and pumps • pumps may be of gear, vane or piston design
Repair methods	Repair methods and sequence are to include isolation of faults, dismantling, inspection and evaluation, replacement of components parts, assembly and completion of operational tests and records
Faults	Faults to include, excessive internal leakage in both actuators and pumps, low operating pressure and implement creep
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of materials, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting,

RANGE STATEMENT	
	working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges, and hydraulic hose repair and load testing devices
Materials	Materials may include hydraulic fluids, spare parts and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the testing and repair of hydraulic systems • regulatory/legislative requirements pertaining to the automotive industry, including

RANGE STATEMENT	
	Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Relevant Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURTTA3014 Assemble and install pneumatic systems and components

Modification History

Release	Comment
Release 1	Replaces AURT309604A Assemble and install pneumatic systems/components Unit code updated to meet policy requirements Minor changes to unit title Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to assemble, install and test pneumatic systems and components. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, assembly and installation of pneumatic systems/components, testing and analysis of outcomes and completion of work finalisation processes, including clean-up and documentation. Work involved includes vehicle pneumatic systems, including those involved in the mining and heavy vehicle industry. Work is to include installation of linear or rotary actuators, drive motors, conductors and control valves. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to assemble and install pneumatic systems/components	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and testing requirements for pneumatic systems are sourced and support equipment is identified and prepared 1.6. Support tooling and equipment are selected and prepared for use 1.7. Warnings in relation to working with pneumatic systems are observed
2. Assemble and install pneumatic systems/ components	2.1. Methods for assembly and installation are implemented in accordance with workplace procedures and manufacturer/ component supplier specifications 2.2. Adjustments made during the assembly/installation are in accordance with manufacturer/component supplier specifications 2.3. Documentation of observations is completed
3. Conduct and analyse pneumatic system tests	3.1. Methods for tests are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 3.2. Test results are compared with manufacturer/component supplier specifications 3.3. Final adjustments are made to achieve compliance with manufacturer/component supplier specifications to indicate compliance or non-compliance 3.4. Results are documented with evidence and supporting information and recommendation(s) made 3.5. Report is forwarded to persons for action in accordance with workplace procedures

ELEMENT	PERFORMANCE CRITERIA
4. Prepare vehicle/ pneumatic system for use or storage	4.1. Assembly and installation schedule documentation is completed 4.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 4.3. Final inspection is made to ensure work is to workplace expectations 4.4. Vehicle/pneumatic system is cleaned for use or storage to workplace expectations 4.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and desired solution are clearly evident and in situations requiring critical thinking and a creative approach to achieve an outcome
- use workplace technology related to the assembly and installation of pneumatic systems/components, including the use of diagnostic and specialised tooling and equipments, measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- types, characteristics, uses and limitations of common pneumatic systems
- operating principles of pneumatic systems and their relationship to each other
- dangers of working with pneumatic systems
- types and layout of service/repair manuals (hard copy and electronic)
- techniques for interpretation of schematic diagrams relevant to pneumatic systems
- techniques for reading and interpreting engineering drawings
- pneumatic systems test procedures
- pneumatic systems assembly/installation procedures

REQUIRED SKILLS AND KNOWLEDGE
• enterprise quality procedures • work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques, appropriate to the circumstances • completing preparatory activity in a systematic manner • conducting assembly/installation of a range of pneumatic components in accordance with manufacturer/component supplier and workplace requirements • interpreting test results • completing work within workplace timeframes • vehicle/pneumatic system presentation to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the assembly and installation of pneumatic systems/components • equipment, hand and power tooling appropriate to the assembly and installation of pneumatic systems/ components • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package

EVIDENCE GUIDE	
	Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use

RANGE STATEMENT	
	of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges and load and pressure testing devices
Materials	Materials may include spare parts, lubricants, fluids and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault documenting and may include site specific

RANGE STATEMENT	
	instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the assembly and installation of pneumatic system/components • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURTTA3018 Carry out diagnostic procedures

Modification History

Release	Comment
Release 1	Replaces AURT366108A Carry out diagnostic procedures Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to diagnose component/equipment faults from different symptoms and to nominate repair action. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose faults	1.1. Information is accessed from appropriate sources 1.2. Differentiate between "symptoms" and "causes" 1.3. Identify fault diagnosis as a process 1.4. Familiarisation of system(s) from the area of the fault's origin
2. Apply technology to isolate fault(s)	2.1. Diagnosis strategy is developed that can be used to determine a fault within the component/equipment 2.2. Meters/gauges/measuring equipment is applied to isolate fault 2.3. Identification of fault(s) are made from test results 2.4. Findings are confirmed by an alternate route/plan 2.5. Faults are diagnosed without causing damage to workplace property, component or equipment 2.6. Inspections are carried out according to industry regulations/guidelines, WHS legislation, legislation and enterprise procedures/policies
3. Recommend rectification method(s)	3.1. Report of findings is completed in workplace approved format 3.2. Rectification strategy is identified 3.3. Consequences of ignoring strategy are identified 3.4. Any faults in conflict with roadworthiness or safe operation of component/equipment are immediately brought to the attention of the supervisor for action
4. Component/equipment is prepared for customer use	4.1. Work schedule documentation is completed 4.2. Final inspection is made to ensure safety features are in place 4.3. Final inspection is made to ensure work is to workplace expectations 4.4. Job card is completed and delivered to appropriate persons

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and solution are clearly evident and in situations requiring critical thinking and a creative approach to achieve an outcome
- use workplace technology related to the diagnosis of faults, including the use of specialist tooling and equipment, measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- diagnostic procedures and problem-solving techniques
- documenting procedures
- symptom and cause differentiation
- documenting responsibilities
- work organisation and planning processes
- enterprise quality procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • conducting diagnosis of a range of faults in accordance with workplace requirements to test and verify symptoms • interpret results • confirm diagnosis of fault(s) • diagnosis carried out to manufacturer/component supplier requirements • complete diagnosis within workplace timeframes • component/equipment presentation to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to diagnosis of faults • equipment, hand and power tooling appropriate to the diagnosis of faults • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package

EVIDENCE GUIDE	
	Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Diagnose problems	Diagnosis is a process of elimination, fault find and fault isolation
Diagnostic methods	Diagnostic methods are to include: • removal and replacement, dismantling,

RANGE STATEMENT	
	adjusting • visual and aural identification and testing • component/equipment performance comparison • on-and off-site, indoor and outdoor and on-and off-shore diagnosis
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities

RANGE STATEMENT	
	administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include computer software, computer hardware, specific tooling and equipment used for dismantling, testing and diagnosis, meters, gauges and measuring equipment
Materials	Materials may include minor spare parts and consumables and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the diagnosis of faults • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules, Environment Protection Regulations (Diesel Fuels) and National Environment Protection For Diesel Vehicle Guidelines • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURTTA3019 Carry out advanced diagnostic procedures

Modification History

Release	Comment
Release 1	Replaces AURT366308A Carry out advanced diagnostic procedures Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to determine the precise location of component faults within various vehicle systems using advanced diagnostic procedures and specialist diagnostic tooling and equipment. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, diagnosis and identification of cause(s) of faults, establishment of repair requirements and completion of work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for diagnostic procedures	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Technical and/or calibration requirements for testing and diagnosis are sourced and support equipment is identified and prepared
2. Analyse reported faults	2.1. Information is gathered to provide a full overview of faults and conditions under which they occur 2.2. Function and operation of the system when operating correctly are identified 2.3. Systematic faultfinding processes are used across systems to determine the extent of fault 2.4. Additional technical sources are consulted to assist with analysis 2.5. Actual faults are distinguished from perceived faults
3. Identify causes of faults	3.1. Selected diagnostic equipment is prepared for attachment or vehicle use according to manufacturer/component supplier instruction or enterprise standard operating procedures 3.2. Vehicle is correctly and safely attached to or on selected diagnostic equipment according to enterprise work practices or standard operating procedures 3.3. Calibration or pre-test adjustments are completed according to specific equipment operating procedures before diagnostic tests are carried out 3.4. Diagnostic tests are carried out according to enterprise test guidelines to determine location of specific component faults 3.5. Source/cause of faults isolated and confirmed
4. Establish repair requirements	4.1. Viability of repair or replacement is assessed 4.2. Repair procedures are identified and prescribed to meet customer service requirements 4.3. Repair requirements are clearly and legibly documented and/or communicated to appropriate persons 4.4. Repairs involving equipment/skills not held in the workshop are sourced from specialist workshops 4.5. Customer is informed of the diagnosis and repair

ELEMENT	PERFORMANCE CRITERIA
	requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and solution are clearly evident and in situations requiring critical thinking and a creative approach to achieve an outcome
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to advanced diagnostic procedures, including the use of measuring equipment, computerised technology and electronics, communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- correct function and operation of the complex automotive systems
- symptom and cause differentiation
- diagnostic procedures and problem-solving techniques
- test procedures and test instrument application
- documenting and documenting procedures
- repair procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • analysing faults in complex systems, identifying cause(s) of faults and establishing repair requirements within an established timeframe for at least three of the following systems: • mechanical • hydraulic • pneumatic • electrical/electronic
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to advanced diagnostic procedures • equipment, hand and power tooling appropriate to advanced diagnostic procedures • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy

EVIDENCE GUIDE	
	of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid,

RANGE STATEMENT	
	hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include multimeters, exhaust gas analysers, chassis dynamometers, shock absorber testers and electronic engine management testing equipment
Materials	Materials may include spare parts, consumables and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault documenting and may include site specific

RANGE STATEMENT	
	instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to advanced diagnostic procedures • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURTTA4021 Carry out diagnosis of complex system faults

Modification History

Release	Comment
Release 1	Replaces AURT466208A Carry out diagnosis of complex system faults Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to diagnose faults in systems integrating two or more automotive systems or incorporating three or more of mechanical, hydraulic, pneumatic, electrical or electronic media. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of the work requirement, preparation for work, diagnosis and identification of the causes of faults, establishment of the repair requirements and completion of work finalisation processes, including clean-up and documentation. The unit of competence should be contextualised to the qualification it is being applied. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for diagnostic procedure	1.1. Nature and scope of the work requirements are identified and confirmed. 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work. 1.3. Technical and/or calibration requirements for testing and diagnosis are sourced and support equipment is identified and prepared.
2. Analyse reported faults	2.1. Information is gathered from all sources to provide a full overview of all faults and conditions under which they occur. 2.2. Function and operation of the system when operating correctly are identified. 2.3. Systematic fault-finding processes are used across relevant systems to determine the extent of the fault. 2.4. Additional technical sources are consulted to assist with analysis, if necessary. 2.5. Actual faults are distinguished from perceived faults.
3. Identify causes of faults	3.1. Diagnostic equipment and tests are selected to facilitate precise identification of faults and causes. 3.2. Tests are applied systematically and efficiently to gather precise data on system operation. 3.3. Appropriate use is made of technical information to compare gathered data with specifications. 3.4. Test results and gathered data are compared to system specifications and normal functions, and discrepancies are identified. 3.5. Source/cause of fault is isolated and confirmed.
4. Establish repair requirements	4.1. Viability of repair or replacement is assessed. 4.2. Appropriate repair procedures are identified and prescribed to meet customer service requirements. 4.3. Repair requirements are clearly and legibly documented and/or communicated to appropriate persons. 4.4. Repairs involving equipment/skills not held in the workshop are sourced from specialist workshops. 4.5. Customer is informed of the diagnosis and repair requirements.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- the capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and desired solution are clearly evident and in situations requiring critical thinking and a creative approach to achieve an outcome
- use mathematical ideas and techniques to calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the diagnosis of complex system faults, including the use of measuring equipment, computerised technology and electronics, communication devices and reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- function and operation of the appropriate complex automotive systems
- symptom and cause differentiation
- diagnostic procedures and problem-solving techniques
- test procedures and test instrument application
- documenting and reporting procedures
- repair procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • analysing faults in complex systems, identifying the cause(s) of faults and establishing repair requirements within an established timeframe for faults incorporating at least three of the following single systems: mechanical, hydraulic, pneumatic and electrical/electronic.
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite. Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints. Assessment is to comply with regulatory requirements, including Australian Standards. The following resources should be made available: • workplace location or simulated workplace • materials relevant to the diagnosis of complex system faults • equipment, hand and power tooling appropriate to the diagnosis of complex system faults • activities covering the mandatory task requirements • specifications and work instructions.
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training

EVIDENCE GUIDE	
	Package. Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge. Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies. Assessment may be applied under project related conditions (real or simulated) and require evidence of process. Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. It is preferable assessment reflects a process rather than an event and occurs over a period of time to cover the varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other appropriate persons subject to agreed authentication arrangements. Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Complex systems	A complex system is defined as one which integrates two or more automotive systems, or

RANGE STATEMENT	
	incorporates three or more of mechanical, hydraulic, pneumatic, electrical or electronic media. Examples include hydraulically/ electronically controlled automatic transmissions, anti-lock braking systems, engine management systems integrating ignition, fuel and transmission control systems. Workplace example: • Customer reports intermittent shifting into top gear on an electronically controlled automatic transmission. The customer is asked a number of questions about the conditions in which the problem occurs (e.g. frequency of the problem, speed, road conditions). A road test is conducted, and the technician detects intermittent speedometer operation. After testing of electrical connections, components and sensors, the intermittent speedometer operation is confirmed to be the problem. Repair requirements are determined to be securing the connections on the speedometer wiring.
Diagnostic methods	Diagnostic methods are to include: • questioning of customer • road testing • hydraulic testing (e.g. performance testing of power steering systems) • electrical testing (e.g. performance testing of engine starting systems) • electronic testing (e.g. electronic interface diagnostic equipment) • mechanical testing (e.g. compression testing on engines) • chemical testing (e.g. testing of cooling systems) • technical/service manuals • component/equipment service history • body measurements
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment,

RANGE STATEMENT	
	use of tooling and equipment, workplace environment and safety, handling of materials, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include testing equipment, meters, CRO, code readers, gauges, measuring equipment, gas analysers and sensors
Materials	Materials may include cleaning materials.
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault

RANGE STATEMENT	
	reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to diagnosis of complex system faults • regulatory/legislative requirements pertaining to the automotive industry, including Australian design rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURTTA4026 Diagnose complex faults in vehicle electric-over-hydraulic systems

Modification History

Release	Comment
Release 1	New unit of competency

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose complex faults in vehicle electric over hydraulic systems in order to initiate action to service, repair, replace or improve performance. The unit involves evaluating system performance and identifying possible operational anomalies. Faults may be electrical, electronic or hydraulic by nature, requiring the application of complex diagnostic processes to resolve. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to and includes system fault and failure diagnosis of vehicle electric over hydraulic systems. Electric over hydraulic systems are characterised as those using solenoids to control hydraulic flow and they may include integrated computer controlled systems. Examples are garbage compactors, crane rams, steering control, excavator bucket control, steering rudder control. The unit relates to an automotive technologist, master technician or subject matter specialist. It encompasses and builds on trade level competencies.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify and confirm the work requirement	1.1. Workplace instructions and reports are used to determine the nature and objective of system diagnosis requirements 1.2. Specifications for correctly functioning electric over hydraulic systems are accessed and interpreted 1.3. ***Workplace health and safety (WHS) requirements***, including equipment and system isolation and personal protection needs, are observed and addressed throughout the work 1.4. Effects of systemic deficiencies or discrepancies or ***faults*** in vehicle electric over hydraulic systems are identified and confirmed from indirect or direct evidence 1.5. Possible safety impacts of the work are considered and responded to according to regulatory and workplace procedures
2. Prepare to perform diagnosis	2.1. Criteria for diagnosis are developed and adopted to meet the objective of the work 2.2. System performance achievements or discrepancies are identified from scrutiny of technical support information and available on-board diagnostic systems 2.3. Diagnostic methods, including complexity of diagnostic process, sequence, ***tests*** and testing process are identified and selected from the range of available options 2.4. Testing equipment is obtained and prepared for application according to manufacturer, component supplier and workplace requirements 2.5. Tools and materials required to support the diagnostic process are identified, selected and prepared for use
3. Apply complex diagnostic process	3.1. Selected ***diagnostic processes*** are followed according to specifications and workplace procedures 3.2. Testing is carried out according to workplace procedures and manufacturer and component supplier specifications 3.3. Findings are verified, if necessary, by using reliable alternate or optional processes 3.4. Conclusions are drawn from findings and documented according to workplace requirements 3.5. Information and detail related to the evaluation of diagnosis is provided to the appropriate person or customer to confirm further action to be taken

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with site supervisor, other workers and customers, reporting of work outcomes and completion of regulatory, commercial and vehicle information systems inputs
- numeracy skills to use mathematical ideas and techniques to complete measurements, calculate requirements, and present results of diagnosis
- planning and organising skills to conclude complex diagnostic processes which anticipate and allow for risks, cater for both direct and indirect evidence and avoid or minimise reworking and avoid wastage
- problem-solving skills to use available information to contribute to decision making strategies for solving complex problems as they relate to electric over hydraulic systems
- self-management skills to plan and organise activities, including the planning of analytical processes, preparation of the worksite and the obtaining of testing equipment and materials to avoid backtracking, workflow interruptions or wastage
- technical skills to use workplace tools relating to the complex diagnosis of electric over hydraulic systems, including the use of:
  - specialised tools and equipment
  - measuring equipment
- technology skills to use workplace technology related to systems diagnosis, information research and management systems.

Required knowledge

- concepts and principles of mechanical, hydraulic, electronic and pneumatic systems related to electric over hydraulic systems
- concepts, types, functions, operations and limitations of electric over hydraulic systems and components
- diagnostic theory, including concept, design and planning
- types, functions, operations and limitations of diagnostic testing equipment related to electric over hydraulic systems
- testing procedures for electric over hydraulic systems, including accessing and interpreting scan tool system data
- methods and processes for documenting and reporting diagnostic findings and recommendations.

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • interpret workplace instructions and locate and apply information • apply safety requirements, including the use of personal protective equipment • identify and select appropriate diagnosis processes to be performed • complete diagnosis of complex faults on a minimum of three different electric over hydraulic systems with real or simulated faults • document and report outcomes and required actions of diagnosis of complex faults in electric over hydraulic systems.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • vehicles systems with real or simulated electric over hydraulic system faults

EVIDENCE GUIDE	
	• tools and equipment appropriate for the diagnosis of complex faults in electric over hydraulic systems • technical reference information and workplace instructions.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

***Workplace health and safety (WHS) requirements*:**	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures
	• may include:
	  • protective clothing and equipment
	  • use of tools and equipment
	  • handling of material
	  • use of fire-fighting equipment
	  • first aid equipment
	• hazard control, including control of hazardous materials and toxic substances.

Faults may include:	• indirect faults caused by the influence of external systems (electrical and electronic) which may or may not be faulty in their primary operations • direct faults in input sensors, output actuators, wiring harness, computer systems, calibration or adjustment specifications • component specifications, component assembly, component damage and system modifications • indirect mechanical faults.
Tests may include:	• wiring and connector integrity • operation and specification of input and output devices • controlling electronic components and computers • data interpretation and readings related to direct indirect and intermittent causes • hydraulic systems testing • electrical systems testing • mechanical systems testing • road test.
Testing equipment may include:	• pressure gauges • charge stations • analogue and digital multimeters, lab oscilloscopes, scan tools, test lights and test LEDs.
Diagnostic processes may include:	• analysing manufacturer and component supplier specifications, schematics and operational procedures related to electric over hydraulic systems

RANGE STATEMENT	
	• six-step troubleshooting plan • discover-investigate-fix methodology.

Unit Sector(s)

Competency field	Mechanical Miscellaneous
Unit sector	Technical

Custom Content Section

Not applicable.

AURTTB2001 Inspect and service braking systems

Modification History

Release	Comment
Release 1	Replaces AURT210170A Inspect and service braking systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to inspect and service braking systems and/or associated components, including pneumatic over hydraulic, air, hand and parking brake systems in an automotive retail, service and/or repair context. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit of competency refers to braking systems associated with automotive retail, service and repair and should be contextualised to the level of qualification to which it is being applied: • light vehicle, heavy vehicle, motorcycle or trailer or outdoor power equipment. The unit includes identification and confirmation of work requirement, preparation for work, conduct of brake system wear analysis, servicing of braking systems and completion of work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment within the scope of this unit. This includes an understanding of the level of work to be performed.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. **Prepare to undertake braking system inspection**	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling required, are sourced 1.4. Methods appropriate to the circumstances are selected and prepared in accordance with standard operating procedures 1.5. Resources required for inspection of braking systems are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with braking systems are observed
2. **Conduct braking system wear analysis**	2.1. Braking system analysis is implemented in accordance with road safety legislation, workplace procedures and manufacturer/component supplier specifications 2.2. Brake wear measurement results are compared with manufacturer/component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is processed in accordance with workplace procedures
3. **Prepare to service braking system and/or associated components**	3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information required are identified and sourced 3.3. Resources required for servicing braking systems are identified and support equipment is identified and prepared
4. **Carry out servicing of braking systems and/or associated components**	4.1. Servicing is implemented in accordance with workplace procedures and manufacturer/component supplier specifications 4.2. Adjustments made during the servicing are in accordance with manufacturer/component supplier

ELEMENT	PERFORMANCE CRITERIA
	specifications
5. **Prepare equipment for use or storage**	5.1. Servicing schedule documentation is completed 5.2. Final inspection is made to ensure protective features are in place 5.3. Final inspection is made to ensure work is to workplace expectations 5.4. Equipment is cleaned for use or storage to workplace expectations 5.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the inspection and servicing of braking systems, including the use of servicing tooling and equipment, measuring equipment, computerised technology and communication devices and the reporting/ documenting of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- dangers of working with braking systems
- operating principles of braking systems, components and their relationship to each other
- types and layout of service/repair manuals (hard copy and electronic)
- analysis procedures
- servicing procedures

REQUIRED SKILLS AND KNOWLEDGE
• enterprise quality procedures • work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • conducting the inspection in accordance with workplace and manufacturer/component supplier requirements • accurately interpreting wear analysis results • completing service of braking systems in accordance with workplace and manufacturer/component supplier requirements • completing service of braking systems and associated components within workplace timeframes • equipment is presented to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the inspection and servicing of braking systems • equipment, hand and power tooling appropriate to the inspection and servicing of braking systems • activities covering mandatory task requirements • specifications and work instructions

EVIDENCE GUIDE	
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Braking systems	Types of braking systems may include: • hydraulic

RANGE STATEMENT	
	• mechanical • pneumatic
System components	System components may include: • disc pads • master cylinders • brake shoes • brake callipers • brake hoses • brake actuators • mechanical devices • valves
Methods	Methods are to include: • visual, aural and functional assessments (including damage, corrosion, fluid leaks, wear) • measurements of pedal travel, free-play, disc runout, disc thickness, drum wear and pad/lining thickness
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, hazardous substances, machinery movement and operation, manual lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency

RANGE STATEMENT	
	shutdown and stopping of equipment, operating safely in the event of fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, gauges (including dial, verniers and micrometers), bleeding and brake testing devices, dust extraction equipment and grease guns
Materials	Materials may include lubricants, fluids, minor spare parts and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the inspection and servicing of braking systems • regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules • engineer's design specifications and instructions

RANGE STATEMENT	
	• organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Brakes

AURTTB2004 Inspect and service air braking systems

Modification History

Release	Comment
Release 1	Replaces AURT211170A Inspect and service air braking systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out inspection and servicing of air braking systems and/or associated components. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, inspection, analysis and servicing of air braking systems and completion of work finalisation processes, including clean-up and documentation. Work involves vehicles fitted with air braking systems. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. **Prepare to undertake inspection of air braking systems**	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling required, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and/or calibration requirements for the inspection of air braking systems are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with air braking systems are observed
2. **Conduct inspection and analyse results**	2.1. Methods for the inspection are implemented in accordance with road safety legislation, workplace procedures and manufacturer/component supplier specifications 2.2. Inspection results are compared with manufacturer/ component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is processed in accordance with workplace procedures
3. **Prepare to service air braking systems**	3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information required are identified and sourced 3.3. Technical and tool requirements for servicing are identified and support equipment is identified and prepared
4. **Carry out servicing**	4.1. Methods for the servicing are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 4.2. Adjustments are made during the service
5. **Prepare equipment**	5.1. Service schedule documentation is completed

ELEMENT	PERFORMANCE CRITERIA
for use or storage	5.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 5.3. Final inspection is made to ensure work is to workplace expectations 5.4. Equipment is cleaned for use or storage to workplace expectations 5.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to servicing tooling and equipment, inspection, analysis and servicing of air braking systems, including the use of measuring equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- dangers of working with air brakes
- operating principles of air braking systems and components and their relationship to each other
- inspection procedures
- types and layout of service/repair manuals (hard copy and electronic)
- servicing procedures

REQUIRED SKILLS AND KNOWLEDGE
• enterprise quality procedures • work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • accurately interpreting inspection results • conducting the service in accordance with workplace and manufacturer/component supplier requirements • completing service of air braking systems and associated components within workplace timeframes • equipment is presented to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the inspection, analysis and servicing of air braking systems • equipment, hand and power tooling appropriate to the inspection, analysis and servicing of air braking systems • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy

EVIDENCE GUIDE	
	of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Components	Components to be serviced include: • compressors • receivers • drive belts • actuator mechanisms

RANGE STATEMENT	
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, gauges and brake testing devices

RANGE STATEMENT	
Materials	Materials may include fluids, minor parts, filters and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the inspection, analysis and servicing of air braking systems • regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Brakes

AURTTB3006 Inspect, service and repair auxiliary braking systems

Modification History

Release	Comment
Release 1	Replaces AURT310171A Inspect, service and repair auxiliary braking systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence to carry out inspection, service and repair of auxiliary braking systems, including engine and exhaust brakes and retarders. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, inspection, service and repair of auxiliary braking systems and completion of work finalisation processes, including clean-up and documentation. Work involved includes any vehicle fitted with a speed reducing/control device, such as: • engine brakes • exhaust brakes • retarders (hydraulic or electrical). Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to inspect auxiliary braking system	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and/or calibration requirements for inspection are sourced and support equipment is identified and prepared
2. Conduct inspection and analyse results	2.1. Methods for inspection are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Inspection results are compared with manufacturer/ component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is forwarded to persons for action in accordance with workplace procedures
3. Prepare to service and repair auxiliary braking system	3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information are identified and sourced 3.3. Technical and tool requirements for service and repair are identified and support equipment is identified and prepared
4. Service and repair of auxiliary braking system	4.1. Methods for service and repair are implemented in accordance with workplace procedures and manufacturer/ component supplier specifications 4.2. Service and repair adjustments made during the work are in accordance with manufacturer/component supplier specifications 4.3. Auxiliary brakes are tested for normal operation against manufacturer/component supplier specifications following the service and repair

ELEMENT	PERFORMANCE CRITERIA
5. Prepare auxiliary braking system for delivery to customer or storage	5.1. Work schedule documentation is completed 5.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 5.3. Final inspection is made to ensure work is to workplace expectations 5.4. Auxiliary brakes are cleared for service or stored to workplace expectations 5.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the inspection, service and repair of auxiliary braking systems, including the use of specialist tooling, measuring equipment, computerised technology and communication devices and the documenting/ recording of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- importance of the role of auxiliary brakes and the necessity of working within manufacturer/component supplier tolerances and adjustments
- operating principles of engine and exhaust brakes, hydraulic and electrical retarders and their component functions
- types and layout of service/repair manuals (hard copy and electronic)
- service procedures
- repair procedures
- enterprise quality procedures

REQUIRED SKILLS AND KNOWLEDGE
• work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • conducting inspection in accordance with workplace requirements • interpreting inspection findings • carrying out service and repair to manufacturer/ component supplier requirements on a minimum of two different systems • completing service and/or repair of auxiliary braking systems and associated components within workplace timeframes • auxiliary braking system presentation to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the inspection, service and repair of auxiliary braking systems • equipment, hand and power tooling appropriate to the

EVIDENCE GUIDE	
	inspection, service and repair of auxiliary braking systems • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating

RANGE STATEMENT	
conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice

RANGE STATEMENT	
Tooling and equipment	Tooling and equipment may include hand tooling, specialist tooling, meters, gauges and load testing devices
Materials	Materials may include spare parts and consumables, fluids and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to inspection, servicing and repair of auxiliary braking systems • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Brakes

AURTTC3003 Diagnose and repair cooling systems

Modification History

Release	Comment
Release 1	Replaces AURT202166B Repair cooling systems Performance Criteria, Range Statement and Critical Aspects of Evidence updated to reflect modern technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to diagnose and repair cooling systems fitted to vehicles. It involves diagnosing deviations from correct operation, repairing cooling system components and associated systems, and undertaking post-repair testing procedures. Licencing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work applies to the cooling systems of motorcycles, light vehicles, heavy commercial vehicles, and vehicles in the mining, construction, agricultural and marine environments.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose and repair a cooling system	1.1. ***Workplace instructions*** are used to determine ***job requirements*** 1.2. ***Workplace health and safety (WHS) requirements*** are observed and applied throughout the work 1.3. ***Procedures and information*** are sourced and interpreted 1.4. Diagnosis options are analysed and those most appropriate to the circumstances are selected 1.5. Appropriate diagnostic tools and equipment are selected and prepared
2. Diagnose a cooling system	2.1. ***Diagnostic tests*** are performed according to workplace procedures and without causing damage to components or systems 2.2. ***Faults*** are identified from diagnostic test results and causes of faults are determined 2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments
3. Repair a cooling system	3.1. ***Repair options*** are analysed and those most appropriate to the circumstances are selected 3.2. Appropriate tools, techniques and materials are selected and prepared 3.3. Repairs and component replacements and adjustments are carried out without causing damage to components or systems and according to workplace procedures and manufacturer and component supplier specifications 3.4. ***Post-repair testing*** is carried out according to workplace procedures and relevant legislation
4. Clean up work area and finalise work processes	4.1. Final inspection is made to ensure work is to workplace expectations and vehicle is presented ready for use 4.2. Tools and equipment are checked and stored according to workplace expectations 4.3. Workplace documentation is processed according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - clarify workplace instructions and determine job requirements
  - gain information from appropriate persons and assistance as required
- initiative and enterprise skills to adapt to new and emerging situations in the workplace
- learning skills to:
  - identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
  - participate in self-improvement activities
- literacy skills to:
  - understand quality procedures
  - read and follow information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
  - obtain and record measurements
  - document repairs and parts required
- numeracy skills to:
  - interpret gauges and measuring equipment
  - measure and calculate volumes and ratios
- planning and organising skills to:
  - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
  - identify risk factors and take action to minimise risk
- problem-solving skills to:
  - determine the underlying causes of faults
  - recognise a workplace problem or a potential problem and take action
  - refer problems outside area of responsibility to appropriate person and suggest possible causes
  - seek information and assistance as required to solve problems
- self-management skills to:
  - select and use appropriate equipment, materials, processes and procedures
  - recognise limitations and seek timely advice
- teamwork skills to apply knowledge of own role to complete activities efficiently to support team activities and tasks
- technical skills to use workplace tools relating to the repair of cooling systems, including the use of:
  - specialised tools and equipment

REQUIRED SKILLS AND KNOWLEDGE

• measuring equipment
• technology skills to:
  • operate diagnostic and test equipment
  • use technology to collect, analyse and provide information

Required knowledge

• WHS regulations, requirements, equipment and material, and personal safety requirements relating to diagnosing and repairing cooling systems
• dangers of working with cooling systems
• operating principles of cooling systems, including:
  • air cooled systems
  • liquid cooled systems
• application, purpose and operation of cooling systems
• testing procedures for cooling systems
• repair procedures for cooling systems
• post-repair testing procedures for cooling systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures and requirements • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • diagnose and repair a range of cooling systems relative to the qualification being sought • diagnose and repair cooling systems according to workplace, manufacturer and component supplier requirements • present vehicle in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • workplace location or simulated workplace • vehicles with cooling system faults relevant to the qualification being sought • equipment appropriate for the testing of cooling systems

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	• specifications and workplace instructions • tools appropriate for the repair, replacement and adjustment of cooling systems.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workplace instructions may include:	• computer-generated instructions • verbal instructions • written instructions.
Job requirements may include:	• cooling system diagnosis and repair methods, processes and equipment.

***Workplace health and safety (WHS) requirements*:**	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures
	• may include:
	  • protective clothing and equipment
	  • use of tools and equipment
	  • handling of material
	  • use of fire-fighting equipment
	  • first aid equipment
	• hazard control, including control of hazardous materials and toxic substances.

Procedures and information may include:	• verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins or memos • material safety data sheets (MSDS) • diagrams or sketches • safe work procedures relating to the diagnosis and repair of cooling systems • regulatory and legislative requirements relating to the automotive industry • Australian Design Rules • Engineer’s design specifications and instructions • organisational work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • vehicle service requirements and repair manuals.
Diagnostic tests may include:	• cooling system pressure test

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• isolation of fault(s) • component inspection and evaluation.
Faults may include:	• internal cooling system leaks • external cooling system leaks • cooling system mechanical, electrical or hydraulic component failure.

Repair options may include:	• component repair procedures, including
	  • removal, replacement and adjustment procedures
	  • dismantle, repair, re-assembly and adjustment procedures.

Post-repair testing may include:	• cooling system pressure test • cooling fan performance testing • interior heater performance testing.

Unit Sector(s)

Competency field	Mechanical Miscellaneous
Unit sector	Technical – Cooling Systems

Custom Content Section

Not applicable.

AURTTD2002 Inspect and service steering systems

Modification History

Release	Comment
Release 1	Replaces AURT215170A Inspect and service steering systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required carry out the inspection and servicing of wheeled and tracked type steering systems and associated components in an automotive retail, service and/or repair context. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit of competence refers to inspecting and servicing steering systems in an automotive retail, service and/or repair environment and should be contextualised to the level of the qualification to which it is being applied. The unit includes identification and confirmation of work requirement, preparation for work, inspection and servicing of wheeled and tracked type steering systems and associated components and completion of work finalisation processes, including clean-up and documentation. For bicycle steering service refer to unit AURBTD2001 Service bicycle steering systems. For marine steering service and repair refer to unit AURRTD3001 Diagnose and repair marine steering systems. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment within the scope of this unit. This includes an understanding of the level of work to be performed.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. **Prepare to undertake inspection and servicing of steering systems and related components**	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling required, are sourced 1.4. Methods appropriate to the circumstances are selected and prepared in accordance with standard operating procedures 1.5. Resources required for inspecting and servicing steering systems are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with wheeled and tracked vehicles are observed
2. **Conduct inspection and analyse results**	2.1. Inspection are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Results are compared with manufacturer/component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is forwarded to persons for action in accordance with workplace procedures
3. **Carry out servicing**	3.1. Servicing are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 3.2. Adjustments, including wheel bearing adjustments are made during the service are in accordance with manufacturer/component supplier specifications
4. **Prepare vehicle for customer and/or storage**	4.1. Service schedule documentation is completed 4.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 4.3. Final inspection is made to ensure work is to workplace expectations 4.4. Vehicle/equipment is cleaned for use or storage to workplace expectations 4.5. Job card is processed in accordance with workplace

ELEMENT	PERFORMANCE CRITERIA
	procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the inspection and servicing of steering systems and associated components, including the use of electronic measuring equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- dangers of working with wheeled and/or tracked vehicles
- operating principles of mechanical and hydraulic steering systems and their relationship to each other
- types and layout of service/repair manuals (hard copy and electronic)
- inspection procedures
- service procedures

REQUIRED SKILLS AND KNOWLEDGE
• enterprise quality procedures • work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • conducting service of a range of steering systems in accordance with the workplace and manufacturer/component supplier requirements • accurately interpreting inspection results • servicing of steering systems completed within workplace timeframes • vehicle is presented to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the inspection and servicing of steering systems and associated components • equipment, hand and power tooling appropriate to the inspection and servicing of steering systems and associated components • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines

EVIDENCE GUIDE	
	of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Steering systems	Steering systems may be in wheeled and tracked vehicles, light and heavy vehicles, motorcycles and outdoor power equipment

RANGE STATEMENT	
System components	System components for inspection may include wheel bearings, ball joints, rose joints, struts, idler arms, steering boxes and columns, electronic controlled systems, two and four wheel steer and full hydraulic steering, including articulated vehicles and tracked type systems
Methods	Methods are to include visual, aural and functional assessments, including damage, corrosion, wear and electrical
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, hazardous substances, electrical safety, machinery movement and operation, manual lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, operating safely in the event of fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and

RANGE STATEMENT	
	standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges, hydraulic testing equipment and devices
Materials	Materials may include lubricants and cleaning materials
Communications	Communications are to include but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the inspection and servicing of wheeled and tracked type steering systems and associated components • regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Steering and Suspension

AURTTD2004 Inspect and service suspension systems

Modification History

Release	Comment
Release 1	Replaces AURT216170A Inspect and service suspension systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out the service of suspension systems and associated components in an automotive retail, service and/or repair context. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, inspection, analysis and servicing of suspension systems and completion of work finalisation processes, including clean-up and documentation. This unit of competence refers to servicing suspension systems in an automotive retail, service and/or repair environment and should be contextualised to the level of the qualification to which it is being applied. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment within the scope of this unit. This includes an understanding of the level of work to be performed.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. **Prepare to inspect and service suspension systems and associated components**	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling required, are sourced 1.4. Methods appropriate to the circumstances are selected and prepared in accordance with standard operating procedures 1.5. Resources required for servicing suspension systems are sourced and support equipment and tooling are identified and prepared 1.6. Warnings in relation to working with wheeled and/or tracked equipment are observed
2. **Conduct inspection and analysis**	2.1. Inspection is implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Inspection results are compared with manufacturer/ component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is forwarded to persons for action in accordance with workplace procedures
3. **Carry out service**	3.1. Service are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 3.2. Adjustments made during the service are in accordance with manufacturer/component supplier specifications
4. **Prepare vehicle/ equipment for use or storage**	4.1. Service schedule documentation is completed 4.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 4.3. Final inspection is made to ensure work is to workplace expectations 4.4. Vehicle/equipment is cleaned for use or storage to workplace expectations 4.5. Job card is processed in accordance with workplace

ELEMENT	PERFORMANCE CRITERIA
	procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the inspection and service of suspension systems, including the use of measuring equipment, computerised technology, specialist tooling and testing devices communication devices, the reporting/documenting of results and diagnostic and specialised tooling and equipment

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- operating principles of suspension systems relevant to the qualification to which it is applied
- dangers of working with stored energy
- types and layout of service/repair manuals (hard copy and electronic)
- suspension system servicing procedures

REQUIRED SKILLS AND KNOWLEDGE
• suspension system testing procedures • enterprise quality procedures • work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • conducting the inspection and servicing a range of suspension systems in accordance with workplace and manufacturer/component supplier requirements • accurately interpreting test results • completing service of suspension system and associated components within workplace timeframes • vehicle/equipment is presented to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the inspection and servicing of suspension systems • equipment, hand and power tooling appropriate to the inspection and servicing of suspension systems • activities covering mandatory task requirements • specifications and work instructions

EVIDENCE GUIDE	
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Suspension systems	Suspension systems may be gas, hydraulic, pneumatic, mechanical and rubber suspension, and found on light and heavy vehicles, trailers, motorcycles and outdoor power equipment
Systems	Systems may include lateral and longitudinal arms, independent suspension, ball joints, rose joints, self levelling device, ride control, height control and tracked type systems
Methods	Methods are to include: • functional testing, pressure testing, measurement • visual, aural and functional assessments (including damage, corrosion, leakage, wear) • adjustment of shock absorbers
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, hazardous substances, machinery movement and operation, manual lifting and shifting, working in proximity to

RANGE STATEMENT	
	others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, operating safely in the event of fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, lifting equipment, safety stands and supporting equipment, measuring equipment, power tooling and testing equipment
Materials	Materials may include spare parts, lubricants and fluids and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the inspection and servicing of suspension systems • regulatory/legislative requirements pertaining

RANGE STATEMENT	
	to the automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Steering and Suspension

AURTTE2004 Inspect and service engines

Modification History

Release	Comment
Release 1	Replaces AURT201170A Inspect and service engines Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out the inspection and service of two and four stroke spark ignition and two and four stroke compression ignition engines. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, inspection and servicing of engines and completion of work finalisation processes, including clean-up and documentation. For service of outdoor power equipment engines and associated components see AURPTE2002 Service engines and associated engine components (outdoor power equipment). Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment within the scope of this unit. This includes an understanding of the level of work to be performed.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to undertake the inspection of engines	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling required, are sourced 1.4. Methods appropriate to the circumstances are selected and prepared in accordance with standard operating procedures 1.5. Resources required for inspection of engine systems are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with engine systems are observed
2. Conduct engine system inspections and analyse results	2.1. Engine systems inspections are implemented in accordance with workplace procedures and manufacturer/component supplier specifications for engine servicing 2.2. Engines are started and run up to operating temperature and inspected for leaks, abnormal noises and pressures 2.3. Analysis results are compared with manufacturer/ component supplier specifications to indicate compliance or non-compliance 2.4. Results are documented with evidence and supporting information and recommendation(s) are made 2.5. Report is processed in accordance with workplace procedures
3. Prepare to service engines	3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information required are identified and sourced 3.3. Resources required for servicing are identified and support equipment is identified and prepared
4. Carry out servicing	4.1. Service is implemented in accordance with workplace procedures and manufacturer/component

ELEMENT	PERFORMANCE CRITERIA
	supplier specifications 4.2. Adjustments made during the service are in accordance with manufacturer/component supplier specifications
5. Prepare vehicle for use or storage	5.1. Servicing schedule documentation is completed 5.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 5.3. Final inspection is made to ensure work is to workplace expectations 5.4. Vehicle is cleaned for use or storage to workplace expectations 5.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to inspection and servicing of engines, including the use of tooling, manual and computerised, measuring equipment, servicing tooling and equipment and communication devices and the reporting/ documenting of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- National Environmental Protection Measures for Diesel Vehicles as applicable to tasks
- dangers of working with engines
- operating principles of engines, lubrication, cooling and fuel systems and their relationship to each other
- types and layout of service/repair manuals (hard copy and electronic)

REQUIRED SKILLS AND KNOWLEDGE
• inspection procedures • service procedures • enterprise quality procedures • work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • accurately inspecting and documenting and interpreting analysis results • conducting inspection and servicing of a range of engines in accordance with workplace and manufacturer/component supplier requirements and specifications • completing the work within workplace timeframes • equipment is presented to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the inspection and servicing of engines • equipment, hand and power tooling appropriate to the inspection and servicing of engines • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines

EVIDENCE GUIDE	
	of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Inspection and servicing of engines	• Inspection and servicing of engines includes the assessment and adjustment/replacement of components in accordance with specifications including those associated with light vehicles, heavy vehicles, motorcycle and marine craft

RANGE STATEMENT	
	• It includes four stroke spark ignition, two stroke spark ignition and four stroke compression ignition
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, electrical safety, manual lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to operating safely in the event of fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges, load testing devices and oil sample analysis equipment

RANGE STATEMENT	
Materials	Material may include oils, lubricants and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to inspection and servicing of engines • regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • Instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Engines

AURTTE3001 Apply knowledge of engine science

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to apply knowledge of engine components and systems. No licensing, legislative, regulatory or certification requirements apply to this unit at time of endorsement.

Application of the Unit

Application of the unit	Work applies to everyday engine reconditioning activities and is carried out according to award provisions.

Licensing/Regulatory Information

Refer to Unit Descriptor.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Apply relevant information of engine construction and operation to work activities	1.1. ***Components*** of an engine are identified during reconditioning activities 1.2. Functions of engine components are identified during reconditioning activities 1.3. ***Relationships*** between engine components are identified during reconditioning activities 1.4. Engine configurations are identified during reconditioning activities
2. Apply relevant information of engine diagnosis to work activities	2.1. Using knowledge of engine diagnosis, causes of engine component wear or failure are identified during reconditioning activities

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- technical skills to use diagnostic equipment
- literacy skills to read and interpret written technical information
- learning skills to identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- numeracy skills to use mathematical ideas and techniques to calculate distances, areas, volumes, power and torque
- problem-solving skills to seek information and assistance as required to solve problems
- self-management skills to:
  - follow workplace documentation, such as codes of practice and operating procedures
  - select and use appropriate equipment, materials, processes and procedures

Required knowledge

- classifications of engines, including:
  - internal and external combustion
  - rotary and reciprocating engines
  - spark ignition and compression ignition engines
  - engine cylinder arrangements
- engine configurations, including:
  - inline engines, vee-type engines and slant cylinder engines
  - opposed cylinder engines
- camshaft and valve locations, including:
  - overhead cam (OHC)
  - overhead valve (OHV)
- engine operating principles, including:
  - combustion, including:
    - air-fuel ratios and flame propagation
    - direct and indirect fuel injection
    - detonation and pre-ignition
  - two-stroke and four-stroke cycles
- engine measurement and performance, including:
  - bore and stroke, including:
    - oversquare and undersquare engines
    - crank throw
  - swept volume and engine volume

- compression ratio
- engine efficiency, including volumetric efficiency, thermal efficiency and mechanical efficiency

- torque and horsepower, including brake horsepower
- construction and operation of petrol engines, including:
  - basic metallurgy relating to engines
  - identification of metric and imperial threads
  - engine components, including cylinder blocks, cylinders, pistons, cylinder heads, combustion chambers, inlet and exhaust manifolds, spark plugs, connecting rods, crankshafts, piston rings, gudgeon pins, camshafts, cams and flywheels
- combustion chambers, including:
  - L-head, bath-tub, wedge, trapezoidal, hemispherical and heron-type shapes
  - multiple valve designs
- construction and operation of diesel engines, including:
  - direct and indirect injection
  - swirl chambers
  - pre-combustion chambers
- engine diagnosis, including:
  - wet and dry compression tests
  - cylinder leakage tests
  - cylinder power balance tests
  - vacuum tests
  - oil pressure tests
  - sources of fluid leaks
  - exhaust smoke diagnosis
- engine noise diagnosis, including identifying:
  - common engine noises
  - common abnormal combustion noises

Evidence Guide

Evidence Guide	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to demonstrate knowledge of: • engine components • engine layouts • operating principles of a range of engine types • common diagnosis procedures.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Performance is demonstrated consistently over a period of time and in a suitable range of contexts. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources must be made available for the assessment of this unit: • appropriate worksite • a range of engine types and configurations.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of

Evidence Guide	
	workplace relevant contexts) together with application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure its correct interpretation and application. Assessment must confirm that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability. Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

Range Statement	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Components may include	• components of a rotary engine • components of a spark ignition or compression ignition engine.
Relationships may include	• where a component has an effect on another component, such as piston to connecting rod to crankshaft to flywheel.

Unit Sector(s)

Competency field	Mechanical Miscellaneous
Sector	Technical - Engines

Custom Content Section

Not applicable.

AURTTF2002 Service diesel fuel injection systems

Modification History

Release	Comment
Release 1	Replaces AURT203670B Service diesel fuel injection systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to service diesel fuel injection systems and components in an automotive retail, service and/or repair context. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit applies to individuals who undertake servicing of diesel fuel injection systems and completion of work finalisation processes, including clean-up and documentation.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to service diesel fuel system components	1.1. Determine job requirements, including method, processes and equipment 1.2. Read and interpret job specifications 1.3. Access and interpret information from manufacturer/component supplier specifications and workshop manuals 1.4. Identify and prepare equipment, resources and tooling and check for safe and effective operation 1.5. Determine procedures to minimise task time
2. Carry out service	2.1. Observe workplace health and safety (WHS) requirements, including individual state/territory regulatory requirements and warnings, in relation to working with diesel fuel injection systems throughout the work 2.2. Observe National Environmental Protection Measures for Diesel Vehicles (Guidelines) throughout the work, as applicable to tasks 2.3. Perform service in accordance with workplace procedures and manufacturer/component supplier specifications 2.4. Select and use appropriate tooling, techniques and materials 2.5. Make adjustments in accordance with manufacturer/component supplier specifications
3. Prepare equipment/ engine for use or storage	3.1. Complete servicing schedule documentation 3.2. Make final inspection to ensure work is to workplace expectations 3.3. Remove waste and scrap following workplace procedures 3.4. Clean equipment and work area in accordance with workplace procedures 3.5. Maintain and store tooling and equipment in accordance with workplace procedures 3.6. Process job card in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- technical skills to the level required to use workplace technology and tools related servicing diesel fuel injection systems, including the use of specialist tooling and equipment, measuring equipment, computerised technology and communication devices
- communication skills to the level required to confirm work requirements and specifications, to communicate effectively regarding work requirements with supervisor, other workers and customers, to apply common industry terminology, to report work outcomes and problems, and to relate to people from a range of social, cultural and ethnic backgrounds and of varying physical and mental abilities
- literacy skills to the level required to understand information related to work orders and to locate, interpret and apply manufacturer/component supplier technical information and specifications, workplace policies and safety procedures
- numeracy skills to the level required to correctly calculate time, complete tests and measurements to determine repair/replacement requirements, calculate material requirements and establish quality checks
- problem-solving skills to the level required to plan and organise activities and establish safe and effective work processes which anticipate and/or resolve problems and downtime, and to systematically develop solutions to avoid or minimise reworking and avoid wastage
- team skills to the level required to work effectively and cooperatively with others to optimise workflow and productivity
- organisational skills to the level required to plan and organise activities, including preparation and layout of worksite, and obtaining equipment and materials to avoid backtracking or workflow interruptions

Required knowledge

Required knowledge includes:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- National Environmental Protection Measures for Diesel Vehicles (Guidelines)
- dangers of working with diesel fuel injection systems
- identification of application, purpose and operating principles
- types and layout of service/repair manuals (hard copy and electronic)
- engine starting procedures
- bleeding procedures
- selection, checking and use of tooling and equipment

REQUIRED SKILLS AND KNOWLEDGE
• manufacturer and/or component supplier specifications • applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including WHS and environment, relevant to servicing diesel fuel injection systems • organisational policies and procedures, including quality requirements, reporting and recording procedures, and work organisation and planning processes, related to servicing diesel fuel injection systems

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • identify application, purpose and operating principles • conduct inspection, servicing and operational testing in accordance with workplace and manufacturer/component supplier specifications • complete service of diesel fuel system and associated components within workplace timeframes.

Context of, and specific resources for assessment	• The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
	• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
	• The following resources should be made available:
	  • a range of diesel fuel injection and components relevant to the application
	  • materials relevant to servicing diesel fuel injection systems
	  • equipment, hand and power tooling appropriate to servicing diesel fuel injection systems
	  • specifications and work instructions.

EVIDENCE GUIDE	
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Servicing	Servicing is to include: • fluids • filters • adjustments and operational testing • visual inspections and documents • injector (pop) testing

RANGE STATEMENT	
	• spill timing
Tooling and equipment	Tooling and equipment may include: • hand tooling • gauges • calibration and pressure testing equipment
Materials	Materials may include: • lubricants • spare parts • cleaning materials
Information/documents	Information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets (MSDS), diagrams or sketches • safe work procedures related to servicing diesel fuel injection systems • regulatory/legislative requirements pertaining to servicing diesel fuel injection systems • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian standards
WHS requirements	WHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing • safety equipment • first aid equipment • hazard and risk control • electrical safety • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures

RANGE STATEMENT	
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • Environment Protection Regulations (Diesel Fuels) • National Environment Protection Measures for Diesel Vehicles (Guidelines) • confidentiality and privacy • WHS • the environment • equal opportunity • anti-discrimination • relevant industry codes of practice • duty of care
Environmental requirements	Environmental requirements may include: • waste management • pollution • noise • dust • clean-up management
Quality requirements	Quality requirements may include: • regulations, including Australian standards • internal organisational quality policies and procedures • enterprise operations and procedures
Organisational policies and procedures	Organisational policies and procedures may include: • quality policies and procedures, including Australian standards • WHS, sustainability, environment, equal opportunity and anti-discrimination • manufacturer specifications and industry codes of practice • safe work procedures

RANGE STATEMENT	
	• reporting and recording procedures

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Fuel Systems

AURTTF3004 Repair diesel fuel injection systems

Modification History

Release	Comment
Release 1	Replaces AURT303666A Repair diesel fuel systems Unit code updated to meet policy requirements Minor changes to unit title Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out repairs, including removal and replacement of diesel fuel systems. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, removal, inspection and testing of diesel fuel components, repair and replacement of diesel fuel system components and completion of work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to repair diesel fuel system components	1.1. Nature and scope of work requirements are identified and confirmed 1.2. Underpinning principles of diesel fuel system operations, including air fuel ratios and atomisation are explained and observed 1.3. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.4. National Environmental Protection Measure for Diesel Vehicles (Guidelines) is sourced and observed throughout the work as applicable to tasks 1.5. Procedures and information such as workshop manuals and specifications, and tooling, are sourced 1.6. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.7. Technical and/or calibration requirements for repair of diesel fuel systems are sourced and support equipment is identified and prepared 1.8. Warnings in relation to working with diesel fuel systems are observed
2. Test fuel systems and analyse results	2.1. Methods for conducting tests are implemented in accordance with workplace procedures and manufacturer/ component supplier specifications 2.2. Component test results are compared with manufacturer/ component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is forwarded to persons for action in accordance with workplace procedures
3. Repair fuel system	3.1. Methods for repair are implemented in accordance with workplace procedures and manufacturer/component supplier specifications 3.2. Diesel fuel system adjustments made during the engine operation are in accordance with manufacturer/component supplier specifications
4. Prepare vehicle/ equipment for use or storage	4.1. Repair schedule documentation is completed 4.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place

ELEMENT	PERFORMANCE CRITERIA
	4.3. Final inspection is made to ensure work is to workplace expectations 4.4. Vehicle/equipment is cleaned for use or storage to workplace expectations 4.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the repair of diesel fuel systems, including the use of measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- organisation and planning processes
- the identification of application, purpose and operation
- the identification of component parts to include physical, fluid, gases and heat generation
- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • identification of application, purpose and operation • application of full repair sequence as per the Range Statement to a diesel fuel system relative to the qualification being sought • conducting repair on a range of diesel fuel systems in accordance with workplace and manufacturer/ component supplier requirements • interpreting analysis and test results • completing repair of diesel fuel system and associated components within workplace timeframes
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the repair of diesel fuel systems • equipment, hand and power tooling appropriate to the repair of diesel fuel systems • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines

EVIDENCE GUIDE	
	of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Repair methods and sequence	Repair methods and sequence are to include isolation of fault(s), dismantling, inspection and evaluation, replacement of components parts, assembly and completion of operational tests and

RANGE STATEMENT	
	records
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges, load testing devices, calibration

RANGE STATEMENT	
	and pressure testing equipment
Materials	Materials may include diesel fuels, spare parts and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the repair of diesel fuel systems • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules, Environment Protection Regulations (Diesel Fuels), National Environment Protection For Diesel Vehicle Guidelines • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Fuel Systems

AURTTF3005 Inspect and repair engine forced induction systems

Modification History

Release	Comment
Release 1	Replaces AURT305671A Inspect and repair engine forced induction systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to inspect, repair or replace engine turbocharger or supercharging forced induction systems. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, inspection of systems and analysis of results, repair and replacement of systems and components and completion of work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to inspect engine forced induction system	1.1. Nature and scope of work requirements are identified and confirmed 1.2. Effects of vehicle emission on the environment are explained and understood 1.3. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.4. Procedures and information such as workshop manuals and specifications, and tooling, are sourced 1.5. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.6. Technical and/or calibration requirements for inspection of forced induction systems are sourced and support equipment is identified and prepared 1.7. Warnings in relation to working with forced induction systems are observed
2. Conduct inspections and analyse results	2.1. Methods for inspections are implemented in accordance with workplace procedures and manufacturer/ component supplier specifications 2.2. Results are compared with manufacturer/component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is processed in accordance with workplace procedures
3. Prepare to repair/replace engine forced induction systems	3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information are identified and sourced 3.3. Technical and tool requirements for repair and replacement are identified and support equipment is identified and prepared
4. Carry out repair/ replacement of forced induction systems	4.1. Methods for repair/replacement are implemented in accordance with workplace procedures and manufacturer/ component supplier specifications 4.2. Adjustments made during repair/replacement are in accordance with manufacturer/component supplier

ELEMENT	PERFORMANCE CRITERIA
	specifications
5. Prepare vehicle/engine for use or storage	5.1. Documentation is completed 5.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 5.3. Final inspection is made to ensure work is to workplace expectations 5.4. Vehicle/engine is cleaned for use or storage to workplace expectations 5.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and desired solution are clearly evident and in situations requiring critical thinking and a creative approach to achieve an outcome
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to inspection, repair/ replacement of engine forced inductions systems, including the use of specialist tooling and equipment, measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- dangers of working with forced induction systems
- operating principles of forced induction systems and components and their relationship to each other
- types and layout of service/repair manuals (hard copy and electronic)
- replacement procedures
- repair procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • interpreting of test results • conducting inspection, repair and replacement of a range of engine forced induction systems and associated components in accordance with workplace and manufacturer/component supplier requirements • completing work within workplace timeframes • vehicle/engine presentation to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the inspection, repair/replacement of engine forced induction systems • equipment, hand and power tooling appropriate to the inspection, repair and replacement of engine forced induction systems • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines

EVIDENCE GUIDE	
	of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment,

RANGE STATEMENT	
	use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges and load testing devices
Materials	Materials may include spare parts, lubricants and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault

RANGE STATEMENT	
	documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to inspection, repair/ replacement of engine forced induction systems • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Fuel Systems

AURTTK2001 Use and maintain measuring equipment in an automotive workplace

Modification History

Release	Comment
Release 1	Replaces AURT225667A Use and maintain measuring equipment Performance Criteria, Range Statement and Critical Aspects of Evidence updated to reflect technologies

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes required to use and maintain measuring equipment of a non-specialist nature. The unit involves identifying and confirming work requirements, preparing for work, conducting measurements, analysing and documenting outcomes, maintaining equipment, and completing work finalisation processes, including clean-up and documentation. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	Work applies to general automotive retail, service and repair environments of a non-specialist nature. Equipment is used to measure length, width, squareness, flatness, angles, roundness, depth, clearances, run out, pressure, temperature or any measurement that can be taken from analogue or digital devices using imperial and metric measurement. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment within the scope of this unit. This includes an understanding of the level of work to be performed. This unit should not be selected if the measuring equipment to be used is dedicated to electrical measurements, such as voltage, resistance or current flow.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to undertake measurements	1.1. Nature and scope of work requirements are identified and confirmed 1.2. ***Workplace health and safety (WHS) requirements*** and appropriate precautions are identified and applied 1.3. Procedures and instructions, including workshop manuals and specifications, are sourced and used to determine job requirements 1.4. Measuring methods appropriate to the circumstances are selected and prepared according to ***workplace procedures*** 1.5. ***Measuring equipment*** is sourced and prepared 1.6. Warnings relating to working with precision tools and equipment are observed
2. Conduct measurements and analyse results	2.1. Measurement is conducted according to workplace procedures and equipment manufacturer specifications 2.2. Measurement results are compared with manufacturer specifications to indicate compliance or non-compliance 2.3. Measurements are documented and recommendations made 2.4. Reports are processed according to workplace procedures
3. Maintain measuring equipment	3.1. Information required for equipment maintenance is accessed from manufacturer specifications and interpreted 3.2. Measuring equipment is checked against manufacturer recommendations and recommended ***maintenance methods*** are confirmed to ensure safe and accurate operating condition 3.3. Measuring equipment is maintained and stored according to manufacturer specifications 3.4. Equipment checks are completed without causing damage to component or system 3.5. ***Workplace documents*** are completed according to workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to identify and analyse technical information
- communication skills to:
  - follow verbal and written instructions
  - communicate information relating to the correct and safe use of equipment
- literacy skills to:
  - read and follow original equipment manufacturer (OEM) maintenance information and measuring equipment use
  - read and follow information on operating procedures and OEM repair guidelines
- numeracy skills to read and interpret metric and non-metric systems of measurement
- planning and organising skills to:
  - identify and minimise risk to operator and others
  - contribute to activities that implement and follow workplace procedures
- problem-solving skills to:
  - recognise a workplace problem or a potential problem
  - refer problems outside area of responsibility to appropriate person
- self-management skills to:
  - locate and identify appropriate measuring equipment
  - recognise limitations and seek timely advice
  - follow basic workplace documentation, such as operating procedures
- technical skills to:
  - select measuring equipment appropriate to the task
  - use measuring equipment safely
  - maintain measuring equipment using appropriate techniques
  - calibrate or adjust measuring equipment
  - identify defects in measuring equipment and mark for repair
  - store measuring equipment according to manufacturer and workplace procedures
- technology skills to:
  - use manual, electronic and digital measuring equipment
  - use workplace technology to assist with work practices

Required knowledge

- WHS regulations, requirements, equipment and material, including personal safety requirements
- common automotive measurement terminology

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

- types of non-specialist measuring equipment and their applications
- measurement procedures
- measuring equipment maintenance procedures
- work organisation and planning processes relating to using measuring equipment

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge. A person who demonstrates competency in this unit must be able to: • observe safety procedures • communicate effectively with others involved in or affected by the work • select approved measurement methods and techniques • measure dimensions or variables using a range of measuring equipment • accurately interpret measurements • maintain measuring equipment.
Context of, and specific resources for assessment	Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting. Assessment is to occur: • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. Assessment is to comply with relevant: • regulatory requirements • Australian standards • industry codes of practice. The following resources should be made available: • material relevant to the use and maintenance of measuring equipment • equipment and tools appropriate to the use and maintenance of measuring equipment • specifications and work instructions.
Method of assessment	Assessment must satisfy the endorsed Assessment Guidelines of

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
	this Training Package. Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge. Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application. Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients. Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	

***Workplace health and safety (WHS) requirements*:**	• are those prescribed under legislation, regulations, codes of practice, and workplace policies and procedures
	• may include:
	  • protective clothing and equipment
	  • use of tools and equipment
	  • handling of material
	  • use of fire-fighting equipment
	  • first aid equipment
	• hazard control, including control of hazardous materials and toxic substances.

Workplace procedures may include:	• conducting operational risk assessments and treatments associated with vehicle movement • site-specific instructions • safe work procedures relating to the use and maintenance of measuring equipment • workplace policies and practices • instructions issued by authorised workplace or external persons • written and graphical instructions • signage • work schedules, plans and specifications • work bulletins or memos • diagrams or sketches • vehicle workshop manuals and information.
Measuring equipment may include:	• internal and external micrometres • Vernier calipers • dial gauges • depth gauges • steel rulers • tape measures • squares • straight edges • dividers • protractors

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
	• feeler gauges • thermometers • pressure gauges.
Maintenance methods may include:	• routine maintenance to tools and equipment as per schedules • calibrating or adjusting measuring equipment • minor repairs to tools and equipment • documenting or tagging equipment as faulty or out-of-service.
Workplace documents may include:	• fault or defect reporting documents • out-of-service reports • job or organisation work specifications and requirements.

Unit Sector(s)

Competency field	Mechanical Miscellaneous
Unit sector	Technical – Tools and Equipment

Custom Content Section

Not applicable.

AURTTK2002 Use and maintain workplace tools and equipment

Modification History

Release	Comment
Release 1	Replaces AURT270278A Use and maintain workplace tools and equipment Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to select, safely use and maintain workplace tooling and equipment. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, selection, use, servicing, maintenance and storage of tooling and equipment and completion of work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. **Select correct tooling and equipment for workplace application**	1.1. Tooling and equipment are selected to meet job requirements 1.2. Suitable tooling and equipment are selected for use within the workplace environment 1.3. Tooling and equipment are selected according to enterprise procedures/policies
2. **Use of tooling and equipment**	2.1. Tooling and equipment are used in a safe manner to prevent injury to self and others 2.2. Tooling and equipment are used in a manner that does not cause damage to other workplace equipment 2.3. Observations are noted during the use of tooling/ equipment
3. **Service and maintain workplace tooling and equipment**	3.1. Tooling and equipment are regularly checked against manufacturer/component supplier recommendations to ensure safe operating condition 3.2. Damaged/worn tooling and equipment are tagged and removed from the workplace for repair or replacement and reported in accordance with enterprise requirements 3.3. Tooling/equipment are serviced, adjusted and/or maintained as per manufacturer/component supplier schedule to ensure safe and correct operation, within the scope of responsibility 3.4. Servicing and maintenance operations are carried out according to industry regulations/guidelines, WHS legislation, legislation and enterprise procedures/policies
4. **Store and secure tooling and equipment**	4.1. Tooling and equipment are cleaned, checked and stored 4.2. Tooling and equipment are securely stored 4.3. Documents are completed according to enterprise policies and procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.

REQUIRED SKILLS AND KNOWLEDGE

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the use and maintenance of workplace tooling and equipment, including the use of measuring equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- tool and equipment selection procedures
- basic maintenance procedures for tooling and equipment
- tool and equipment safety and operating procedures
- types, characteristics, uses and limitations of hand tooling
- types, characteristics, uses and limitations of power tooling
- types, characteristics, uses and limitations of workplace equipment
- work organisation and planning processes
- enterprise quality processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • selection and safe use of hand tooling • selection and safe use of workplace equipment • basic maintenance of tooling and equipment within the scope of operator responsibility • selection and safe use of personal protective equipment
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the use and maintenance of workplace tooling and equipment • equipment, hand and power tooling appropriate to the use and maintenance of workplace tooling and equipment • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process

EVIDENCE GUIDE	
	Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Tooling and equipment	Tooling and equipment may include computer hardware/ software, calculators, general office equipment, hand and power tooling, specialist tooling for removal/adjustment, storage racks, protective covers, measuring devices, plastics repair equipment, sealing equipment, adhesive equipment, heating equipment, templates, welding equipment, including oxy, arc, MIG and TIG, vehicle cleaning equipment, service workshop manuals, product manuals, hydraulic breaker tooling, line oilers, filters and gauges, alternator and starting motor bench testers, paint mixers, key cutters, multimeters, load testers, brake and drum lathes, fuel injector cleaners, ignition module test instruments

RANGE STATEMENT	
Maintenance methods	Maintenance methods may include routine maintenance to tooling and equipment as per schedules, labelling faulty tooling and equipment, minor repairs to tooling and equipment, and the chocking, jacking and supporting of machines on level and incline planes
Specific requirements	Specific requirements may include hydraulic jacks, air bags and overhead cranes for lifting heavy machines
Warehouse equipment	Warehouse equipment includes auto picker, bag palletiser, barcode printer and scanner, belt conveyors, bolt cutter, cages, carton sealer, computers, forklifts, battery chargers, pallets, picking trolleys, sprinkler system, strapping machine, fire extinguishers, first aid box, safety signs, security alarm, safety harness, carton crushers, disposal bins, seals and ties, shrink wrap
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting,

RANGE STATEMENT	
	working in proximity to others and site visitors
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the use and maintenance of workplace tooling and equipment • regulatory/legislative requirements pertaining to the automotive industry • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Co-requisite units		

Competency field

Competency field	Technical - Tools and Equipment

AURTTQ2001 Service final drive assemblies

Modification History

Release	Comment
Release 1	Replaces AURT212670A Service final drive assemblies Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out testing and servicing of final drive assemblies and associated components in an automotive retail, service and/or repair context. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, testing and analysis of results, servicing of final drive assemblies and completion of work finalisation processes, including clean-up and documentation. This unit of competence refers to work associated with servicing final drive assemblies on light and heavy vehicles, outdoor power equipment and motorcycles. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment within the scope of this unit. This includes an understanding of the level of work to be performed.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. **Prepare to undertake tests of final drive assemblies and associated components**	1.1. Nature and scope of work requirements are identified and confirmed 1.2. Operating principles of gear assembles are explained and understood 1.3. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.4. Procedures and information such as workshop manuals and specifications, and tooling required, are sourced 1.5. Methods appropriate to the circumstances are selected and prepared in accordance with standard operating procedures 1.6. Resources required for the testing of final drive assemblies and associated components are sourced and support equipment is identified and prepared 1.7. Warnings in relation to working with final drive assemblies and associated components are observed
2. **Test final drive assemblies and analyse results**	2.1. System tests are implemented in accordance with workplace procedures and manufacturer/ component supplier specifications 2.2. Inspection results are compared with manufacturer/ component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is processed in accordance with workplace procedures
3. **Prepare to service final drive assemblies and associated components**	3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information required are identified and sourced 3.3. Resources required for servicing final drive assemblies are identified and support equipment is identified and prepared
4. **Carry out service**	4.1. Service is implemented in accordance with workplace procedures and manufacturer/component supplier specifications 4.2. Adjustments made during the service are in

ELEMENT	PERFORMANCE CRITERIA
	accordance with manufacturer/component supplier specifications
5. **Prepare vehicle/ equipment for use or storage**	5.1. Service schedule documentation is completed 5.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 5.3. Final inspection is made to ensure work is to workplace expectations 5.4. Vehicle/equipment is cleaned for use or storage to workplace expectations 5.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for the identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the inspection and servicing of final drive assemblies, including the use of measuring equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- operating principles of final drive assemblies
- identification of application, purpose and operating principles
- inspection procedures
- final drive assembly service procedures
- final drive assembly enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • accurately interpreting test results • conducting the service in accordance with workplace and manufacturer/component supplier requirements • identification of application, purpose and operating principles • conducting inspection, servicing and operational testing in accordance with workplace and manufacturer/ component supplier specifications • equipment is presented to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the inspection and servicing of final drive assemblies • equipment, hand and power tooling appropriate to the inspection and servicing of final drive assemblies • activities covering mandatory task requirements • specifications and work instructions

EVIDENCE GUIDE	
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Servicing	Servicing to include fluids, filters, adjustments and operational testing, visual inspections and documents

RANGE STATEMENT	
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, hazardous substances manual lifting and shifting, machinery movement and operation, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, operating safely in the event of fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges and load testing devices

RANGE STATEMENT	
Materials	Materials may include lubricants, minor parts and cleaning materials
Communications	Communications are to include but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the inspection and servicing of final drive assemblies • regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Driveline and Final Drives

AURTTX2002 Inspect and service transmissions (manual)

Modification History

Release	Comment
Release 1	Replaces AURT206670A Inspect and service transmissions (manual) Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to inspect and service manual transmissions in an automotive retail, service and/or repair context. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit of competency applies to the following and should be contextualised to the qualification to which it is being applied: • light vehicle, heavy vehicle, outdoor power equipment, mobile plant. The unit includes identification and confirmation of work requirement, preparation for work, inspection, analysis and servicing of manual transmissions and completion of work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment within the scope of this unit. This includes an understanding of the level of work to be performed.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. **Prepare to undertake the inspection of manual transmissions**	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling required, are sourced 1.4. Methods appropriate to the circumstances are selected and prepared in accordance with standard operating procedures 1.5. Resources required for inspection of manual transmissions are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with manual transmissions are observed
2. **Conduct inspection and analyse results**	2.1. Inspection is implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Inspection results are compared with manufacturer/component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is processed in accordance with workplace procedures
3. **Prepare to service manual transmissions**	3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information required are identified and sourced 3.3. Resources required for servicing manual transmissions are identified and support equipment is identified and prepared
4. **Carry out service**	4.1. Service is implemented in accordance with workplace procedures and manufacturer/component supplier specifications 4.2. Adjustments made during the service are in accordance with manufacturer/component supplier specifications

ELEMENT	PERFORMANCE CRITERIA
5. **Prepare equipment for use or storage**	5.1. Service schedule documentation is completed 5.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 5.3. Final inspection is made to ensure work is to workplace expectations 5.4. Equipment is prepared for use or stored to workplace expectations 5.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the inspection and servicing of manual transmissions, including the use of diagnostic and servicing tooling and equipment, measuring equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- dangers of working with manual transmissions
- identification of application, purpose and operating principles
- types and layout of service/repair manuals (hard copy and electronic)
- inspection procedures
- service procedures
- enterprise quality procedures

REQUIRED SKILLS AND KNOWLEDGE
• work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques, appropriate to the circumstances • completing preparatory activity in a systematic manner • identification of application, purpose and operating principles • conducting inspection, servicing and operational testing in accordance with workplace and manufacturer/component supplier specifications • completing service of manual transmissions and associated components within workplace timeframes • equipment is presented to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the inspection and servicing of manual transmissions • equipment, hand and power tooling appropriate to the inspection and servicing of manual transmissions • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines

EVIDENCE GUIDE	
	of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Inspection methods	Inspection methods include visual, aural and functional assessment (including: fluid leakage, selection)
Specific requirements	Specific requirements may include: • manual transmissions, front and/or rear wheel drive configurations • belt drive transmissions
Variables	Other variables may include: • power take off assemblies, • multiple forward and reverse gears, • synchronised and non-synchronised gear selection, • metal and non-metal gears • electrical/pneumatic controls • transverse/longitudinal mounting • helical, double helical and spur gears • transaxle, overdrive, transfer case and belt drive speed control
Servicing	Servicing to include fluids, filters, adjustments and operational testing, visual inspections and documents
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that

RANGE STATEMENT	
	prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, hazardous substances, electrical safety, machinery movement, manual lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, operating safely in the event of fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges and load testing devices
Materials	Materials may include lubricants, spare parts and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include:

RANGE STATEMENT	
	• verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the inspection, analysis and servicing of manual transmissions • regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Transmission

AURTTX2003 Inspect and service transmissions (automatic)

Modification History

Release	Comment
Release 1	Replaces AURT207170A Inspect and service transmissions (automatic) Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out the inspection and service of semi-automatic, automatic transmissions and associated components, including torque converters in an automotive retail, service and/or repair context. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work involved includes semi-automatic, automatic transmissions in light and heavy vehicles, outdoor power equipment and marine craft. The unit includes identification and confirmation of work requirement, preparation for work, inspection, analysis, servicing and testing of automatic transmissions and completion of work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment within the scope of this unit. This includes an understanding of the level of work to be performed.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. **Prepare to inspect semi-automatic, automatic transmission**	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling required, are sourced 1.4. Methods appropriate to the circumstances are selected and prepared in accordance with standard operating procedures 1.5. Resources required for the inspection of transmissions are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with transmissions are observed
2. **Conduct inspection and analyse results**	2.1. Inspection is implemented in accordance with workplace procedures and manufacturer/ component supplier specifications 2.2. Inspection results are compared with manufacturer/ component supplier specifications to indicate compliance or non-compliance 2.3. Results are documented with evidence and supporting information and recommendation(s) made 2.4. Report is processed in accordance with workplace procedures
3. **Prepare to service transmission**	3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 3.2. Procedures and information required are identified and sourced 3.3. Resources required for servicing transmissions are identified and support equipment is identified and prepared
4. **Carry out service to transmission**	4.1. Service is implemented in accordance with workplace procedures and manufacturer/component supplier specifications 4.2. Adjustments made during the service are in accordance with manufacturer/component supplier specifications

ELEMENT	PERFORMANCE CRITERIA
5. **Prepare equipment for use or storage**	5.1. Service schedule documentation is completed 5.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place 5.3. Final inspection is made to ensure work is to workplace expectations 5.4. Equipment is cleaned stored to workplace expectations 5.5. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the inspection and servicing of automatic transmissions, including the use of diagnostic and servicing tooling and equipment, measuring equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- dangers of working with transmissions
- fluid dynamics
- drive flow paths
- gear selection mechanisms
- three laws of compound planetary gear sets
- five laws of simple planetary gear sets

REQUIRED SKILLS AND KNOWLEDGE
• superior driving member rule Identification of application, purpose and operating principles Identification of component parts to include: • physical fluids • gases • heat generated

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques, appropriate to the circumstances • identify application, purpose and operating principles • conducting the inspection and servicing of a range of transmission types in accordance with workplace and manufacturer/component supplier requirements • completing service of transmissions and associated components within workplace timeframes • equipment is presented to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the inspection and servicing of automatic transmissions • equipment, hand and power tooling appropriate to the inspection and servicing of automatic transmissions • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy

EVIDENCE GUIDE	
	of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Transmissions	Transmissions may be automatic, semi-automatic and power shift transmissions, front and/or rear wheel drive configurations and include power take-off assemblies, pre-selective transmissions and electronically controlled transmissions
Methods	Methods are to include: • operational testing • visual, aural and functional assessment (including: fluid leakage, selection)
WHS	WHS requirements are to be in accordance with legislation/ regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, hazardous substances, electrical safety, machinery movement and operation, manual lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, operating safely in the event of fires, enterprise first aid

RANGE STATEMENT	
	requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges and load testing devices
Materials	Materials may include lubricants, minor spare parts and cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the inspection and servicing of automatic transmissions • regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or

RANGE STATEMENT	
	external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Transmission

AURTTZ2002 Repair exhaust system components

Modification History

Release	Comment
Release 1	Replaces AURT205166A Repair exhaust system components Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to repair and replace exhaust system/components. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit of competence applies to light vehicles and/or heavy vehicles and/or motorcycles and/or plant and equipment. The unit includes identification and confirmation of work requirement, preparation for work, removal, repair and replacement of faulty exhaust/components and work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. **Prepare to undertake repairs to exhaust system/components**	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling required, are sourced 1.4. National Environment Protection Measure for Diesel Vehicles (Guidelines) is sourced and observed throughout the work (applicable to heavy vehicle diesel engine exhaust systems) 1.5. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.6. Technical requirements for repairs are sourced and support equipment is identified and prepared
2. **Remove**, **repair and replace faulty exhaust system/components**	2.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 2.2. Repairs and/or replacements to faulty exhaust system/components are carried out in accordance with manufacturer/component supplier specifications 2.3. Faulty exhaust system/component repair is completed without causing damage to any component or system 2.4. Removal/replacement operations are completed within established industry guidelines 2.5. Exhaust system/component removal/replacement activities are carried out according to industry regulations/ guidelines, WHS legislation, legislation and enterprise procedures/policies
3. **Prepare vehicle/ equipment for use or storage**	3.1. Repair schedule documentation is completed 3.2. Final inspection is made to ensure protective guards and safety features are in place 3.3. Final inspection is made to ensure work is to workplace expectations 3.4. Job card is processed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the removal, repair and replacement of faulty exhaust system/components, including the use of diagnostic and specialised tooling and equipment, measuring equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- National Environment Protection Measure for Diesel Vehicles as applicable to tasks
- identification of application, purpose and operation
- identification of system/component parts to include physical, fluid, gases and heat generation
- types and layout of service/repair manuals (hard copy and electronic)

REQUIRED SKILLS AND KNOWLEDGE
• techniques for identification of exhaust system/component faults • exhaust system/component repair procedures and techniques • enterprise quality procedures • work organisation and planning processes • Australian Design Rules for noise pollution, gas emissions (catalytic converters)

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • identification of application, purpose and operation • application of the full repair sequence to an exhaust system as per the Range Statement relative to the qualification being sought • conducting repair in accordance with workplace and manufacturer/component supplier requirements and specifications • equipment is presented to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the removal, repair and replacement of faulty exhaust system/components • equipment, hand and power tooling appropriate to the removal, repair and replacement of faulty exhaust system/components • activities covering mandatory task requirements • specifications and work instructions

EVIDENCE GUIDE	
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Repair methods	Repair methods include: • checking, comparing, removal/replacement, welding (OAW, GMAW/GTAW) • repacking mufflers with replaceable baffles • decoking exhaust components to unblock • service spark arrester
Specific requirements	Specific requirements may include systems, including catalytic converters, replaceable baffles
Variables	Other variables may include: • does not apply to outdoor power equipment where the exhaust system is one single component/unit
Repair methods and sequence	Repair methods and sequence are to include isolation of fault(s), dismantling, inspection and evaluation, replacement of system/components parts, assembly and completion of operational tests and documents
Faults	Faults to include rusted and chaffed pipe work
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices

RANGE STATEMENT	
Safe operating procedures	Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, power tooling, lifting equipment, welding equipment, specialist tooling for removal/replacement, testing equipment, cutting equipment and decibel meters
Materials	Materials may include spare parts, welding consumables, filters and cleaning materials
Communications	Communications are to include but are not limited to verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include

RANGE STATEMENT	
	• verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to repairing exhaust systems • regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules and Environment Protection Regulations (Diesel Fuels)/National Environment Protection Measure for Diesel Vehicles Guidelines • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Mechanical Miscellaneous

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Emission and Exhaust

AURVTA3004 Inspect vehicle systems and determine preferred repair action

Modification History

Release	Comment
Release 1	Replaces AURT365130A Inspect vehicle systems and determine preferred repair action Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to carry out an inspection of vehicle systems and determine repair and/or replacement methods. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	This unit of competence should be contextualised to the qualification to which it is being applied. Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to undertake inspection	1.1. Nature and scope of work requirements are identified and confirmed 1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work 1.3. Procedures and information such as workshop manuals and specifications, and tooling, are sourced 1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared 1.5. Technical and/or calibration requirements for vehicle systems are sourced and support equipment is identified and prepared 1.6. Warnings in relation to working with vehicle systems are observed
2. Conduct inspection	2.1. Methods for inspection implemented in accordance with workplace procedures and manufacturer/component supplier specifications 2.2. Observations are noted during inspection 2.3. Documentation of observations are completed
3. Analyse inspection results	3.1. Results are compared with manufacturer/component supplier specifications to indicate compliance or non-compliance 3.2. Results are documented with evidence and supporting information 3.3. Preferred repair action is selected following analysis of options 3.4. Report, including repair recommendations, is prepared and forwarded to persons for action in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and solution are clearly evident and in situations requiring critical thinking and a creative approach to achieve an outcome
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to the determination of repair action, including the use of specialist tooling, measuring equipment, computerised technology and communication devices and the documenting/recording of results

Required knowledge

A working knowledge of:

- WHS and environmental regulations/requirements, equipment, material and personal safety requirements
- dangers of working with vehicles and equipment
- operating principles vehicle systems and their relationship to each other
- inspection procedures
- repair and replacement procedures
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • conducting inspection of a range of vehicle systems in accordance with workplace requirements • interpreting inspection results • analysing repair options and selecting the most appropriate option • completing report, including repair recommendations • vehicle presentation to customer in compliance with workplace requirements
Context of, and specific resources for assessment	Application of competence is to be assessed in the workplace or simulated worksite Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints Assessment is to comply with regulatory requirements, including Australian Standards The following resources should be made available: • workplace location or simulated workplace • material relevant to the determination of repair action • equipment, hand and power tooling appropriate to the determination of repair action • activities covering mandatory task requirements • specifications and work instructions
Method of assessment	Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&R Training Package Assessment methods must confirm consistency and accuracy

EVIDENCE GUIDE	
	of performance together with application of underpinning knowledge Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies Assessment may be applied under project related conditions and require evidence of process Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Methods	Methods are to include: • inspection and testing • fault finding using aural, visual and operational assessments for defects • repair option analysis • report writing
WHS	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to waste management, noise, dust and

RANGE STATEMENT	
	clean-up management
Quality requirements	Quality requirements are to include, but are not limited to regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include hand tooling, meters, gauges and load testing devices
Materials	Materials may include cleaning materials
Communications	Communications are to include, but are not limited to verbal and visual instructions and fault documenting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to the determination of repair action • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards

Unit Sector(s)

Unit sector	Vehicle Body

Co-requisite units

Not applicable.

Competency field

Competency field	Technical

AURVTW2001 Carry out manual metal arc welding procedures

Modification History

Release	Comment
Release 1	Replaces AURV281108A Carry out manual metal arc welding procedures Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the skills and knowledge required to carry out manual metal arc welding procedures. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work and the completion of welding and work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Work instructions are used to determine job requirements, including job sheets, quality and quantity of materials. 1.2. Job specifications are read and interpreted. 1.3. WHS requirements, including personal protection needs, are observed throughout the work. 1.4. Materials for repairs and replacements are selected and inspected for quality. 1.5. Hand, power tooling and safety equipment are identified and checked for safe use. 1.6. Products are determined to minimise waste material. 1.7. Procedures are identified for maximising energy efficiency while completing the job.
2. Carry out manual metal arc procedures	2.1. Information is accessed from sources to enable welding to be performed in accordance with vehicle and equipment manufacturer/component supplier procedures. 2.2. Manual metal arc welding is completed using approved methods and equipment, according to type of material and repairs required. 2.3. Manual metal arc welding procedures are completed without causing damage to component or system. 2.4. Manual metal arc welding is carried out according to a standard that meets industry regulations/guidelines, WHS requirements, legislation and enterprise policy/procedures.
3. Clean up work area and maintain equipment	3.1. Material that can be reused is collected and stored. 3.2. Waste and scrap is removed following workplace procedures. 3.3. Equipment and work area are cleaned and inspected for serviceable conditions in accordance with workplace procedures. 3.4. Unserviceable equipment is tagged and faults identified in accordance with workplace procedures. 3.5. Operator maintenance is completed in accordance with manufacturer/component supplier specifications and worksite procedures. 3.6. Tooling is maintained in accordance with workplace procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for the identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and wastage
- use mathematical ideas and techniques to calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to welding systems, including the use of measuring equipment and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- common automotive technology
- types of metals
- types of electrodes and their application
- manual metal arc welding procedures
- equipment maintenance procedures
- workplace guidelines regarding acceptable tolerance levels to be considered as per

REQUIRED SKILLS AND KNOWLEDGE
job sheet and manufacturer/component supplier specifications • procedures for reporting faults and material defects • work organisation and planning processes • enterprise quality processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • setting up, operating and maintaining manual metal arc welding, safety, lifting and measuring equipment • completing a range of manual metal arc welding tasks to specification.

Context of, and specific resources for assessment	• Application of competence is to be assessed in the workplace or simulated worksite.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with regulatory requirements, including Australian standards.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • materials relevant to manual metal arc welding
	  • equipment, hand and power tooling appropriate to manual metal arc welding
	  • activities covering mandatory task requirements
	  • specifications and work instructions.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of the Automotive Industry Retail, Service and Repair Training Package. • Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge. • Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also

EVIDENCE GUIDE	
	reinforce the integration of key competencies. • Assessment may be applied under project-related conditions and require evidence of process.
Guidance information for assessment	• Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge. • Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies. • Assessment may be applied under project-related conditions and require evidence of process. • Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Overview of assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Manual metal arc welding method	Manual metal arc welding methods are to include: • equipment selection and preparation, material selection/ confirmation and preparation, the application of welding techniques and the

RANGE STATEMENT	
	operator maintenance of equipment
WHS requirements	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include: • protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous material and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to: • operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and worksite visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to: • emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and worksite evacuation
Environmental requirements	Environmental requirements are to include, but are not limited to: • waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to: • regulations, including Australian standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include: • federal, state/territory and local authorities administering acts, regulations and codes of

RANGE STATEMENT	
	practice
Tooling and equipment	Tooling and equipment may include: • hand tooling, welding equipment, including manual metal arc welding machines, safety equipment, measuring equipment, marking out equipment and lifting equipment
Materials	Materials may include: • rods/electrodes and cleaning materials
Communications	Communications are to include, but are not limited to: • verbal and visual instructions and fault reporting and may include worksite specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to manual metal arc welding • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian standards

Unit Sector(s)

Unit sector	Vehicle body

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Welding, Grinding, Machining and Soldering

AURVTW2003 Carry out gas metal arc welding procedures

Modification History

Release	Comment
Release 1	Replaces AURV281308A Carry out gas metal arc (MIG) welding procedures Unit code updated to meet policy requirements Minor changes to unit title Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the skills and knowledge required to carry out gas metal arc (MIG) welding procedures appropriate to the repairs conducted in the retail, service and repair streams. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work requires individuals to demonstrate some discretion, judgement and problem solving skills in lifting, safety equipment, MIG welding procedures, environmental issues, repair procedures and vehicle operational requirements.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Work instructions are used to determine job requirements including job sheets, quality and quantity of materials. 1.2. Job specifications are read and interpreted. 1.3. Workplace health and safety requirements, including personal protection needs, are observed throughout the work. 1.4. Materials for repairs and replacements are selected and inspected for quality. 1.5. Correct hand, power tools and safety equipment for safe use. 1.6. Products are determined to minimise waste materials. 1.7. Procedures are identified for maximising energy efficiency whilst completing the job.
2. Carry out gas metal arc (MIG) welding procedures	2.1. Gas metal arc (MIG) welding procedures are completed without causing damage to any component or system. 2.2. Information is accessed from appropriate sources to enable welding to be performed in accordance with vehicle and equipment manufacturer procedures. 2.3. MIG welding is carried out according to a standard that meets industry regulations/guidelines, WHS legislation, statutory legislation and enterprise policy/procedures.
3. Clean up work area and maintain equipment	3.1. Material that can be reused is collected and stored. 3.2. Waste and scrap is removed following workplace procedures. 3.3. Equipment and work area are cleaned and inspected for serviceable conditions in accordance with workplace procedures. 3.4. Unserviceable equipment is tagged and faults identified in accordance with workplace. 3.5. Operator maintenance is completed in accordance with manufacturer's specifications and site procedures. 3.6. Tooling is maintained in accordance with workplace procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for the identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and wastage
- use mathematical ideas and techniques to calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to welding systems, including the use of measuring equipment and communication devices and the reporting/documenting of results

Required knowledge

Required knowledge includes:

- WHS regulations/requirements
- equipment safety requirements
- personal safety requirements (e.g. toxic fumes/lead poisoning)
- types of materials to be welded
- types of MIG welding wire and their application
- types of gases and their application
- MIG welding processes, techniques and faults

REQUIRED SKILLS AND KNOWLEDGE
• equipment set up and maintenance procedures • workplace safety policies and procedures • workplace guidelines regarding acceptable tolerance levels to be considered as per job sheet and manufacturer specification • procedures for reporting faults and material defects

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	• Interpret work order and locate and apply relevant information.
	• Apply safe handling requirements for equipment, products and materials, including use of personal protective equipment.
	• Read and interpret communication procedural information from job sheets to prepare for work.
	• Identify materials used in the work process.
	• Follow work instructions, operating procedures and inspection processes to:
	  • minimise the risk of injury to self or others
	  • prevent damage and wastage of goods, equipment and products
	  • maintain required production output and product quality
	• Identify, set up, operate and maintain MIG welding, lifting and measuring equipment.

Context of, and specific resources for assessment	• Assessment may occur on the job or in a workplace simulated facility with relevant process equipment, materials, work instructions and deadlines. • Access to vehicle and manufacturer specifications as identified in the Range Statement and standard operating procedures.
Method of assessment	• Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts. • Assessment should be by direct observation of tasks and questioning on underpinning knowledge. • Assessment should be conducted over time and may be in conjunction with assessment of other units of competency. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
MIG welding	MIG equipment to include • MIG welders
Materials	Materials include: • MIG welding wire and gas
Methods	Methods include: • MIG welding methods and preparation. Methods should be applied under normal operating conditions
Work practices	Work practices must abide by: • workplace health and safety requirements include OHS legislation, material safety management systems, hazardous substances and dangerous goods code, local safe operating procedures and Australian Design Rules regulations • work is carried out in accordance with legislative obligations, environmental legislation, relevant health regulations, manual handling and lifting equipment procedures and organisation insurance requirements
Resources	Resources may include: • hand tools, MIG welding machines and safety equipment • measuring equipment, marking out equipment and lifting equipment • MIG welding wire and appropriate gases
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation, regulations and enterprise policies and practices

RANGE STATEMENT	

Information/documents	Sources of information/documentation may include:
	• workplace procedures relating to the use of tools and equipment
	• work instructions, including:
	  • job sheets
	  • vehicle manufacturer specifications
	  • enterprise operating procedures
	  • component manufacture specifications
	  • customer requirements
	  • industry/workplace codes of practice
	  • statutory legislation for vehicle road worthiness, including Australian Design Rules
	  • material safety data sheets
	  • workplace procedures relating to reporting and communication
	  • manufacturer specifications and operational procedures

Unit Sector(s)

Unit sector	Vehicle body

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Welding, Grinding, Machining and Soldering

AURVTW2004 Carry out gas tungsten arc welding procedures

Modification History

Release	Comment
Release 1	Replaces AURV281408A Carry out gas tungsten arc (TIG) welding procedures Unit code updated to meet policy requirements Minor changes to unit title Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the skills and knowledge required to carry out gas tungsten arc (TIG) welding procedures. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work and the completion of welding and work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Work instructions are used to determine job requirements, including job sheets, quality and quantity of materials. 1.2. Job specifications are read and interpreted. 1.3. WHS requirements, including personal protection needs, are observed throughout the work. 1.4. Materials for repairs and replacements are selected and inspected for quality. 1.5. Hand, power tooling and safety equipment are identified and checked for safe use. 1.6. Products are determined to minimise waste material. 1.7. Procedures are identified for maximising energy efficiency while completing the job.
2. Carry out gas tungsten arc (TIG) welding procedures	2.1. Information is accessed from sources to enable welding to be performed in accordance with vehicle and equipment manufacturer/component supplier procedures. 2.2. Gas tungsten arc (TIG) welding procedures are completed without causing damage to component or system. 2.3. TIG welding is carried out according to a standard that meets industry regulations/guidelines, WHS requirements, legislation and enterprise policy/procedures.
3. Clean up work area and maintain equipment	3.1. Material that can be reused is collected and stored. 3.2. Waste and scrap is removed following workplace procedures. 3.3. Equipment and work area are cleaned and inspected for serviceable conditions in accordance with workplace procedures. 3.4. Unserviceable equipment is tagged and faults identified in accordance with workplace procedures. 3.5. Operator maintenance is completed in accordance with manufacturer/component supplier specifications and worksite procedures. 3.6. Tooling is maintained in accordance with workplace procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for the identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and wastage
- use mathematical ideas and techniques to calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to welding systems, including the use of measuring equipment and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- types of metals
- types of fluxes, rods and their application
- TIG welding processes and techniques
- equipment maintenance procedures
- workplace guidelines regarding acceptable tolerance levels to be considered as per job sheet and manufacturer/component supplier specifications

REQUIRED SKILLS AND KNOWLEDGE
• procedures for reporting faults and material defects • work organisation and planning processes • enterprise quality processes

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of: • observing safety procedures and requirements • communicating effectively with others involved in or affected by the work • selecting methods and techniques appropriate to the circumstances • completing preparatory activity in a systematic manner • setting up, operating and maintaining TIG welding, safety, lifting and measuring equipment • completing a range of gas tungsten arc (TIG) welding tasks to specifications.

Context of, and specific resources for assessment	• Application of competence is to be assessed in the workplace or simulated worksite.
	• Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
	• Assessment is to comply with regulatory requirements, including Australian standards.
	• The following resources should be made available:
	  • workplace location or simulated workplace
	  • materials relevant to gas tungsten arc (TIG) welding
	  • equipment, hand and power tooling appropriate to gas tungsten arc (TIG) welding
	  • activities covering mandatory task requirements
	  • specifications and work instructions.

Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of AUR12 Automotive Industry Retail, Service and Repair Training Package. • Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge. • Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also

EVIDENCE GUIDE	
	reinforce the integration of key competencies. • Assessment may be applied under project-related conditions and require evidence of process. • Assessment must confirm a reasonable inference that competence is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Welding methods	TIG welding methods are to include: • equipment selection and preparation, material selection/confirmation and preparation, the application of TIG welding techniques and the operator maintenance of equipment
WHS requirements	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include: • protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous material and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to: • operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and worksite visitors
Emergency procedures	Emergency procedures related to this unit are to include, but are not limited to: • emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and worksite evacuation
Environmental requirements	Environmental requirements are to include, but

RANGE STATEMENT	
	are not limited to: • waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to: • regulations, including Australian standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include: • federal, state/territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include: • hand tooling, TIG welding machines, rods, safety equipment, measuring equipment, marking out equipment and lifting equipment
Materials	Materials may include: • argon gas, filling rods and cleaning materials
Communications	Communications are to include, but are not limited to: • verbal and visual instructions and fault reporting and may include worksite specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches • safe work procedures related to gas tungsten arc (TIG) welding • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • engineer's design specifications and instructions • organisation work specifications and requirements

RANGE STATEMENT	
	• instructions issued by authorised enterprise or external persons • Australian standards

Unit Sector(s)

Unit sector	Vehicle body

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Welding, Grinding, Machining and Soldering

AURVTW2008 Carry out oxy acetylene welding, thermal cutting and thermal heating procedures

Modification History

Release	Comment
Release 1	Replaces AURV223608A Carry out oxy acetylene welding, thermal cutting and thermal heating procedures Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit of competency covers the skills and knowledge required to carry out welding, thermal cutting and thermal heating procedures appropriate to the repairs conducted in the retail, service and repair streams. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.

Application of the Unit

Application of the unit	Work is carried out in accordance with legislative obligations, environmental legislation, relevant health regulations, manual handling and lifting equipment procedures and organisation insurance requirements. Work requires individuals to demonstrate some discretion, judgement and problem solving skills in lifting, safety equipment, oxy welding and thermal cutting and heating procedures, environmental issues, repair procedures and vehicle operational requirements.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	1.1. Work instructions are used to determine job requirements, including job sheets, quality and quantity of materials. 1.2. Job specifications are read and interpreted. 1.3. Workplace health and safety requirements, including personal protection needs, are observed throughout the work. 1.4. Materials for repairs and replacements are selected and inspected for quality. 1.5. Correct hand, power tools and safety equipment are selected for safe use. 1.6. Products are determined to minimise waste materials. 1.7. Procedures are identified for maximising energy efficiency whilst completing the job.
2. Carry out oxy acetylene welding procedures	2.1. Welding procedures are completed without causing damage to any component or system. 2.2. Information is accessed from appropriate sources to enable welding to be performed in accordance with vehicle and equipment manufacturer procedures. 2.3. Welding is carried out according to a standard that meets industry regulations/guidelines, workplace health and safety (WHS) legislation, statutory legislation and enterprise policy/procedures.
3. Clean up work area and maintain equipment	3.1. Material that can be reused is collected and stored. 3.2. Waste and scrap is removed following workplace procedures. 3.3. Equipment and work area are cleaned and inspected for serviceable conditions in accordance with workplace procedures. 3.4. Unserviceable equipment is tagged and faults identified in accordance with workplace requirements. 3.5. Operator maintenance is completed in accordance with manufacturer's specifications and site procedures. 3.6. Tooling is maintained in accordance with workplace procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- reading and interpreting job specifications
- following work procedures
- handling tools and equipment safely
- accessing relevant information

Required knowledge

Required knowledge includes:

- WHS regulations/requirements
- equipment safety requirements
- personal safety requirements (e.g. toxic fumes/lead poisoning)
- types of metals relevant to application
- welding procedures (oxy)
- thermal cutting procedures
- thermal heating procedures
- types of flux, rod and their applications
- equipment maintenance procedures
- planing of oxy welding, thermal cutting and heating
- workplace safety policies and procedures
- workplace guidelines regarding acceptable tolerance levels to be considered as per job sheet and manufacturer specification
- procedures for reporting faults and material defects

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently:
	• interpret work order and locate and apply relevant information
	• apply safe handling requirements for equipment, products and materials, including use of personal protective equipment
	• read and interpret communication procedural information from job sheets to prepare for work
	• identify materials used in the work process
	• follow work instructions, operating procedures and inspection processes to:
	  • minimise the risk of injury to self or others
	  • prevent damage and wastage of goods, equipment and products
	  • maintain required production output and product quality
	  • identify, set up, operate and maintain oxy welding, heating and cutting equipment.

Context of, and specific resources for assessment	• Assessment may occur on the job or in a workplace simulated facility with relevant process equipment, materials, work instructions and deadlines. • Access to vehicle and manufacturer specifications as identified in the Range Statement, and standard operating procedures.
Method of assessment	• Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts. • Assessment should be by direct observation of tasks and questioning on underpinning knowledge. • Assessment should be conducted over time and may be in conjunction with assessment of other units of competency. • Competence in this unit may be assessed in conjunction with other functional units which

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	together form part of the holistic work role.
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Methods	Methods include: • cutting metal • welding metal • heating metal • measuring. Methods should be applied under normal operating conditions.
Work practices	Work practices must abide by workplace health and safety requirements, and include: • WHS legislation • material safety management systems • hazardous substances and dangerous goods code • local safe operating procedures • Australian Design Rules regulations
Resources	Resources may include: • hand tools, welding equipment, thermal cutting equipment and thermal heating equipment • measuring equipment, marking out equipment and lifting equipment • oxy acetylene gas, welding rods, steel, tubing, aluminium, cast iron and marking chalk

RANGE STATEMENT	
Personal protective equipment	Personal protective equipment prescribed under legislation, regulations and enterprise policies and practices

Information/documents	Sources of information/documents may include:
	• workplace procedures relating to the use of tools and equipment
	• work instructions, including:
	  • job sheets
	  • vehicle manufacturer specifications
	  • enterprise operating procedures
	  • component manufacture specifications
	  • customer requirements
	  • industry/workplace codes of practice
	  • statutory legislation for vehicle road worthiness, including Australian Design Rules
	  • material safety data sheets
	  • workplace procedures relating to reporting and communication
	  • manufacturer specifications and operational procedures

Unit Sector(s)

Unit sector	Vehicle body

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Welding, Grinding, Machining and Soldering

BSBCCO405A Survey stakeholders to gather and record information

Modification History

Release	Comments
Release 1	This version first released with *BSB07 Business Training Package version 6.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to survey stakeholders to gather and record information.
Competence in this unit requires preparing, undertaking and recording relevant and required details of information collected according to organisational, legislative and regulatory requirements. It also requires efficient use of relevant technology.

Application of the Unit

This unit applies in environments where accurate and detailed records of contacts are a mandatory requirement of the role. This involves using interview recording technology. This work is undertaken under supervision.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Obtain, record and analyse information from the community	1.1 Identify ***information sources***
	1.2 Collect and record ***information*** according to organisational procedures and legislative and policy requirements
	1.3 Collate, sort and analyse information collected in relation to the purpose for which it is being obtained
	1.4 Ensure contents of ***recording forms and reports*** are in line with ***organisational requirements***
2. Take and compile statements	2.1 Take ***comprehensive statements*** from sources appropriate to the matter being investigated according to organisational procedures and legislative and policy requirements
	2.2 Use active listening when taking accurate statements from people
3. Conduct interviews	3.1 Plan, manage and conduct interviews to gather maximum amount of information relevant to the matter being examined
	3.2 Treat all interviewees fairly and equitably
	3.3 Conduct and record interviews according to legislation, policy and procedures
4. Use information and database systems	4.1 Enter information into database, adhering to data entry security procedures
	4.2 Identify and use appropriate sources of information when recording data
	4.3 Access and store information according to legislation, policy and procedures
5. Use interview and evidence recording equipment	5.1 Operate ***recording equipment*** according to legislation, policy and procedures
	5.2 Produce ***records*** according to organisational requirements and procedures
	5.3 Maintain equipment and usage logs in good order
6. Conduct follow-up activity with other members of the organisation	6.1 Identify and use communication links within the organisation to exchange information
	6.2 Assess the relevance of information received in terms of its intended purpose
	6.3 Dispose of irrelevant information according to legislation, policy and procedures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to analyse information and data
- communication skills to:
  - articulate information, advice and instructions
  - question and listen in order to understand and resolve issues raised
- interpersonal skills to establish rapport and build relationships with stakeholders
- literacy skills to prepare and compile detailed statements and reports
- numeracy skills to analyse, record and store data according to organisational requirements
- planning and organising skills to manage own tasks within required timeframes
- self-management skills to:
  - comply with policies and procedures
  - seek learning and development opportunities.

Required knowledge

- information types and their sources
- procedures and security measures for accessing, storing, retrieving and sharing data from databases
- rights of individuals in relation to the conduct of interviews and compilation of statements
- statutory, regulatory and legislative requirements relating to surveying stakeholders
- use of evidence and contact recording technology.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • record interviews, including audiotapes and statements if relevant to role • demonstrate interview techniques • demonstrate knowledge of statutory, regulatory and legislative requirements relating to surveying processes.
Context of and specific resources for assessment	Assessment must ensure access to: • information and databases for analysis activities • relevant legislation, standards and guidelines.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance by the candidate • review of statements or recording of details of contacts • review of compliance with statutory, regulatory, legislative and organisational requirements • oral and/or written questioning to assess knowledge of interviewing techniques and outcomes • oral and/or written questioning to assess knowledge of storage and disposal of information.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Information sources may include:	• colleagues • community groups • community leaders • crime, accident and incident scenes • customers • general public • individuals • information databases • local government • local media • schools • specific target groups – in the case of opinion polls and surveys.
Information may include:	• addressing public order and general community issues • assisting in an investigation • details of an incident or medical emergency • locating a specific person • location of witnesses • opinion poll or customer survey • progressing and supporting court hearings or matters.
Recording forms and reports may include:	• handwritten and electronic pro formas and reporting styles • use of organisation's enterprise information system.
Organisational requirements may include:	• accurate • complete • concise • in the correct format • legible • understandable.
Comprehensive statements may include:	• all details required by the organisation • all information required for the investigation or research task • records in a format that comply with the legal requirements for statements; where appropriate and legal, statements may also be recorded in forms other than written, such as audiotape or audiovisual (video) tape.

Recording equipment may be modified for use by people with a disability and may include:	• audiotape recorders • authorisation, storage and filing of original and duplicates of tapes and film • basic fingerprinting equipment • video cameras and recording equipment.
Records must be:	• authorised, stored and assessed in line with organisational procedures • clear, audible and presentable.

Unit Sector(s)

Stakeholder relations – contact centre operations

Custom Content Section

Not applicable.

BSBFLM312C Contribute to team effectiveness

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This specifies the outcomes required to by frontline managers to contribute to the effectiveness of the work team. It involves planning with the team to meet expected outcomes, developing team cohesion, participating in and facilitating the work team, and communicating with the management of the organisation. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	Frontline managers have a key role in developing efficient and effective work teams within the context of the organisation. They play a prominent part in motivating, mentoring, coaching and developing team cohesion by providing leadership for the team and forming the bridge between the management of the organisation and the team members. At this level, work will normally be carried out within known routines, methods and procedures, and may also involve a number of complex or non routine activities that require some discretion and judgement.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Contribute to team outcomes	1.1. Consult team members to identify ***team purpose***, ***roles***, ***responsibilities***, ***goals***, ***plans and objectives*** 1.2. Support team members to meet expected outcomes
2. Support team cohesion	2.1. Encourage team members to participate in the planning, decision making and operational aspects of the work team to their level of responsibility 2.2. Encourage team members to take responsibility for their own work and to assist each other in undertaking required roles and responsibilities 2.3. Provide ***feedback*** to team members to encourage, value and reward team members' efforts and contributions 2.4. Identify and address issues, concerns and problems identified by team members to ***relevant persons*** as required
3. Participate in work team	3.1. Actively encourage and support team members to participate in team activities and communication processes and to take ***responsibility for their actions*** 3.2. Support the team to identify and resolve problems which impede its performance 3.3. Utilise own contribution to work team to serve as a role model for others and enhance the organisation's image within the work team, the organisation and with clients/customers
4. Communicate with management	4.1. Maintain open ***communication*** with ***line manager***/***management*** at all times 4.2. Communicate information from line manager/management to the team 4.3. Communicate ***unresolved issues*** to line manager/management and follow-up to ensure action is taken in response to these matters

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills

- ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities
- communication skills, including listening
- basic training skills, including mentoring and coaching
- planning and organising skills
- problem solving skills
- attributes:
  - empathic
  - communicative
  - self aware
  - supportive
  - trusting
  - open
  - flexible
  - accommodating
  - initiating
  - loyal
  - fair
  - adaptable

Required knowledge

Required knowledge

- relevant legislation from all levels of government that affects business operation, especially in regard to occupational health and safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- organisational policies and procedures
- organisational goals, objectives and plans at both tactical and strategic levels
- organisational structure including organisational chart
- learning and development options available within and through organisation
- a general understanding of the principles and techniques of:
  - group dynamics and processes
  - motivation
  - planning

REQUIRED SKILLS AND KNOWLEDGE
• negotiation • individual behaviour and difference

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • demonstrate leadership in contributing to team plans • lead and facilitate teamwork • actively communicate with management • manage communication within the team • induct new team members • implement performance management system • handle problems
Context of and specific resources for assessment	Assessment must ensure: • that this unit can be assessed in the workplace or in a closely simulated work environment • access by the learner and trainer to appropriate documentation and resources normally used in the workplace • where assessment is part of a learning experience, evidence will need to be collected over a period of time, involving both formative and summative assessment • that examples of actions taken by candidate to contribute to team effectiveness are provided

Method of assessment	A range of assessment methods should be used to assess skills and knowledge. The following examples are appropriate for this unit:
	• Direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate
	• Records produced from working in a team, such as:
	  • reports
	  • minutes or records of meetings
	  • work journals or diaries
	  • learning and development plans developed with team members
	  • records of actions taken to address issues raised

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	by team members
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Legislation, codes and national standards relevant to the workplace may include:	• award and enterprise agreements and relevant industrial instruments • relevant legislation from all levels of government that affects business operation, especially in regard to occupational health and safety (OHS) and environmental issues, equal opportunity, industrial relations and anti-discrimination • relevant industry codes of practice
OHS considerations may include:	• provision of information about OHS legislative requirements, guidelines and the organisation's OHS policies, procedures and programs • training of all employees in health and safety procedures • participation in the regular update of OHS systems and procedures • changes to work practices, procedures and the working environment which impact on OHS
Team purpose, ***roles***, ***responsibilities***, ***goals***, ***plans and objectives*** may include:	• goals for individuals and the work team • expected outcomes and outputs • individual and team performance plans and Key Performance Indicators (KPIs) • action plans, business plans and operational plans linked to strategic plans • OHS responsibilities
Feedback may refer to:	• communication of ideas and thoughts which focus on specific tasks, outcomes, decisions, issues or behaviours • formal/informal gatherings between team members where there is discussion on work-related matters
Relevant persons may include:	• frontline manager's direct superior or other management representatives

RANGE STATEMENT	
	• colleagues • designated personnel e.g. safety officer
Responsibility for their actions may involve:	• individuals and teams • individual and joint actions
Communication may include:	• verbal, written or electronic communication • face-to-face • formal/informal interaction
Line manager*/*management may refer to:	• frontline manager's direct superior or other management representatives
Unresolved issues may include:	• issues, concerns and tensions • problems related to work roles and responsibilities • grievances and complaints • any matters affecting workplace relationships and team cohesion

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Frontline Management services

Co-requisite units

Co-requisite units		

BSBMGT403A Implement continuous improvement

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to implement the organisation's continuous improvement systems and processes. Particular emphasis is on using systems and strategies to actively encourage the team to participate in the process, monitoring and reviewing performance, and identifying opportunities for further improvements. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	Frontline managers have an active role in implementing the continuous improvement process to achieve the organisation's objectives. Their position, closely associated with the creation and delivery of products and services, means that they have an important role in influencing the ongoing development of the organisation. At this level, work will normally be carried out within routine and non routine methods and procedures, which require planning and evaluation, and leadership and guidance of others.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Implement continuous improvement systems and processes	1.1. Implement ***systems*** to ensure that individuals and teams are actively encouraged and supported to ***participate in decision making processes***, assume responsibility and exercise initiative 1.2. Communicate the organisation's ***continuous improvement processes*** to individuals and teams, and obtain feedback 1.3. Ensure effective ***mentoring and coaching*** allows individuals and teams to implement the organisation's continuous improvement processes
2. Monitor and review performance	2.1. Use the organisation's systems and ***technology*** to monitor and review progress and to identify ways in which planning and operations could be improved 2.2. Improve ***customer service*** through continuous improvement techniques and processes 2.3. Formulate and communicate recommendations for adjustments to those who have a role in their development and implementation
3. Provide opportunities for further improvement	3.1. Implement ***processes to ensure that team members are informed of savings and productivity/service improvements*** in achieving the business plan 3.2. Document work performance to aid the identification of further opportunities for improvement 3.3. Manage records, reports and recommendations for improvement within the organisation's systems and processes

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

• communication skills to:
  • coach and mentor team members
  • gain the commitment of individuals and teams to continuously improve
• innovation skills to design better ways of performing work.

Required knowledge

• principles and techniques associated with:
  • benchmarking
  • best practice
  • change management
  • continuous improvement systems and processes
  • quality systems.

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • taking active steps to implement, monitor and adjust plans, processes and procedures to improve performance • supporting others to implement the continuous improvement system/processes, and to identify and report opportunities for further improvement • knowledge of principles and techniques associated with continuous improvement systems and processes.
Context of and specific resources for assessment	Assessment must ensure: • access to appropriate documentation and resources normally used in the workplace.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • assessment of written reports • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • observation of presentations • oral or written questioning to assess knowledge of principles and techniques associated with change management • review of how the organisation's continuous improvement processeswascommunicated to individuals and teams • review of documentation of work performance.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other units from the Certificate IV in Frontline Management.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Systems may refer to:	• forums, meetings • newsletters and reports • organisational policies and procedures • web-based communication devices
Participation in decision making processes may include:	• feedback in relation to outcomes of the consultative process • processes which ensures all employees have the opportunity to contribute to organisational issues
Continuous improvement processes may include:	• cyclical audits and reviews of workplace, team and individual performance • evaluations and monitoring of effectiveness • implementation of quality systems, such as International Standardization for Organization (ISO) • modifications and improvements to systems, processes, services and products • policies and procedures which allow the organisation to systematically review and improve the quality of its products, services and procedures • seeking and considering feedback from a range of stakeholders
Mentoring and coaching may refer to:	• providing assistance with problem-solving • providing feedback, support and encouragement • teaching another member of the team, usually focusing on a specific work task or skill
Technology may include:	• computerised systems and software such as databases, project management and word processing • telecommunications devices • any other technology used to carry out work roles and responsibilities

RANGE STATEMENT	
Customer service may be:	• internal or external • to existing, new or potential clients
Processes to ensure that team members are informed of savings and productivity/service improvements may refer to:	• email/intranet, newsletters or other communication devices • newsletters and bulletins • staff reward mechanisms • team meetings

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Management

Co-requisite units

Co-requisite units		

BSBPRO401A Develop product knowledge

Modification History

Release	Comments
Release 2	New release of this Qualification released with *version 6 of BSB07* Business *Services Training Package*. Outdated advice removed

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop product knowledge in preparation for the sales process.

Application of the Unit

This unit applies to individuals in a sales related position in a small, medium or large enterprise across a wide variety of industries and contexts who develop their product knowledge prior to undertaking selling activities. They may provide advice and support about aspects of sales solutions to support a sales team.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Acquire knowledge of products in a specified area	1.1. Identify ***information sources*** about ***products*** in a specified area and evaluate them for reliability and validity 1.2. Identify product purpose/s and use/s 1.3. Identify key ***features*** of the product/s 1.4. Identify product strengths and weaknesses 1.5. Articulate guarantees and warranties and identify service support details
2. Convert product knowledge into benefits	2.1. Identify features of the product which have potential buyer appeal 2.2. Present features of the product which have buyer appeal as benefits to the buyer 2.3. Present product benefits within the context of ***organisational requirements*** and legislation
3. Evaluate competitors' products	3.1. Use a range of information sources to identify competitors' products 3.2. Compare features, benefits, strengths and weaknesses of competitors' products with own products 3.3. Establish relative standing of the organisation's product with the competitors' product/s and communicate differences to the buyer

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills
• information management skills to summarise information verbally and non-verbally • literacy and numeracy skills to interpret sales data and to summarise information obtained from a variety of verbal and non-verbal sources.
Required knowledge

• features, benefits, strengths and weaknesses of own organisation's and competitors' products
• industry competitors, trends and developments
• organisational structure/s, roles and responsibilities, policies, procedures, product labelling and descriptions
• potential buyer markets
• processes used when buying and selling products and services
• identification and overview knowledge of key provisions of relevant legislation from all levels of government that affects business operations, codes of practice and national standards, such as:
  • anti-discrimination
  • consumer protection
  • contract law legislation
• ethical principles
  • privacy laws
  • Trade Practices Act.

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • comparison of the key features and benefits of product/s with competitor offerings • demonstration of product knowledge offered by an organisation • presentation of key features and benefits of own product/s.
Context of and specific resources for assessment	Assessment must ensure: • access to an actual workplace or simulated environment • access to information sources about an organisation's and competitors' products, services or ideas • access to office equipment and resources.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • observation of presentation of key features and benefits to customers or simulated customers • oral or written questioning to assess knowledge of features, benefits, strengths and weaknesses of organisation's and competitors' products • review of evaluation of identification of information sources about products in a specified area • evaluation of strengths and weaknesses established for competitors' products.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Information sources may include:	• associations • catalogues • claims of competitive sales people • competitor websites • competitor sales literature • external sales data sources such as warehouse withdrawals • internal sales data records • other company personnel • sales conventions • trade association magazines • trade shows
Products may include:	• goods • ideas • services
Features may include:	• brand • colour • country of origin • covenant • manufacturer • product care details • safety aspect • shelf life • size • style • warnings
Organisational requirements may include:	• level of client service required • policies and procedures which are formally documented and are available for reference within the workplace

Unit Sector(s)

Business Development - Sales

BSBREL402A Build client relationships and business networks

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to establish, maintain and improve client relationships, and to actively participate in networks to support attainment of key business outcomes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals in a variety of roles who are required to establish, maintain and improve client relationships to facilitate organisational objectives. This unit primarily applies to marketing and sales professionals who depend on excellent interpersonal relationships and communication skills to achieve outcomes, but may also apply to other individuals working in any industry.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Initiate interpersonal communication with clients	1.1. Identify and use ***preferred client communication styles and methods***
	1.2. Establish rapport with clients using ***verbal*** and ***non-verbal communication*** processes
	1.3. Investigate and act upon opportunities to offer positive feedback to clients
	1.4. Use open questions to promote two-way communication
	1.5. Identify and act upon potential ***barriers to effective communication*** with clients
	1.6. Initiate communication processes which relate to client needs, preferences and expectations
2. Establish client relationship management strategies	2.1. Develop client loyalty objectives focussing on the development of long term business partnerships
	2.2. Assess client profile information to determine approach
	2.3. Develop ***client loyalty strategies*** to attract and retain clients in accordance with the business strategy
	2.4. Identify and apply ***client care and client service standards***
3. Maintain and improve ongoing relationships with clients	3.1. Develop ***strategies to obtain ongoing feedback*** from clients to monitor satisfaction levels
	3.2. Develop strategies to elicit feedback which provide information in a form that can be used to improve relationships with clients
	3.3. Obtain feedback to develop and implement strategies which maintain and improve relationships with clients
4. Build and maintain networks	4.1. Allocate time to establish and maintain business contacts
	4.2. Participate in ***business associations*** and/or ***professional development activities*** to establish and maintain a ***network*** of support for the business and to enhance personal knowledge of the market
	4.3. Establish communication channels to exchange ***information and ideas***
	4.4. Provide, seek and verify information to the network

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to determine client needs and preferences through active listening and presenting ideas clearly and precisely
- culturally appropriate communication skills to relate to people from diverse backgrounds and people with diverse abilities
- interpersonal skills to establish rapport, and to build and maintain relationships with clients.

Required knowledge

- key provisions of relevant legislation from all forms of government, codes of practice and national standards that may affect aspects business operations, such as:
  - anti-discrimination legislation
  - consumer laws including appropriate state/territory legislation
  - ethical principles
  - marketing code of practice
  - privacy laws
  - Trade Practices Act
- marketing communications concepts and processes
- principles and techniques for effective communication and networking
- sources of business related networks.

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • establishing and maintaining relationships with a range of clients related to the candidate's business • participating in and providing, an active contribution to a business related network.
Context of and specific resources for assessment	Assessment must ensure: • access to office equipment and resources.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • assessment of written reports or journals on client relationship activities • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • observation of the candidate communicating with clients • observation of presentations made to business networks • oral or written questioning to assess knowledge and understanding • review of authenticated documents from the workplace or training environment • review of testimony from team members, colleagues, supervisors or managers.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other relationship management units • marketing units.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Preferred client communication styles and methods may include:	• email • face-to-face • mail • phone
Verbal communication may include:	• articulation • clarity of speech • feedback • language • listening skills • open questions • questioning skills • voice modulation • voice projection
Non-verbal communication may include:	• active listening • body language • body orientation • clothing • colour • distance • facial expression • grooming • gestures • music • posture • sound • touching • voice
Barriers to effective communication may include:	• acting on false assumptions and stereotypes • cultural differences not being addressed • educational differences not being addressed • failure to prominently display contact details in all communications provided to the client

RANGE STATEMENT	
	• inappropriate word choice • ineffective non-verbal communication • lack of 'contact us' forms or pages on websites • lack of distribution of reply paid cards or envelopes in mail outs • lack of voice modulation and articulation • limited opening hours of call centres or office • not listening actively • organisational factors • physical, personal, gender and age differences not being addressed
Client loyalty strategies include:	• access to dedicated staff • added value offers • anniversary offers • client clubs • client reward schemes • credit or discount facilities • dedicated or private facilities • discounts • formal letter of thanks • frequent purchaser programs • handwritten note thanking the client • offering promotional items • phone call thanking client for the business • regular recontact with best clients • thank you gifts and promotions

Client care and client service standards may include:	• accuracy of billing
	• accuracy of product/service descriptions, specifications in marketing communications
	• complaint resolution times
	• incidences of stock outs and back orders
	• on-hold times
	• order delivery standards such as:
	  • whether right product or service was delivered
	  • delivered to right person or address
	  • delivered on time
	  • politeness, helpfulness and grooming of delivery staff
	  • delivery vehicles parked properly

RANGE STATEMENT	
	• cleanliness of delivery vehicles • shipment tracking services • telephone answering times and responses
Strategies to obtain ongoing feedback may include:	• including 'comments and queries' or 'bouquets and brickbats' on all order forms • complaints handling procedures • email • letter • soliciting complaints • surveys of current clients • surveys of lapsed clients to determine reason/s for ceasing to buy • telephone interviews • training staff to ask open questions about product or service levels
Business associations may include:	• chambers of commerce • industry associations • institutes • professional bodies • societies
Professional development activities may include:	• demonstrations • exhibitions • fairs • industry information seminars • industry training • pre-launch activities • technical information briefings • trade shows
Networks may include:	• business • formal • groups • individuals • informal • organisations • personal
Information and ideas may include:	• changes in the environment • changing customer requirements • information on competitors' activities • personal, professional or business support

Unit Sector(s)

Unit sector	

Competency field

Competency field	Stakeholder Relations - Relationship Management

Co-requisite units

Co-requisite units		

BSBWHS301A Maintain workplace safety

Modification History

Release	Comments
Release 1	This Unit first released with *BSB07 Business Training Package version 7.0.* Replaces and is equivalent to BSBCMN311B Maintain workplace safety.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to implement and monitor the organisation's work health and safety (WHS) policies, procedures and programs as part of a small work team.

Application of the Unit

This unit applies to workers who have a key role in maintaining workplace safety in an organisation. In their role they closely monitor aspects of work associated with the safe delivery of products and services, and they have an important responsibility in influencing ongoing safety in the workplace.

At this level, work will normally be carried out within known routines, methods and procedures but may also involve a number of complex or non-routine activities that require some discretion and judgement.

NOTE: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Assist with incorporating WHS policies and procedures into work team processes	1.1 Use ***WHS legislation*** as the basis for meeting the health and safety requirements of a small work team 1.2 Assist in providing and clearly explaining information to the work team about the organisation's ***WHS policies, procedures, programs and legislative requirements***, including the legal duties, powers, rights, obligations and responsibilities of individuals and parties inside and outside the workplace 1.3 Assist in regularly providing and clearly explaining information to the work team about ***identifying hazards*** and the outcomes of ***risk assessment***
2. Support participative arrangements for managing WHS	2.1 Implement and monitor ***organisational consultative procedures*** to facilitate participation of the work team in managing work area hazards 2.2 Promptly deal with issues raised through consultation according to organisational procedures for issue resolution 2.3 Encourage and assist work team members to contribute to managing WHS 2.4 Engage with individuals and work teams to identify and implement improvements in managing WHS feedback
3. Support the organisation's procedures for providing WHS training	3.1 Provide advice on ***WHS training needs*** of individuals and the work team 3.2 Provide advice on strategies and opportunities for developing work team's WHS competence 3.3 Provide ***coaching and mentoring assistance*** to work team members to support the effective development of individual and team WHS competence
4. Participate in identifying hazards, and assessing and controlling risks for the work area	4.1 Provide advice on ***hazards in the work area*** according to organisational policies and procedures, and WHS legal requirements 4.2 Support the implementation of ***procedures to control risks*** using the hierarchy of control and according to organisational procedures and WHS legal requirements 4.3 Identify and report inadequacies in existing risk control measures according to organisational procedures, the hierarchy of control and WHS legal requirements 4.4 Accurately complete and maintain WHS incident records in the work area according to organisational procedures and WHS legislative requirements

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - assess resources required to apply risk controls
  - assist with environmental monitoring
  - identify hazards and assess risks appropriate to own work area and job role
  - monitor incidents and hazards
  - evaluate effectiveness of risk controls
- coaching and mentoring skills to provide support to colleagues
- communication skills to communicate with people from a range of backgrounds and with a range of abilities
- literacy skills to understand workplace procedures and work instructions for identifying and reporting hazards, and for interpreting WHS signs and symbols.

Required knowledge

- characteristics and composition of the work team
- hazards and associated risks in the workplace
- organisational policies and procedures relating to WHS, including hazard management, fire, emergencies, evacuation, incident investigation and reporting
- relevant Acts, regulations and codes of practice from all levels of government that impact on business operations, especially with regard to WHS and environmental issues, equal opportunity, industrial relations and anti-discrimination
- WHS aspects of other organisational systems and procedures.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • implementing organisational management systems and WHS procedures in own work area • understanding of and meeting WHS legal and organisational requirements as they apply to own work area and job role • knowledge of procedures for identifying hazards in the work area • knowledge of procedures for assessing and controlling risks to health and safety associated with those hazards according to organisational WHS procedures.

Context of and specific resources for assessment	Assessment must ensure access to:
	• safety processes relevant to the area of work
	• relevant information and documentation on compliance requirements, such as:
	  • organisational policies and procedures, standard operating procedures and plans
	  • relevant Acts, regulations, codes of practice, licensing requirements and standards
	• relevant internal and external information
	• appropriate office equipment and resources used in the identification and rectification of WHS compliance breaches.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party reports of on-the-job performance by the candidate • review of documents on WHS Acts, regulations, codes of practice, standards, policies and

	procedures developed and communicated to workers • analysis of responses to case studies and scenarios • demonstration of applying WHS legislation • oral or written questioning to assess knowledge of research and data-collection methods to obtain evidence of compliance with WHS legislation • assessment of duty of care arrangements.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

WHS legislation may include:	• WHS Acts, regulations and codes of practice
	• components of Acts and regulations, such as:
	  • dangerous goods
	  • environmental protection
	  • equal opportunity and anti-discrimination
	  • industrial relations
	  • privacy
	  • workers' compensation.

WHS policies, procedures, programs and legislative requirements may include:	• consultative arrangements for workers in the work area • emergency plan and procedures • first aid provision, and medical practitioner contact and attention • hazard reporting procedures • incident investigation • plant and equipment maintenance and use • procedures for hazard identification • procedures for risk assessment, and the selection and implementation of risk control measures • purchasing policy and procedures • safe operating procedures and instructions • site access and egress • transport and storage of dangerous goods • use and care of personal protective equipment • use and storage of hazardous substances • WHS arrangements for on-site contractors, visitors and members of the public • WHS audits and safety inspections.
Individuals and parties may include:	• contractors and subcontractors • customers • persons conducting businesses or undertakings (PCBUs) or their officers • workers • other persons at a workplace

	• WHS entry permit holders • WHS inspectors • WHS regulators.

Methods for ***identifying hazards*** and ***risk assessment*** include:	• as specified in WHS Acts, regulations and codes of practice
	• checking equipment before and during work
	• consulting work team members
	• housekeeping
	• reviewing records, for example:
	  • equipment maintenance
	  • hazardous chemicals, including labels and safety data sheet (SDS) register, and dangerous goods storage list
	  • injury
	  • training plan
	• workplace inspections in area of responsibility.

Organisational consultative procedures may include:	• attendance of health and safety representatives at management meetings • counselling and disciplinary processes • early response to worker suggestions, requests, reports and concerns put forward to management • formal and informal meetings • health and safety committees • other committees, for example planning and purchasing.
WHS training needs may include:	• coaching, mentoring and/or supervision • formal and informal learning programs • internal and external training programs • personal study.
Coaching and mentoring assistance may include:	• explaining and clarifying • presenting and promoting a safe workplace • problem solving • providing encouragement • providing feedback to another team member • respecting the contribution of all participants and giving credit for achievements.

Hazards in the work area may include:	• anything that has the potential to cause harm
	• as specified in WHS Acts, regulations and codes of practice
	• blocked exits
	• ergonomically unsuitable workstations and task design, for example:
	  • repetitive work
	  • poor lighting or glary surfaces
	  • non-adjustable work surfaces and seating
	• internal or external threat of occupational violence or bullying
	• lack of adequate storage
	• reliance on low order control measure (such as personal protective equipment) to reduce worker risk exposure, instead of controlling the hazard itself
	• slippery and uneven floors
	• unguarded and poorly maintained machinery and equipment
	• unlabelled chemicals and substances
	• untidy or noisy work areas.

Procedures to control risks may include actions, such as:	• as specified in WHS Acts, regulations and codes of practice
	• application of the hierarchy of control, namely:
	  • eliminate the risk
	  • reduce or minimise the risk through:
	  • engineering controls
	  • administrative controls
	  • personal protective equipment
	• regular consultation with workers.

Unit Sector(s)

Regulation, Licensing and Risk – Work Health and Safety

BSBWOR202A Organise and complete daily work activities

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to organise and complete work activities, and to obtain feedback on work performance. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals developing basic skills and knowledge for working in a broad range of settings.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Organise work schedule	1.1. Negotiate and agree upon work goals and plans with assistance from ***appropriate persons***
	1.2. Develop an understanding of the relationship between individual work goals and plans, and organisational goals and plans
	1.3. Plan and prioritise workload within allocated timeframes
2. Complete work tasks	2.1. Complete tasks within designated time lines and in accordance with ***organisational requirements*** and instructions
	2.2. Use effective questioning to seek assistance from ***colleagues*** when difficulties arise in achieving allocated tasks
	2.3. Identify ***factors affecting work requirements*** and take appropriate action
	2.4. Use ***business technology*** efficiently and effectively to complete work tasks
	2.5. Communicate progress of task to supervisor or colleagues as required
3. Review work performance	3.1. Seek ***feedback*** on work performance from supervisors or colleagues
	3.2. Monitor and adjust work according to ***feedback*** obtained through supervision and comparison with established team and organisational ***standards***
	3.3. Identify and plan ***opportunities for improvement*** in liaison with colleagues

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- literacy skills to use written and oral information about workplace requirements
- organising skills to arrange work priorities and arrangements
- problem-solving skills to solve routine problems
- technology skills to select and use technology appropriate for a task.

Required knowledge

- key provisions of relevant legislation from all levels of government that may affect aspects of business operations, such as:
  - anti-discrimination legislation
  - ethical principles
  - codes of practice
  - privacy laws
  - occupational health and safety (OHS)
- organisational policies, plans and procedures.

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • organising and completing own work activities • seeking and acting on feedback from clients, colleagues and supervisors • using available business technology appropriate to the task, under direct instruction
Context of and specific resources for assessment	Assessment must ensure: • access to an actual workplace or simulated environment • access to office equipment and resources • examples of work plans, policies and procedures.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • analysis of responses to case studies and scenarios • demonstration of techniques • review of documentation planning and prioritising workload • evaluation of time line required to complete tasks • review of documentation planning opportunities for improvement.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • administration units.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Appropriate persons may include:	• colleagues • other staff members • supervisors, mentors or trainers
Organisational requirements may include:	• access and equity principles and practice • anti-discrimination and related policy • business and performance plans • ethical standards • goals, objectives, plans, systems and processes • legal and organisation policies, guidelines and requirements • OHS policies, procedures and programs • quality and continuous improvement processes and standards
Colleagues may include:	• coach/mentor • other members of the organisation • peers/work colleagues/team • supervisor or manager
Factors affecting work requirements may include:	• changes to procedures or new procedures • competing work demands • environmental factors such as time, weather • other work demands • resource issues • technology/equipment breakdowns
Business technology may include:	• computer applications • computers • electronic diaries • facsimile machines • photocopiers • printers • scanners
Feedback on performance may include:	• formal/informal performance appraisals • obtaining feedback from clients

RANGE STATEMENT	
	• obtaining feedback from supervisors and colleagues • personal, reflective behaviour strategies • routine organisational methods for monitoring service delivery
Standards may include:	• Australian Standards • legal and organisation policies, guidelines and requirements • legislation • organisational policies and procedures • specified work standards • standards set by work group
Opportunities for improvement may include:	• coaching, mentoring and/or supervision • internal/external training provision • personal study • recognition of current competence (RCC)/skills recognition/initial assessment • workplace skills assessment

Unit Sector(s)

Unit sector	

Competency field

Competency field	Industry Capability - Workplace Effectiveness

Co-requisite units

Co-requisite units		

BSBWOR204A Use business technology

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to select, use and maintain a range of business technology. This technology includes the effective use of computer software to organise information and data. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals who use business technology to perform a range of routine tasks. They use a limited range of practical skills and fundamental knowledge of equipment use and the organisation of data or files in a defined context, under direct supervision or with limited individual responsibility.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Select and use technology	1.1. Select appropriate ***technology*** and ***software applications*** to achieve the requirements of the task 1.2. Adjust workspace, furniture and equipment to suit user ergonomic requirements 1.3. Use technology according to ***organisational requirements*** and in a way which promotes a safe work environment
2. Process and organise data	2.1. Identify, open, generate or amend files and records according to task and organisational requirements 2.2. Operate ***input devices*** according to organisational requirements 2.3. ***Store data*** appropriately and exit applications without damage to or loss of, data 2.4. Use manuals, training booklets and/or online help or help-desks to overcome basic difficulties with applications
3. Maintain technology	3.1. Identify and replace used ***technology consumables*** in accordance with manufacturer's instructions and organisational requirements 3.2. Carry out and/or arrange ***routine maintenance*** to ensure equipment is maintained in accordance with manufacturer's instructions and organisational requirements 3.3. ***Identify equipment faults*** accurately and take action in accordance with manufacturer's instructions or report fault to designated person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- literacy skills to identify work requirements; to understand and process basic, relevant workplace information; and to follow written instructions
- communication skills to request advice, to receive feedback and to work with a team
- problem-solving skills to solve routine technology problems.

Required knowledge

- key provisions of relevant legislation from all levels of government that may affect aspects of business operations, such as:
  - anti-discrimination legislation
- ethical principles
  - codes of practice
  - privacy laws
  - occupational health and safety (OHS)
- organisational policies, plans and procedures, especially in regard to file-naming and storage conventions
- organisational IT procedures including back-up and virus protection procedures
- basic technical terminology in relation to reading help-files and manuals.

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • selection and application of appropriate equipment and software applications in relation to assigned task/s • access, retrieval and storage of required data • performance of basic maintenance on a range of office equipment
Context of and specific resources for assessment	Assessment must ensure: • access to an actual workplace or simulated environment • access to office equipment and resources • examples of files and data for storage • manuals and training booklets for equipment.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • analysis of responses to case studies and scenarios • demonstration of techniques • oral or written questioning to assess knowledge of office equipment • evaluation of maintaining technology.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • IT use units • other industry capability units.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Technology may include:	• computer technology, such as laptops and personal computers • digital cameras • modems • printers • scanners • zip drives • photocopiers • shredders • binders • laminators • cutters
Software applications may include:	• email, internet • word processing, spreadsheet, database, accounting or presentation packages
Organisational requirements may include:	• correctly identifying and opening files • legal and organisation policies, guidelines and requirements • locating data • log-on procedures • manufacturer's guidelines • OHS policies, procedures and programs • saving and closing files • storing data
Input devices may include:	• keyboard • mouse • numerical key pad • scanner
Storage of data may include:	• appropriate storage/filing of hard copies of computer generated documents • storage in directories and sub-directories • storage on CD-ROMs, hard and floppy disk drives or back-up systems

RANGE STATEMENT	
Technology consumables may include:	• back-up tapes • CD-ROM • floppy disks • print heads • printer ribbons and cartridges • toner cartridges • zip disks
Routine maintenance may include:	• in-house cleaning and servicing of equipment according to manufacturer's guidelines • periodic servicing by qualified or manufacturer approved, technician • regular checking of equipment • replacing consumables
Identifying equipment faults may include:	• checking repairs have been carried out • encouraging feedback from work colleagues • keeping a log book of detected faults • preparing a maintenance program • regular back-ups of data • regular OHS inspections • routine checking of equipment

Unit Sector(s)

Unit sector	

Competency field

Competency field	Industry Capability - Workplace Effectiveness

Co-requisite units

Co-requisite units		

Co-requisite units		

BSBWOR301B Organise personal work priorities and development

Modification History

Release	Comments
Release 1	This version first released with *BSB07 Business Training Package version 6.0* Revised unit. Performance criteria and required skills updated to focus on learning and development practices, KPIs and compliance with policy and procedures. Replaces BSBWOR301A Organise personal work priorities and development

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to organise own work schedules, to monitor and obtain feedback on work performance, and to maintain required levels of competence. Operators may exercise discretion and judgement using appropriate theoretical knowledge of work scheduling and performance improvement to provide technical advice and support to a team.

Application of the Unit

This unit applies to individuals who are skilled operators and apply a broad range of competencies in various work contexts.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Organise and complete own work schedule	1.1 Ensure that ***work goals, objectives*** or ***KPIs*** are understood, negotiated and agreed in accordance with ***organisational requirements***
	1.2 Assess and prioritise workload to ensure tasks are completed within identified timeframes
	1.3 Identify ***factors affecting the achievement of work objectives*** and incorporate contingencies into work plans
	1.4 Use ***business technology*** efficiently and effectively to manage and monitor scheduling and completion of tasks
2. Monitor own work performance	2.1 Accurately monitor and adjust personal work performance through self-assessment to ensure achievement of tasks and compliance with legislation and work processes or KPIs
	2.2 Ensure that ***feedback on performance*** is actively sought and evaluated from colleagues and clients in the context of individual and group requirements
	2.3 Routinely identify and report on variations in the quality of and ***products and services*** according to organisational requirements
	2.4 Identify ***signs of stress*** and effects on ***personal wellbeing***
	2.5 Identify ***sources of stress*** and access appropriate ***supports and resolution strategies***
3. Coordinate personal skill development and learning	3.1 Identify personal learning and professional development needs and skill gaps using self-assessment and advice from colleagues and clients in relation to role and organisational requirements
	3.2 Identify, prioritise and plan opportunities for undertaking personal skill development activities in liaison with work groups and relevant personnel
	3.3 Access, complete and record ***professional development opportunities*** to facilitate continuous learning and career development
	3.4 Incorporate formal and informal feedback into review of further learning needs

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to give and receive constructive feedback relating to development needs
- literacy skills to read and understand the organisation's procedures
- planning skills to organise work priorities according to work goals and objectives
- problem-solving skills to solve routine problems
- self-management skills to:
  - comply with policies and procedures
  - consistently evaluate and monitor own performance
  - seek learning opportunities.

Required knowledge

- key provisions of relevant legislation from all levels of government that may affect aspects of business operations, such as:
  - anti-discrimination legislation
  - ethical principles
  - codes of practice
  - privacy laws
  - occupational health and safety (OHS)
- organisational policies, plans and procedures
- methods to elicit, analyse and interpret feedback
- principles and techniques of goal setting, measuring performance, time management and personal assessment
- competency standards and how to interpret them in relation to self
- methods to identify and prioritise personal learning needs.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • preparing work plans • scheduling and prioritising work objectives and tasks • knowledge of the principles and techniques of goal setting, measuring performance, time management and personal assessment.
Context of and specific resources for assessment	Assessment must ensure: • access to an actual workplace or simulated environment • access to office equipment and resources • examples of work schedules and performance improvement plans.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • review of self-assessment documentation outlining learning and development needs • analysis of responses to case studies and scenarios • demonstration of techniques • oral or written questioning to assess knowledge of methods to identify and prioritise personal learning needs • evaluation of planning for personal skill development activities and professional development opportunities.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Work goals and objectives may include:	• budgetary targets • production targets • reporting deadlines • sales targets • team and individual learning goals • team participation.
KPIs may include:	• key performance indicators on customer satisfaction • key performance indicators on customer effort • monitoring time taken to answer calls • operating within reporting protocols • score tools such as net promoter • understanding metrics.
Organisational requirements may include:	• access and equity principles and practice • business and performance plans • defined resource parameters • ethical standards • goals, objectives, plans, systems and processes • legal and organisational policies, guidelines and requirements • OHS policies, procedures and programs • quality and continuous improvement processes and standards • quality assurance and/or procedures manuals.
Factors affecting the achievement of work objectives may include:	• budget constraints • competing work demands • environmental factors such as time, weather • resource and materials availability • technology/equipment breakdowns • unforeseen incidents • workplace hazards, risks and controls.
Business technology may include:	• computer applications • computers • email • facsimile machines

	• internet/extranet/intranet • modems • personal schedulers • photocopiers • printers • scanners.
Feedback on performance may include:	• formal/informal performance appraisals • obtaining feedback from clients • obtaining feedback from supervisors and colleagues • personal, reflective behaviour strategies • routine organisational methods for monitoring service delivery.
Products and services may include:	• either products or services • goods • ideas • infrastructure • private or public sets of benefits.
Signs of stress may include:	• absence from work • alcohol or other substance abuse • conflict • poor work performance.
Personal wellbeing may include:	• cultural • emotional • social • spiritual.
Sources of stress may include:	• complex tasks • cultural issues • work and family conflict • workloads.
Supports and resolution strategies may include:	• awareness raising • counselling • employee assistance programs (EAP) • family support • group activities • job design • mediation • sharing load • time off • training.
Professional development opportunities may include:	• career planning/development • coaching, mentoring and/or supervision

	• formal/informal learning programs • internal/external training provision • performance appraisals • personal study • quality assurance assessments and recommendations • recognition of current competence/skills recognition • work experience/exchange/opportunities • workplace skills assessment.

Unit Sector(s)

Industry Capability – Workplace Effectiveness

Custom Content Section

Not applicable.

BSBWOR401A Establish effective workplace relationships

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to collect, analyse and communicate information and to use that information to develop and maintain effective working relationships and networks, with particular regard to communication and representation. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	Frontline managers play an important role in developing and maintaining positive relationships in internal and external environments so that customers, suppliers and the organisation achieve planned outputs and outcomes. They play a prominent part in motivating, mentoring, coaching and developing team cohesion through providing leadership for the team and forming the bridge between the management of the organisation and team members. At this level, work will normally be carried out within routine and non routine methods and procedures, which require planning and evaluation, and leadership and guidance of others.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Collect, analyse and communicate information and ideas	1.1. Collect relevant ***information*** from appropriate sources and analyse and share with the work team to improve work performance 1.2. Communicate ideas and information in a manner which is appropriate and sensitive to the cultural and social diversity of the audience and any specific needs 1.3. Implement ***consultation processes*** to encourage employees to contribute to issues related to their work, and promptly relay feedback to the work team in regard to outcomes 1.4. Seek and value contributions from internal and external sources in developing and refining new ideas and approaches 1.5. Implement ***processes*** to ensure that issues raised are resolved promptly or referred to ***relevant personnel*** as required
2. Develop trust and confidence	2.1. Treat all internal and external contacts with integrity, respect and empathy 2.2. Use the ***organisation's social***, ***ethical and business standards*** to develop and maintain effective relationships 2.3. Gain and maintain the trust and confidence of ***colleagues***, ***customers and suppliers*** through competent performance 2.4. Adjust interpersonal styles and methods to meet organisation's social and cultural environment 2.5. Encourage other members of the work team to follow examples set, according to ***organisation's policies and procedures***
3. Develop and maintain networks and relationships	3.1. Use ***networks*** to identify and build relationships 3.2. Use networks and other work relationships to provide identifiable benefits for the team and organisation
4. Manage difficulties into positive outcomes	4.1. Identify and analyse difficulties, and take action to rectify the situation within the requirements of the organisation and relevant legislation 4.2. Guide and support colleagues to resolve work difficulties 4.3. Regularly review and improve ***workplace outcomes***

ELEMENT	PERFORMANCE CRITERIA
	in consultation with relevant personnel 4.4. Manage ***poor work performance*** within the organisation's processes 4.5. Manage conflict constructively within the organisation's processes

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills

• coaching and mentoring skills to provide support to colleagues
• literacy skills to research, analyse, interpret and report information
• relationship management and communication skills to:
  • deal with people openly and fairly
  • forge effective relationships with internal and/or external people, and to develop and maintain these networks
  • gain the trust and confidence of colleagues
  • respond to unexpected demands from a range of people
  • use supportive and consultative processes effectively.

Required knowledge

• relevant legislation from all levels of government that affects business operation, especially in regard to occupational health and safety (OHS), and environmental issues, equal opportunity, industrial relations and anti-discrimination
• theory associated with managing work relationships to achieve planned outcomes:
  • developing trust and confidence
  • maintaining consistent behaviour in work relationships
  • understanding the cultural and social environment
  • identifying and assessing interpersonal styles
  • establishing, building and maintaining networks
  • identifying and resolving problems
  • resolving conflict
  • managing poor work performance
  • monitoring, analysing and introducing ways to improve work relationships.

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • range of methods and techniques for communicating information and ideas to a range of stakeholders • range of methods and techniques for developing positive work relationships that build trust and confidence in the team • accessing and analysing information to achieve planned outcomes • techniques for resolving problems and conflicts and dealing with poor performance • knowledge of the theory associated with managing work relationships to achieve planned outcomes.
Context of and specific resources for assessment	Assessment must ensure: • access to appropriate documentation and resources normally used in the workplace.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • demonstration of techniques in managing poor performance and communicating effectively • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • observation of performance in role plays • observation of presentations • oral or written questioning to assess knowledge of relevant legislation • review of consultation processesimplemented to encourage employees to contribute to issues related to their work • review of documentation outlining reviewing ofworkplace outcomes.
Guidance information for	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended,

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assessment	for example: • other units from the Certificate IV in Frontline Management.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Information may include:	• data appropriate to work roles and organisational policies that is shared and retrieved in writing or verbally, electronically or manually such as: • archived, filed and historical background data • individual and team performance data • marketing and customer related data • planning and organisational documents including the outcomes of continuous improvement and quality assurance • policies and procedures
Consultation processes may include:	• feedback to the work team and relevant personnel in relation to outcomes of the consultation process • opportunities for all employees to contribute to ideas and information about organisational issues
Processes to ensure that issues raised are resolved promptly or referred may include:	• conducting informal meetings • coordinating surveys or questionnaires • distributing newsletters or reports • exchanging informal dialogue with relevant personnel • participating in planned organisational activities
Relevant personnel may include:	• managers • OHS committee and other people with specialist responsibilities • other employees • supervisors • union representatives/groups
Organisation's social, ethical and business standards may refer to:	• implied standards such as honesty and respect relative to the organisational culture and generally accepted within the wider

RANGE STATEMENT	

	community
	• rewards and recognition for high performing staff
	• standards expressed in legislation and regulations such as anti-discrimination legislation
	• written standards such as those expressed in:
	  • code of workplace conduct/behaviour
	  • dress code
	  • policies
	  • statement of workplace values
	  • vision and mission statements

Colleagues, customers and suppliers may include:	• both internal and external contacts • employees at the same level and more senior managers • people from a wide variety of social, cultural and ethnic backgrounds • team members
Organisation's policies and procedures may refer to:	• Materials Safety Data Sheets • organisational tasks and activities undertaken to meet performance outcomes • sets of accepted actions approved by the organisation • Standard Operating Procedures
Networks may be:	• established structures or unstructured arrangements and may include business or professional associations • informal or formal and with individuals or groups • internal and/or external
Workplace outcomes may include:	• OHS processes and procedures • performance of the work team
Poor work performance may refer to:	• individual team members • organisation as a whole • self • whole work team

Unit Sector(s)

Unit sector	

Competency field

Competency field	Industry Capability - Workplace Effectiveness

Co-requisite units

Co-requisite units		

BSBWOR404B Develop work priorities

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to plan one's own work schedules, to monitor and to obtain feedback on work performance and development. It also addresses the requirement to take responsibility for one's own career planning and professional development. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals who are required to design their own work schedules and work plans, and to establish priorities for their work. They will typically hold some responsibilities for the work of others and have some autonomy in relation to their own role.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and complete own work schedule	1.1. Prepare ***Workgroup*** plans which reflect consideration of resources, client needs and workgroup targets 1.2. Analyse and incorporate ***Work objectives*** and priorities into personal schedules and responsibilities 1.3. Identify ***Factors affecting the achievement of work objectives*** and establish contingencies and incorporate them into work plans 1.4. Efficiently and effectively use ***Business technology*** to manage and monitor planning completion and scheduling of tasks
2. Monitor own work performance	2.1. Identify and analysed personal performance through self-assessment and feedback from others on the achievement of work objectives 2.2. Seek and evaluate ***Feedback on performance*** from colleagues and clients in the context of individual and group requirements 2.3. Routinely identify and report on variations in the quality of service and performance in accordance with organisational requirements
3. Coordinate professional development	3.1. Assess personal knowledge and skills against organisational benchmarks to determine development needs and priorities 3.2. Research and identify sources and plan for opportunities for improvement in consultation with colleagues 3.3. Use ***Feedback*** to identify and develop ways to improve competence within available opportunities 3.4. Identify, access and complete ***professional development activities*** to assist career development 3.5. Store and maintain records and documents relating to achievements and assessments in accordance with organisational requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- learning skills to recognise and develop new and necessary skills and knowledge
- literacy skills to understand the organisation's policies, procedures and communications, to write personal work plans and professional development plans, and to request and receive feedback about performance
- organising skills to prioritise, manage time and meet deadlines
- problem solving skills to develop contingency plans

Required knowledge

- knowledge of relevant business technology applications to schedule tasks and plan work
- knowledge of techniques to prepare personal plans and establish priorities
- methods to identify and prioritise personal learning needs
- understanding of a range of professional development options
- understanding of methods to elicit, analyse and interpret feedback
- understanding of methods to evaluate own performance

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • preparing and communicating own work plan • scheduling work objectives and tasks to support the achievement of goals • seeking and acting on feedback from clients and colleagues • reviewing own work performance against achievements through self-assessment • accessing learning opportunities to extend own personal work competencies • using business technology to monitor self development.
Context of and specific resources for assessment	Assessment must ensure: • the learner and trainer should have access to appropriate documentation and resources normally used in the workplace
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • observation of performance in role plays • observation of presentations • review of work and professional development plans.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • Other units from the Certificate IV in Frontline Management.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Workgroup plans may include:	• budgetary plans • production plans • reporting plans • sales plans • team and individual learning goals • team participation • work schedules
Work objectives may include:	• budgetary targets • production targets • reporting deadlines • sales targets • team and individual learning goals • team participation
Factors affecting the achievement of work objectives may include:	• budget constraints • competing work demands • environmental factors such as time, weather, etc • personnel • resource and materials availability • technology/equipment breakdowns • unforeseen incidents
Business technology may include:	• computer applications • computers • email and internet/intranet/extranet • facsimile machines • modems • personal schedules • photocopiers • printers • scanners
Feedback on performance may include:	• formal/informal performance appraisals • obtaining comments from clients • obtaining comments from supervisors and

RANGE STATEMENT	
	colleagues • personal, reflective behaviour strategies • routine organisational methods for monitoring service delivery
Professional development activities may include:	• career planning/development • coaching, mentoring and/or supervision • formal/informal learning programs • internal/external training provision • performance appraisals • personal study • Recognition of Prior Learning • work experience/exchange/opportunities • workplace skills assessment

Unit Sector(s)

Unit sector	

ELEMENT	**PERFORMANCE CRITERIA**

Competency field

Competency field	Management and Leadership - Management

Co-requisite units

Co-requisite units		

BSBWRK408A Undertake negotiations

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to effectively participate in negotiations either as an individual or as a member of a negotiating team. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals who have knowledge of unionism and industrial relations, and a commitment to advancing social justice principles. They provide leadership and guidance to workers and union members. The unit relates to the negotiation of a range of issues for workers, such as terms and conditions of employment, awards and agreements, workplace safety and industrial matters.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for negotiations	1.1. Encourage members to raise issues and matters of concern 1.2. Analyse the presenting issue and obtain additional information from members and others, if required 1.3. Identify the ***purpose and objectives of the negotiation*** and verify the claim, including top- and bottom-line positions, in consultation with members 1.4. Identify and establish priorities for the negotiation 1.5. Undertake research to develop a position which is assessed for strengths and weaknesses, takes account of member views and is assessed against relevant policies 1.6. Identify main arguments, predict opponent's arguments and consider consequences of not reaching agreement 1.7. Select a ***negotiation style*** and make decisions on how to present the position
2. Participate in negotiations	2.1. Assign roles for negotiators, fully brief all participants and gain support from all relevant parties for an agreed approach to the negotiations 2.2. Clearly state relevant facts to the issue presented in the negotiation and explain the strength of the agreed position 2.3. Identify ***relevant precedents*** and supporting arguments 2.4. Identify all negotiating positions and alternative offers 2.5. Utilise effective communication techniques and ***techniques for dealing with conflict and deadlocks*** 2.6. Monitor discussions, take notes and fully explore options consistent with objectives/policies 2.7. Seek adjournments where appropriate and take time to consult with others where required 2.8. Confirm agreed position or outcome in writing
3. Finalise and monitor outcomes of negotiations	3.1. Confirm agreement with the relevant authority, document the agreement and file appropriately 3.2. Report to members on outcomes of the negotiations 3.3. Put mechanisms in place to ensure agreement is implemented and implementation is monitored 3.4. Debrief negotiating participants and take follow-up

ELEMENT	PERFORMANCE CRITERIA
	action if required 3.5. Evaluate effectiveness of negotiation against objectives and relevant policies

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• analytical and research skills to ensure proper preparation for negotiations • communication skills to negotiate effectively • innovation skills to find meaningful ways to deal with a wide range of member issues • problem-solving skills to find ways to deal with blocks to negotiation.
Required knowledge
• common law rights and obligations • decisions and actions of regional, national and international union organisations and councils • precedents for similar issues/matters • relevant employment agreements, awards and terms, and conditions of employment • relevant legislation relating to industrial relations, vocational education and training, occupational health and safety, discrimination and equal employment opportunity • relevant policies and procedures.

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • demonstration of negotiations on a range of industrial and other relevant issues, with various stakeholders • preparation of relevant documents to support effective negotiations • knowledge of precedents for similar issues/matters.
Context of and specific resources for assessment	Assessment must ensure: • access to a range of scenarios relevant to the work of the candidate • suitable environment for re-enacting negotiations.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • analysis of responses to case studies and scenarios • demonstration of techniques • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • observation of demonstrated techniques in negotiation • observation of performance in role plays • observation of presentations • oral or written questioning to assess knowledge of relevant policies and procedures • review of position developed for the negotiation • review of notes taken and options explored during the negotiation • evaluation of reports to members on outcomes of the negotiations.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other workplace relations units.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Purpose and objectives of the negotiation may relate to:	• awards and agreements • roles and responsibilities • settlement of claims • skills and training issues • terms and conditions of a contract • terms and conditions of employment • workplace health and safety issues
Negotiation style may be:	• assertive • collaborative • competitive • subordinate
Relevant precedents could include:	• industrial or legal decision/s and interpretations • issues at common law • other workplace/industry disputes and agreements • statutory and industrial rights and conditions
Effective communication techniques refers to:	• active listening • body language • interpersonal and language style • questioning (use of open or closed questions)
Techniques for dealing with conflict and deadlocks may include:	• calling in a third party • clarifying the position of both parties • notifying and undertaking industrial action • preparing a compromise or alternate position • referring back and consulting with members • restating or reframing the position

Unit Sector(s)

Unit sector	

Competency field

Competency field	Workforce Development - Workplace Relations

Co-requisite units

Co-requisite units		

CSCORG301A Prepare reports

Modification History

CSCORG301A Release 2: Layout adjusted. Minor revisions to required knowledge.
CSCORG301A Release 1: Primary release.

Unit Descriptor

This unit of competency describes the outcomes required to prepare reports required by the organisation. It includes exchanging information for specific purposes, adapting written communication to people and situations, collecting and analysing information, and maintaining the security of information. It is about providing information in different forms, according to the needs and requirements of individual work roles and responsibilities.

Application of the Unit

This is a core unit for all Certificate III qualifications, and applies to candidates with both general and specialist competencies from the range of occupational areas. For this reason this unit may be significantly customised, particularly in the assessment of knowledge based on different organisational, sector and locational requirements.
In practice, workplace communication overlaps with other generalist or specialist work activities, such as delivering client services, handling information, using resources, using technology, etc.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Identify reporting needs.	1.1 Identify the reasons and requirements for recording and reporting and follow the set procedures for specific ***types of reports***.
	1.2 Identify who will read the report and choose the style of recording and reporting to meet the needs of the reader.
2 Collect and analyse information.	2.1 ***Collect information*** and set it out in priority order according to reasons for it being recorded and any set procedures.
	2.2 Check the information with a range of authorities and confirm its accuracy, relevance and status.
	2.3 Check whether more information is needed and gather it from a range of sources where appropriate.
	2.4 Make sure that the conclusions drawn and actions taken match the available information.
3 Record information.	3.1 Record and report information in the required format, style, structure and timeframe.
	3.2 Use technology available in the workplace to store and retrieve data.
	3.3 Ensure that all ***written material*** complies with ***legislative requirements and organisational policies and procedures***.

Required Skills and Knowledge

This section describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- adjusting written communication to suit audience and situation
- applying appropriate written communication techniques to workplace situations
- reading, analysing and interpreting documents containing the required information
- checking and confirming with reliable sources inside and outside the organisation the accuracy and relevance of information
- checking what extra information is needed and finding it where appropriate
- sorting information into a logical pattern
- making conclusions that are clearly based on the information
- recording complete, accurate, clear and objective information
- presenting written material in the range of media used in the workplace, including information technology software (e.g. word processing packages)
- recognising the urgency and high risk components of specific reports
- handling and storing information securely and safely and with an awareness of environmental and sustainable practices
- using the organisation's information system.

Required knowledge:

- organisation's policies, procedures, guidelines and requirements for report writing
- correct format, language and form required by the organisation
- basic written communication techniques, including barriers to effective communication
- protocols and procedures for communicating in writing with others
- rules of evidence
- security of information, freedom of information and confidentiality of information
- relevant cultural practices within the organisation and community
- identification of discriminative language
- technical and professional language used in the government and community safety sectors
- an awareness of legislation and statutory obligations of reporting in own state or territory justice system, including legal requirements of own role and responsibilities.

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, the range statement and the Assessment Guidelines for this Training Package.

Overview of assessment

Evidence for assessment must be gathered over a significant period of time and in conjunction with assessment activities and evidence gathered for all other units at the qualification level where the assessment activity includes the preparation of reports.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

In addition to integrated demonstration of the elements and their related performance criteria, look for evidence that confirms:

- the knowledge requirements of this unit
- the skill requirements of this unit
- application of employability skills as they relate to this unit
- ability to prepare reports in a range of (two or more) contexts or occasions, over time.

Context of and specific resources for assessment

Valid assessment of this unit requires:

- a workplace environment or one that closely resembles normal work practice and replicates the range of conditions likely to be encountered when reading and writing routine workplace reports, including coping with difficulties, irregularities and changes to routine
- case studies and workplace scenarios to capture the range of routine reading and writing situations likely to be encountered in the organisation
- copies of legislation, policies, procedures and guidelines relating to preparing written reports and working ethically and professionally within the organisation
- access to appropriate learning and assessment support when required.

Method of assessment

Assessment of this unit will be based on evidence drawn from a combination of:

- knowledge testing and simulation exercises conducted in a training program
- knowledge tested or inferred from explanations and performance in workplace applications
- observation of performance in routine workplace activities in a specified range of interactions
- organisational standards specifying the requirements for communication

- workplace reports produced as part of routine work activities
- observation and documentation from specially conducted assignments based on routine work requirements
- observation and feedback from supervisors, colleagues and clients.

This unit requires evidence of reports prepared for:

- audiences with different levels of authority and status
- routine and predictable contexts as well as for non-routine activities
- audiences inside the organisation
- audiences outside the organisation
- operating procedures and work unit requirements.

Guidance information for assessment

Assessment methods should reflect workplace demands, and any identified special needs of the candidate, including language and literacy implications and cultural factors that may affect responses to the questions.

In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording in the performance criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Types of reports can include:	• incident reports • witness reports • routine periodic reports • occupational health and safety reports • case management reports • reports of meetings.
Collect information from a range of different sources and strategies may include:	• organisation's information recording and storage system • paper and computer sources of data and information • interviews • incident reports • case notes • colleagues.
Written material will include evidence of:	• informal reports and documents for internal use • electronic files using the information technology required by the work site • correcting and updating information • complying with the organisation's procedures for the storage, security and confidentiality of information.
Legislative requirements, ***and organisational policies and procedures*** may relate to:	• confidentiality • authorised access to or use of information • freedom of information • protection of privacy • data protection and the storage and security of information • use of information technology and other electronic or telecommunication systems.

Unit Sector(s)

Organisational administration and management.

Competency field

Not applicable.

Co-requisite units

Not applicable.

FDFPPL3003A Support and mentor individuals and groups

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency covers the skills and knowledge required to model appropriate work practices, provide feedback to groups and individuals and facilitate group processes.

Application of the Unit

Application of the unit	This unit applies to support provided to a team or work group. A person competent in this unit may or may not have formal responsibility for managing others.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Support others in the work area	1.1. Individuals are mentored to meet work requirements 1.2. Performance that is inappropriate is identified and corrective action taken 1.3. Feedback on performance is provided
2. Facilitate group processes	2.1. Purpose of group process is identified 2.2. Meeting procedures required to achieve an agreed outcome are determined and applied 2.3. Group members are engaged in the process 2.4. Clear outcomes are reached in a timely manner

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Ability to:

- model behaviour consistent with company policies and procedures
- identify behaviour or performance that is unacceptable
- structure interventions and feedback to clearly convey required standard of performance
- apply appropriate explanation, demonstration, questioning and active listening techniques when interacting with others
- provide feedback appropriate to the audience requirements
- recognise and respond appropriately to difference and diversity in the workplace
- provide and/or arrange opportunities to develop/practice appropriate skills
- plan group processes, including clearly identifying the purpose of the discussion or meeting, confirming the appropriate people are available and planning a basic outline of the approach and/or agenda
- facilitate meetings, including confirming with group members the purpose of the discussion or meeting, engaging people in discussion and assisting the group to reach an agreed outcome within the allotted timeframe
- record meeting outcomes
- follow up group processes, including identifying actions required to follow up outcomes of a discussion or meeting
- use oral communication skills/language competence to fulfil the job role as specified by the organisation, including questioning, active listening, asking for clarification and seeking advice from supervisor
- work cooperatively within a culturally diverse workforce

Required knowledge

Knowledge of:

- company policies and procedures as they apply to the work area, including areas covered by legislation, such as sexual harassment, equal employment opportunity (EEO)/affirmative action, anti-discrimination, racial vilification and workplace bullying, occupational health and safety (OHS), food safety and environmental management
- industry awards and enterprise agreements to develop an awareness of the main issues covered as they affect day-to-day work arrangements
- systems and programs in the workplace to support development and mentoring of others
- relevant resources to support mentoring role and responsibilities
- techniques for structuring and explaining work-related information to meet the

REQUIRED SKILLS AND KNOWLEDGE
needs of people in the work area • interpersonal skills, including appropriate questioning, listening and feedback techniques • training/assessment arrangements in the workplace and related responsibilities • boundaries of responsibility and related procedures for feedback, counselling and disciplinary procedures • formal arrangements and responsibilities for consulting others relating to work role • meeting procedures and recording requirements as relevant in the workplace

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	Assessment must be carried out in a manner that recognises the cultural and literacy requirements of the assessee and is appropriate to the work performed. Competence in this unit must be achieved in accordance with food safety standards and regulations.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of ability to: • model behaviour and performance consistent with company policy and procedures • support others in their behaviour and performance • provide feedback on performance and take corrective action on inappropriate behaviours • plan and organise group meetings or activities to engage participation • support group meetings to gain clear outcomes.
Context of and specific resources for assessment	Assessment must occur in a real or simulated workplace where the assessee has access to: • advice on workplace policies, codes of practice and procedures • opportunities to interact with others using typical workplace communication processes • typical group forums, such as structured group discussions, committee meetings and work groups • workplace systems and procedures for consultation, feedback, counselling and discipline • advice on conditions of employment and entitlements • information systems, including recording and retrieval systems.
Method of assessment	This unit should be assessed together with core units and other units of competency relevant to the function or work role. Examples could be: • FDFOP2005A Work in a socially diverse environment • FDFPPL3004A Lead work teams and groups.
Guidance information for	To ensure consistency in one's performance, competency should be demonstrated on more than one occasion over

EVIDENCE GUIDE	
assessment	a period of time in order to cover a variety of circumstances, cases and responsibilities, and where possible, over a number of assessment activities.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Policies and procedures	Work is carried out in accordance with company policies, procedures, regulatory and licensing requirements, legislative requirements and industrial awards and agreements
Mentoring and feedback arrangements	Mentoring and feedback arrangements may be: • formal or informal
Corrective action	Corrective action may include: • reporting an incident to a more senior person as appropriate
Group processes	Group processes may include: • formal meeting procedures and informal discussions • group meetings
Communication systems	Communication systems reflect the culture of the workplace and the workforce. This may include: • communicating with people from diverse cultural backgrounds and with people with limited English language and literacy skills
Meeting procedures	Meeting procedures include: • developing an agenda • seeking input • recording actions arising and working towards an agreed outcome within time allocation

Unit Sector(s)

Unit sector	People management/planning/logistics

Competency field

Competency field	

Co-requisite units

Co-requisite units		

FNSPIM410A Collect, assess and use information

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit covers the skills and knowledge involved in obtaining information from various sources, analysing and interpreting the information to draw useful conclusions and provide advice to customers or management. This unit may apply to job roles subject to licensing, legislative, regulatory or certification requirements so Commonwealth, State or Territory requirements should be confirmed with the relevant body.

Application of the Unit

Application of the unit	This unit may be applied in any sector of the financial services industry, in particular the personal injury management sector. The skills may also be applied as part of a formal internal dispute resolution process.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Clarify the requirements for information	1.1. Scope and purpose for which the ***information*** is required are clarified 1.2. Timelines for collection and presentation of information is determined
2. Collect and organise information	2.1. ***Sources of information*** are identified 2.2. Information/data is obtained and appropriately recorded in accordance with ***legislative requirements*** 2.3. Information/data is checked to see that it is accurate, up to date and comprehensive 2.4. Information/ data is organised for ease of use
3. Analyse and draw conclusions, if necessary	3.1. Information /data is interpreted and analysed 3.2. Significance of information/data is determined and discussed with appropriate personnel 3.3. Conclusions based on information/data are drawn, if required
4. Present information in appropriate format	4.1. Information is presented in an appropriate format and in accordance with organisation procedures 4.2. Completeness and accuracy of the information/data and justification of the conclusions are evaluated 4.3. Deadline for presentation of the information is met

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
  - determine and confirm information, using questioning and active listening as required
  - liaise with others, share information, listen and understand
  - use language and concepts appropriate to cultural differences
- numeracy and IT skills to:
  - perform calculations related to achieving required outcomes
  - use computer applications (word processing, spreadsheet, database, specific purpose computer systems) to assist in achieving required outcomes
  - access and update records electronically
  - use internet information
- literacy skills to read and interpret documentation from a variety of sources and record and consolidate relevant related information
- research and analysis skills for accessing and interpreting relevant information
- organisation skills, including the ability to plan and sequence work
- data collection, analysis and interpretation skills
- appropriate data presentation skills (written/oral)
- file management and organisation skills
- appropriate written and oral interpersonal skills

Required knowledge

- investigation methods
- knowledge of organisation policies and procedures
- knowledge of organisation products and services
- knowledge of information technology and communication systems
- knowledge of relevant legislative reporting requirements

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • clarify requirements for collection of information • collect and organise information • analyse information and draw conclusions • present information in appropriate formats • utilise organisation technology.
Context of and specific resources for assessment	Assessment must ensure: • competency is demonstrated in the context of the work environment and conditions specified in the range statement either in a relevant workplace or a closely simulated work environment • access to and the use of a range of common office equipment, technology, software and consumables • access to organisation records • access to organisation policies and procedures.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples, in combination, are appropriate for this unit: • evaluating an integrated activity, which combines the elements of competency for the unit, or a cluster of related units of competency • observing processes and procedures in workplaces • verbal or written questioning on underpinning knowledge and skills • evaluating samples of work • accessing and validating third party reports • setting and reviewing workplace projects and business simulations or scenarios.
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Information may include:	• basic information for management • regulator/government reporting • routine statistical reports.
Sources of information may be:	• Australian Bureau of Statistics (ABS) • government departments • computerised or manual • libraries (organisation libraries or other libraries such as public or university libraries) • professional bodies • workplace document and computer files.
Legislative requirements may include:	• Disability and Discrimination Act • Equal Opportunity Act • industry codes of practice • legislation relevant to personal injury and rehabilitation industry sectors • Occupational Safety and Health Act • Surveillance Act • Workplace Relations Act.

Unit Sector(s)

Unit sector	Personal injury management

Competency field

Competency field	

Co-requisite units

Co-requisite units		

HLTAID003 Provide first aid

Modification History

Release	Comments
Release 5	Updated mapping information. Changes to assessment requirements. Equivalent outcome.
Release 4	Updated mapping information. Equivalent outcome.
Release 3	Updated mapping information.
Release 2	Minor corrections to formatting to improve readability. Equivalent competency outcome.
Release 1	This version was released in *HLT Health Training Package release 1.0* and meets the requirements of the New Standards for Training Packages. Significant changes to elements and performance criteria, changes to scope of unit. New evidence requirements for assessment. Removal of prerequisite unit

Application

This unit describes the skills and knowledge required to provide a first aid response to a casualty. The unit applies to all workers who may be required to provide a first aid response in a range of situations, including community and workplace settings.

Specific licensing /regulatory requirements relating to this competency, including requirements for refresher training should be obtained from the relevant national/state/territory Work Health and Safety Regulatory Authorities.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Elements define the essential outcomes.	*Performance criteria specify the level of performance needed to demonstrate achievement of the element.*
1. Respond to an emergency situation	1.1 Recognise an emergency situation 1.2 Identify, assess and manage immediate hazards to

ELEMENT	PERFORMANCE CRITERIA
Elements define the essential outcomes.	*Performance criteria specify the level of performance needed to demonstrate achievement of the element.*
	health and safety of self and others
	1.3 Assess the casualty and recognise the need for first aid response
	1.4 Assess the situation and seek assistance from emergency response services
2. Apply appropriate first aid procedures	2.1 Perform cardiopulmonary resuscitation (CPR) in accordance with Australian Resuscitation Council (ARC) guidelines
	2.2 Provide first aid in accordance with established first aid principles
	2.3 Display respectful behaviour towards casualty
	2.4 Obtain consent from casualty where possible
	2.5 Use available resources and equipment to make the casualty as comfortable as possible
	2.6 Operate first aid equipment according to manufacturer's instructions
	2.7 Monitor the casualty's condition and respond in accordance with first aid principles
3. Communicate details of the incident	3.1 Accurately convey incident details to emergency response services
	3.2 Report details of incident to workplace supervisor as appropriate
	3.3 Maintain confidentiality of records and information in line with statutory and/or organisational policies
4. Evaluate the incident and own performance	4.1 Recognise the possible psychological impacts on self and other rescuers involved in critical incidents
	4.2 Participate in debriefing to address individual needs

Foundation Skills

The Foundation Skills described those required skills (such as language, literacy, numeracy and employment skills) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

No equivalent unit.

Links

www.cshisc.com.au - http://www.cshisc.com.au

Assessment Requirements for HLTAID003 Provide first aid

Modification History

Release	Comments
Release 5	Updated mapping information. Changes to assessment requirements. Equivalent outcome.
Release 4	Updated mapping information. Equivalent outcome.
Release 3	Updated mapping information.
Release 2	Minor corrections to formatting to improve readability. Equivalent competency outcome.
Release 1	This version was released in *HLT Health Training Package release 1.0* and meets the requirements of the New Standards for Training Packages. Significant changes to elements and performance criteria, changes to scope of unit. New evidence requirements for assessment. Removal of prerequisite unit

Performance Evidence

e candidate must show evidence of the ability to complete tasks outlined in elements and performance criteria of this unit, manage tasks and manage contingencies in the context of the job role.

There must be evidence that the candidate has completed the following tasks in line with state/territory regulations, first aid codes of practice, Australian Resuscitation Council (ARC) guidelines and workplace procedures:

- Followed DRSABCD in line with ARC guidelines, including:
  - performed at least 2 minutes of uninterrupted single rescuer cardiopulmonary resuscitation (CPR) (5 cycles of both compressions and ventilations) on an adult resuscitation manikin placed on the floor
  - performed at least 2 minutes of uninterrupted single rescuer CPR (5 cycles both compressions and ventilations) on an infant resuscitation manikin placed on a firm surface
  - responded appropriately in the event of regurgitation or vomiting
  - managed the unconscious breathing casualty
  - followed single rescue procedure, including the demonstration of a rotation of operators with minimal interruptions to compressions
  - followed the prompts of an Automated External Defibrillator (AED)
- Responded to at least two simulated first aid scenarios contextualised to the candidate's workplace/community setting, including:
  - conducted a visual and verbal assessment of the casualty
  - demonstrated safe manual handling techniques
  - post-incident debrief and evaluation
  - provided an accurate verbal or written report of the incident
- Applied first aid procedures for the following:
  - allergic reaction
  - anaphylaxis
  - bleeding control
  - choking and airway obstruction
  - envenomation, using pressure immobilisation
  - fractures, sprains and strains, using arm slings, roller bandages or other appropriate immobilisation techniques
  - respiratory distress, including asthma
  - shock

Knowledge Evidence

The candidate must be able to demonstrate essential knowledge required to effectively complete tasks outlined in elements and performance criteria of this unit, manage tasks and manage contingencies in the context of the work role. This includes knowledge of:

- State/Territory regulations, first aid codes of practice and workplace procedures including:
  - ARC Guidelines relevant to provision of CPR and first aid
  - safe work practices to minimise risks and potential hazards
  - infection control principles and procedures, including use of standard precautions
  - requirements for currency of skill and knowledge
- legal, workplace and community considerations including:
  - awareness of potential need for stress-management techniques and available support following an emergency situation
  - duty of care requirements
  - respectful behaviour towards a casualty
  - own skills and limitations
  - consent
  - privacy and confidentiality requirements
  - importance of debriefing
- considerations when providing first aid including:
  - airway obstruction due to body position
  - appropriate duration and cessation of CPR
  - appropriate use of an AED
  - chain of survival
  - standard precautions
  - how to conduct a visual and verbal assessment of the casualty
- principles and procedures for first aid management of the following scenarios:
  - abdominal injuries
  - allergic reaction
  - anaphylaxis
  - basic care of a wound
  - bleeding control
  - burns
  - cardiac conditions, including chest pain
  - choking and airway obstruction
  - crush injuries
  - diabetes
  - dislocations
  - drowning
  - envenomation
  - environmental impact, including hypothermia, hyperthermia, dehydration and heat stroke
  - eye and ear injuries
  - fractures
  - febrile convulsions
  - head, neck and spinal injuries

  - minor skin injuries
  - needle stick injuries
  - poisoning and toxic substances
  - respiratory distress, including asthma
  - seizures, including epilepsy
  - shock
  - soft tissue injuries, including strains and, sprains
  - stroke
  - unconsciousness
- basic anatomy and physiology relating to:
  - how to recognise a person is not breathing normally
  - chest
  - response/consciousness
  - upper airway and effect of positional change
  - considerations in provision of first aid for specified conditions

Assessment Conditions

Skills must be demonstrated working individually in an environment that provides realistic in-depth, industry-validated scenarios and simulations to assess candidates' skills and knowledge.

Assessment resources must include:

- adult and infant resuscitation manikins in line with ARC Guidelines for the purpose of assessment of CPR procedures
- adrenaline auto-injector training device
- AED training device
- placebo bronchodilator and spacer device
- roller bandages
- triangular bandages
- workplace First Aid kit
- workplace injury, trauma and/or illness record, or other appropriate workplace incident report form for written reports
- wound dressings

Simulated assessment environments must simulate the real-life working environment where these skills and knowledge would be performed, with all the relevant equipment and resources of that working environment.

Assessor requirements
Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion volumes from the CS&HISC website - http://www.cshisc.com.au

MEM09002B Interpret technical drawing

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers interpreting technical drawing applying to any of the full range of engineering disciplines.

Application of the Unit

Application of the unit	Technical drawings may utilise perspective, exploded views or hidden view techniques. Drawings are provided to Australian Standard 1100 and/or Australian Standard 1102 and their equivalents from the full range of engineering disciplines. Standard symbols to Australian Standard 1100 and/or Australian Standard 1102 or equivalent are recognised in field of employment. Technical drawings may include symbol glossaries. Where any drawing, sketch, chart, diagram is only used as the technique for communication, then this unit does not apply: see Unit MEM12023A (perform engineering measurements) or Unit MEM16006A (Organise and communicate information). **Band**: **A** **Unit Weight**: **4**

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Select correct technical drawing	1.1. Drawing is checked and validated against job requirements or equipment. 1.2. Drawing version is checked and validated.
2. Interpret technical drawing	2.1. Components, assemblies or objects are recognised as required. 2.2. Dimensions are identified as appropriate to field of employment. 2.3. Instructions are identified and followed as required. 2.4. Material requirements are identified as required. 2.5. Symbols are recognised in the drawing as appropriate.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Look for evidence that confirms skills in:

- checking the drawing against job requirements/related equipment in accordance with standard operating procedures
- confirming the drawing version as being current in accordance with standard operating procedures
- where appropriate, obtaining the current version of the drawing in accordance with standard operating procedures
- reading, interpreting information on the drawing, written job instructions, specifications, standard operating procedures, charts, lists and other applicable reference documents
- checking and clarifying task related information
- undertaking numerical operations, geometry and calculations/formulae within the scope of this unit

Required knowledge

Look for evidence that confirms knowledge of:

- application of AS1100.101 in accordance with standard operating procedures
- relationship between the views contained in the drawing

REQUIRED SKILLS AND KNOWLEDGE
• objects represented in the drawing • units of measurement used in the preparation of the drawing • dimensions of the key features of the objects depicted in the drawing • understanding of the instructions contained in the drawing • the actions to be undertaken in response to those instructions • the materials from which the object(s) are made • any symbols used in the drawing as described in range statement • hazard and control measures associated with interpreting technical drawings, including housekeeping • safe work practices and procedures

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	A person who demonstrates competency in this unit must be able to interpret technical drawings as described.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.
Context of and specific resources for assessment	This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate. This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with interpreting technical drawings or other units requiring the exercise of the skills and knowledge covered by this unit.
Method of assessment	Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning should not require language, literacy and numeracy skills beyond those required in this unit. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Interpret technical drawing	AS1100.101 is an extensive work and the candidate is not required to have complete familiarity with all its contents, the application of AS1100 would usually be in line with standard operating procedures; interpretation may require guidance particularly in respect to any geometric tolerancing

Unit Sector(s)

Unit sector	

Co-requisite units

Co-requisite units		

Competency field

Competency field	Drawing, drafting and design

MSAPMSUP390A Use structured problem solving tools

Modification History

Not applicable.

Unit Descriptor

Unit descriptor
This competency covers the solving of process and other problems, beyond those associated directly with the process unit/equipment, using structured process improvement tools to identify improvements and/or solve problems.

Application of the Unit

Application of this unit
The competency is typically performed by an experienced operator, team leader or supervisor. Generally the person would be part of a team during the solving of complex or systemic problems and would be expected to perform all parts of this unit and at all times would be liaising and cooperating with other members of the team. This includes:

- using a range of formal problem solving techniques
- identifying and clarifying the nature of the problem
- devising the best solution
- evaluating the solution
- developing an implementation plan to rectify the problem.

This unit does not cover the solving of problems undertaken as part of the operator's normal role which is covered in the relevant operation competency unit.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisites
This unit has **no** prerequisites.

Employability Skills Information

Employability Skills
This unit contains employability skills.

Elements and Performance Criteria Pre-Content

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency	Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
ELEMENT	Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Assessment of performance is to be consistent with the Evidence Guide.
1. Identify the problem.	1.1 Identify variances from normal operating parameters and product quality. 1.2 Define the extent, cause and nature of the problem by observation and investigation. 1.3 State and specify the problem clearly.
2. Determine fundamental cause of problem.	2.1 Identify possible causes based on experience and the use of problem solving tools/analytical techniques. 2.2 Develop possible cause statements. 2.3 Identify fundamental cause.
3. Determine corrective action.	3.1 Consider all possible options for resolution of the problem. 3.2 Consider strengths and weaknesses of possible options. 3.3 Determine corrective action to remove the problem and possible future causes. 3.4 Develop implementation plans identifying measurable objectives, resource needs and timelines in accordance with safety and operating procedures. 3.5 Develop recommendations for ongoing monitoring and testing.
4. Communicate recommendations.	4.1 Prepare report on recommendations. 4.2 Present recommendations to appropriate personnel. 4.3 Follow up recommendations if required.

Required Skills and Knowledge

This describes the essential skills and knowledge and their level required for this unit.
Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognise non-standard situations.
This unit of competency includes use of analytical techniques in problem solving such as:

- brainstorming
- fishbone diagrams/cause and effect diagrams
- process logic/process requirements
- logic tree
- similarity/difference analysis
- Pareto analysis
- force field/SWOT analysis
- flow charts
- control charts, runcharts and graphs
- scattergrams.

Action plans to solve problems are prepared including:

- priority requirements
- measurable objectives
- resource requirements
- methods for reaching objectives
- timelines
- coordination and feedback requirements
- safety requirements
- risk assessment
- environmental requirements.

Language, **literacy and numeracy requirements**
This unit requires the ability to read and interpret typical product specifications, job sheets and material labels as provided to operators.
Writing is required to the level of report writing and completing workplace forms.
Basic numeracy is also required, eg to interpret quality data and graphs.

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required skills and knowledge, the Range Statement and the Assessment Guidelines for this Training Package.
Overview of assessment
A holistic approach should be taken to the assessment.
Assessors must be satisfied that the person can consistently perform the unit as a whole, as defined by the Elements, Performance Criteria and skills and knowledge.
Critical aspects for assessment and evidence required to demonstrate competency in this unit

It is essential that competence is demonstrated in the knowledge and skills defined in this unit. These may include the ability to apply and explain:

- relevant equipment and operational processes
- enterprise policies and procedures
- enterprise goals, targets and measures
- enterprise quality, OHS and environmental requirements
- principles of decision-making strategies and techniques
- enterprise information systems and data collation
- industry codes and standards.

Consistent performance should be demonstrated. For example, look to see that:

- problems are recognised and clarified
- possible causes are identified, based on experience and use of analytical techniques in solving the problem, including:
  - identifying variations
  - identifying cause and effect
  - separating single problems from multiple problems
  - recognising recurring problems.
- fundamental cause of process or equipment faults is determined
- corrective/preventative implementation plans are developed to avoid recurrence of the problem
- implementation plan is presented to relevant personnel.

Assessment method and context

Assessment will occur on the job or in a simulated workplace.
Competence in this unit may be assessed:

- in a situation allowing the generation of evidence of the ability to recognise and respond to problems
- by using a suitable simulation and/or a range of case studies/scenarios
- through a combination of these techniques.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment. Assessors need to be aware of any cultural issues that may affect responses to questions.
Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the assessee and the work being performed.

Specific resources for assessment

This section should be read in conjunction with the Range Statement for this unit of competency. Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.
Access must be provided to appropriate learning and/or assessment support when required. Where applicable, physical resources should include equipment modified for people with disabilities.

Range Statement

RANGE STATEMENT

The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts. Where reference is made to industry codes of practice, and/or Australian/international standards, the latest version must be used.

Context

The competency unit applies to a wide range of processes and equipment. The process manufacturing technical units of competency include a problem solving element where problems specific to that competency unit are to be resolved. This competency unit is where structured problem solving techniques are to be applied more broadly, or with greater depth/rigour than is implied by the problem solving element of the technical units.

In large plants or manufacturing organisations with multiple processes, it may apply to more than one process if those processes interact with each other. It applies to all operators across all functions.

Procedures

All operations are performed in accordance with procedures.

Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.

Hazards

Typical hazards include leaks, spillages and equipment hazards that can occur during the walk-through of a plant.

Problems

'Anticipate and solve problems' means resolve a wide range of routine and non-routine problems, using product and process knowledge to develop solutions to problems which do not have a known solution/a solution recorded in the procedures.

Typical process and product problems may include:

- non- routine process and quality problems
- equipment selection, availability and failure
- teamwork and work allocation problems
- safety and emergency situations and incidents.
-

Unit Sector(s)

Not applicable.

PMBPROD336A Inspect heavy off-the-road tyres

Modification History

Release 1 - New unit of competency

Unit Descriptor

This unit of competency covers the skills and knowledge needed to inspect tyres defined by AS 4457.2-2008 Earth-moving machinery - Off-the-road wheels, rims and tyres - Maintenance and repair - Tyres (or its authorised replacement) or similar tyres.

Application of the Unit

This competency is typically performed by advanced operators applying knowledge of materials, knowledge and basic understanding of the tyre design, and product purpose and processes to the inspection of tyres for defects that would preclude them being repaired or making some preliminary judgements as to the extent and nature of any required repairs. It also requires the use of some discretion and judgment to recognise and resolve a range of problems.
This unit should be interpreted in line with AS 4457.2-2008 Earth-moving machinery - Off-the-road wheels, rims and tyres - Maintenance and repair - Tyres.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1	Prepare for inspection	1.1	Complete initial documentation for tyre
		1.2	Raise all relevant paperwork as required
		1.3	Clean tyre ready for inspection
		1.4	Position tyre securely for inspection
2	Inspect tyre	2.1	Identify injuries to tyre both internally and externally
		2.2	Investigate injuries for extent and nature
		2.3	Identify injuries/tyres which are irreparable
		2.4	Determine injuries which should be repaired
		2.5	Mark areas requiring repair
		2.6	Categorise injuries to standard
		2.7	Determine overall reparability of the tyre
3	Finalise inspection	3.1	Complete any required internal paperwork
		3.2	Prepare customer quotation as required
		3.3	Communicate with customer in accordance with procedures
		3.4	Make arrangements for tyre to be repaired, scrapped or returned as required

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- use of inspection tools
- communicating effectively
- analytical skills
- working safely in accordance with operational requirements and safe systems of work
- ability to read and interpret typical product specifications, job sheets and material labels as provided to operators
- writing to the level of completing workplace forms and production reports

Required knowledge

Required knowledge includes:

- organisation's procedures
- heavy off-the-road (HOTR) tyre construction
- radial and bias ply construction
- methods of identifying lug/position identification
- AS 4457.2-2008 Earth-moving machinery - Off-the-road wheels, rims and tyres - Maintenance and repair - Tyres
- hazards and hazard controls associated with HOTR tyre inspection
- indicators of tyre injuries
- injuries which do not need repairing, injuries which are reparable and injuries which either individually or in the sum should not be repaired
- reporting procedures

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria required skills and knowledge range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Critical aspects for assessment and evidence are: • tyre injury is identified and appropriate action determined • consistent application of inspection and testing standards • safety procedures are always followed.
Context of and specific resources for assessment	Assessment will occur on an HOTR tyre repair facility. Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility, such as an office or lunchroom. No other special resources are required.
Method of assessment	Competence in this unit may be assessed: • by observation over a range of tyre inspection procedures undertaken in the workplace • in a situation allowing for the generation of evidence of the ability to respond to problems • by using a suitable simulation and/or a range of case studies/scenarios • through a combination of these techniques. In all cases it is expected that appropriate practical/simulation assessment will be combined with targeted questioning to assess the required knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment.
Guidance information for assessment	Assessment processes and techniques must be appropriate to the language, competency and safety requirements of the site and consistent with workplace systems or procedures.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

Initial documentation

Completing initial documentation will include ensuring that:

- the serial number is correct
- the correct tyre is inspected

Injuries to tyres

Injuries to tyres may include, but are not limited to:

- cuts, abrasion, splits, cracks and crazing
- separations within the structure
- deformities both surface and internal
- penetrations into and through the casing/carcass

Injuries

Injuries may include, but are not limited to:

- injuries which do not need repair and should be returned to the customer to be used as is
- injuries which should be repaired
- injuries which are beyond repair and so the tyre should be scrapped

Standards

Standards may include, but are not limited to:

- AS 4457.2-2008 Earth-moving machinery - Off-the-road wheels, rims and tyres - Maintenance and repair – Tyres
- Rubber Manufacturer's Association of America (RMA)
- Supplier standards, such as technical data sheets and manuals
- internal organisational standards

Procedures

Procedures may be written, verbal, computer-based or in some other form. They may include, but are not limited to:

- all work instructions
- standard operating procedures
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant
- good operating practice as may be defined by industry codes of practice

Procedures would be expected to comply with any relevant government regulations.

Paperwork

Paperwork may be paper or electronic-based.

Appropriate action	Appropriate action includes, but is not limited to: • determining problems needing action • accessing and applying relevant technical and plant data • applying appropriate problem solving techniques to determine possible fault causes, within manufacturer guidelines and safety procedures • rectifying problem using appropriate solution within area of responsibility • following through items initiated until final resolution has occurred • reporting problems outside area of responsibility/ability to designated person
Health, safety and environment (HSE)	All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between Performance Criteria and HSE requirements, the HSE requirements take precedence.

Unit Sector(s)

Not applicable.

Custom Content Section

Not applicable.

PSPTRAN501A Provide specialist vehicle technical advice

Modification History

Release	TP Version	Comments
3	PSP12V1	Unit descriptor edited.
2	PSP04V4.2.	Layout adjusted. No changes to content.
1	PSP04V4.1	Primary release.

Unit Descriptor

This unit covers detailed technical inspections and specialist vehicle technical advice for situations that may include court proceedings, coronial inquiries, police and other agencies. It includes conducting a detailed technical inspection, interpreting the inspection data to inform an opinion, conducting technical research on inspection data, and formulating and providing an expert opinion on the results.
In practice, providing specialist vehicle technical advice may overlap with other generalist or specialist public sector work activities such as promoting ethical practice and compliance with legislation, coordinating resources, undertaking research and analysis.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements are the essential outcomes of the unit of competency.	Together, performance criteria specify the requirements for competent performance. Text in ***bold italics*** is explained in the Range Statement following.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Conduct a detailed vehicle inspection	1.1 Suitable location for detailed ***vehicle*** examination is confirmed and other relevant personnel are notified.
	1.2 Materials and ***equipment*** required to conduct the vehicle ***examination*** are prepared.
	1.3 Other relevant motor vehicle documentation is accessed and reviewed to establish key information on the vehicle under examination.
	1.4 Vehicle identity is verified.
	1.5 All relevant vehicle structure and components are examined and tested as necessary.
	1.6 Occupational health and safety requirements applicable to the examination are applied.
	1.7 Vehicle irregularities are recorded in accordance with legislative requirements and standard procedures.
2. Interpret examination data	2.1 All relevant data/ information is gathered, recorded and confirmed.
	2.2 All relevant information is interpreted and analysed to assist in the identification of the issue/s.
3. Undertake technical research	3.1 Relevant standards and specifications are identified and accessed.
	3.2 Research is undertaken on all the information gathered relevant to the examination.
	3.3 Advice is sought to clarify any unclear findings in accordance with organisational policy and procedures.
	3.4 Research findings are reported and presented in appropriate language, style and format to suit the intended audience.
	3.5 Supporting information and explanations are provided as required.
4. Form and provide an opinion	4.1 Options related to the provision of advice are identified and evaluated.
	4.2 An opinion is formed that is logical, reasoned and defensible, and documented in accordance with legislation, policy and procedures.
	4.3 When appropriate, opinions on actions to be taken are offered.
	4.4 A comprehensive report supporting the opinions is provided.

Required Skills and Knowledge

This section describes the essential skills and knowledge and their level, required for this unit.

Skill requirements

Look for evidence that confirms skills in:

- assessing vehicle standards
- using diagnostic techniques
- researching, interpreting and analysing information and data
- writing complex reports
- using personal computer, Internet, word processing and databases for research, analysis and interpretation
- using effective communication including presentation, and listening skills
- responding to diversity, including gender and disability
- tailoring information to suit the needs of diverse audiences
- applying public sector legislation such as occupational health and safety and environmental procedures in the context of providing specialist vehicle technical advice

Knowledge requirements

Look for evidence that confirms knowledge and understanding of:

- specialist technical area
- State/Territory and Commonwealth legislation and regulations
- Australian Design Rules (ADRs), Australian Vehicle Standards Rules (AVSR), modification codes, vehicle standards, manufacturers' standards
- chain of evidence provisions
- codes of practice
- written off vehicle register (WOVR)
- occupational health and safety relating to the provision of specialist vehicle technical advice
- contingency management - process for unplanned events
- court protocols

Evidence Guide

The Evidence Guide specifies the evidence required to demonstrate achievement in the unit of competency as a whole. It must be read in conjunction with the Unit descriptor, Performance Criteria, the Range Statement and the Assessment Guidelines for the Public Sector Training Package.

Units to be assessed together

- *Pre-requisite* units that must be achieved prior to this unit:*Nil*
- *Co-requisite* units that must be assessed with this unit:*Nil*
- *Co-assessed units* that may be assessed with this unit to increase the efficiency and realism of the assessment process include, but are not limited to:
  - PSPETHC501B Promote the values and ethos of public service
  - PSPGOV504B Undertake research and analysis
  - PSPGOV507A Undertake negotiations
  - PSPGOV508A Manage conflict
  - PSPLEGN501B Promote compliance with legislation in the public sector
  - PSPOHS501A Monitor and maintain workplace safety

Overview of evidence requirements

In addition to integrated demonstration of the elements and their related performance criteria, look for evidence that confirms:

- the knowledge requirements of this unit
- the skill requirements of this unit
- application of the Employability Skills as they relate to this unit (see Employability Summaries in Qualifications Framework)
- provision of specialist vehicle technical advice in a range of (3 or more) contexts (or occasions, over time)

Resources required to carry out assessment

These resources include:

- legislation, policy, procedures and protocols relating to specialist vehicle technical advice
- case studies and workplace scenarios to capture the range of situations likely to be encountered when providing specialist vehicle technical advice

Where and how to assess evidence

Valid assessment of this unit requires:

- a workplace environment or one that closely resembles normal work practice and replicates the range of conditions likely to be encountered when providing specialist vehicle technical advice, including coping with difficulties, irregularities and breakdowns in routine

- provision of specialist vehicle technical advice in a range of (3 or more) contexts (or occasions, over time)

Assessment methods should reflect workplace demands, such as literacy, and the needs of particular groups, such as:

- people with disabilities
- people from culturally and linguistically diverse backgrounds
- Aboriginal and Torres Strait Islander people
- women
- young people
- older people
- people in rural and remote locations

Assessment methods suitable for valid and reliable assessment of this competency may include, but are not limited to, a combination of 2 or more of:

- case studies
- questioning
- scenarios
- simulation or role plays
- authenticated evidence from the workplace and/or training courses

For consistency of assessment

Evidence must be gathered over time in a range of contexts to ensure the person can achieve the unit outcome and apply the competency in different situations or environments

Range Statement

The Range Statement provides information about the context in which the unit of competency is carried out. The variables cater for differences between States and Territories and the Commonwealth, and between organisations and workplaces. They allow for different work requirements, work practices and knowledge. The Range Statement also provides a focus for assessment. It relates to the unit as a whole. Text in ***bold italics*** in the Performance Criteria is explained here.

Vehicles may be:

- loaded or unloaded during inspection
- all types, including special purpose vehicles
- imported vehicles
- modified and other high risk vehicles

Equipment may include:

- micrometer
- roller brake tester
- shaker plates
- jacking equipment
- gauges

Examinations may be:

- undertaken on all types of vehicles
- carried out alone or in conjunction with other personnel
- undertaken in full range of diverse conditions
- in response to police request, coronial or other inquiries

Unit Sector(s)

Not applicable.

Competency field

Road Transport Compliance.

RIICOM201D Communicate in the workplace

Modification History

Release	Comment
1	This unit replaces RIICOM201A Communicate in the workplace
2	Editorial corrections.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to communicate in the workplace within the Resources and Infrastructure Industries. This unit is appropriate for those working in operational roles.
No licensing, legislative or certification requirements apply to this unit at the time of publication.

Elements and Performance Criteria

1 Plan and prepare for workplace communication using equipment and systems	1.1 Access, interpret and apply communication site documentation and ensure the work activity is compliant 1.2 Identify and access communication equipment and system components 1.3 Establish and maintain communication with others 1.4 Access and apply communication equipment and systems safety procedures
2 Communicate using communication equipment and systems	2.1 Identify and select the most appropriate method of communication 2.2 Use communication equipment and systems 2.3 Acknowledge and respond to communication 2.4 Take, confirm and pass messages on promptly to the others 2.5 Pass communications in a clear and concise manner 2.6 Follow safety procedures, including the passing of reports and observance of local communications and emergency procedures 2.7 Identify and report faults in communication equipment
3 Carry out face-to-face routine communication	3.1 Speak clearly and listen carefully to promote understanding 3.2 Ask questions of the audience and confirm meaning of information 3.3 Maintain communication processes with others to assist flow of work activities 3.4 Use site approved signalling methods to convey information 3.5 Participate in discussion to obtain information and clarify meaning 3.6 Communicate cooperatively and effectively with others
4 Complete written documentation	4.1 Complete written documentation clearly, concisely and on time 4.2 Use approved documents 4.3 Pass on written information to others

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICOM201A Communicate in the workplace

Links

SkillsDMC RII Companion Volumes - http://www.skillsdmc.com.au/

Assessment Requirements for RIICOM201D Communicate in the workplace

Modification History

Release	Comment
1	This unit replaces RIICOM201A Communicate in the workplace
2	Editorial corrections.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant documentation, policies and procedures
- demonstrates completion of communicating in the work place that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
  - identifying communication strategies and systems
  - operating communications systems and equipment to convey meaning to others
  - communicating clearly and promptly to others to convey information and make meaning
  - listening carefully to instructions and information
  - participating in group discussions and engage with group members respectfully
  - asking questions to clarify meaning
  - communicating concisely both written and verbally
  - interpreting other communications such as flags, lights, signs, bells and whistles
  - identifying and reporting communication faults and deficiencies
  - using approved and preparing written documentation that communicates meaning to others

Knowledge Evidence

The candidate must demonstrate knowledge of communicating in the workplace through:

- relevant standards and site procedures
- worksite communication system components, applications and limitations
- procedures and safety requirements of communication equipment and systems
- common faults in communication equipment/systems
- emergency communication procedures
- record maintenance

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment; and,
- simulation may be used for assessment of this Unit of Competency where it does not compromise the quality of assessment outcomes and provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills;
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years

Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.
**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

SkillsDMC RII Companion Volumes - http://www.skillsdmc.com.au/

RIIQUA201D Maintain and monitor site quality standards

Modification History

Release	Comment
1	This unit replaces RIIQUA201A Maintain and monitor site quality standards
2	Editorial corrections
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to maintain and monitor site quality standards in the Resources and Infrastructure Industries.
This unit is appropriate for those working in operational roles.
No licensing or certification requirements apply to this unit at the time of publication.

Elements and Performance Criteria

1 Plan, prepare for quality work outcomes	1.1 Access, interpret and apply quality standards and ensure the work activity is compliant 1.2 Identify and agree on performance indicators for own work 1.3 Plan and prepare for work to achieve quality standards 1.4 Complete work within time, quality, cost and productivity parameters
2 Apply quality systems to own work	2.1 Carry out work to meet quality standards 2.2 Adjust performance indicators to meet changing circumstances that affect quality standard requirements 2.3 Suggest procedure improvements to others for continuous improvement quality standards 2.4 Take corrective actions to improve work outcomes 2.5 Complete quality documentation
3 Monitor and report quality standards	3.1 Monitor quality of outputs and identify non-compliance 3.2 Prepare written records of quality outputs and report non-compliance 3.3 Monitor work processes, report incidents apply local risk control processes to minimise quality non-compliance 3.4 Communicate variation to quality outputs and standards to others

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIIQUA201A Maintain and monitor site quality standards

Links

SkillsDMC RII Companion Volumes - http://www.skillsdmc.com.au/

Assessment Requirements for RIIQUA201D Maintain and monitor site quality standards

Modification History

Release	Comment
1	This unit replaces RIIQUA201A Maintain and monitor site quality standards
2	Editorial corrections
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant legislation, documentation, policies and procedures
- demonstrates completion of the monitoring and maintenance of site quality standards that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
  - organising work activities to comply with site quality standards
  - identifies and agrees on performance indicators
  - completes work within set parameters
  - recommends and communicates continuous improvements to quality standards
  - processes quality written documentation
  - monitors work processes, reports incidents and applies local risk processes

Knowledge Evidence

The candidate must demonstrate knowledge of maintaining and monitoring site quality standards through:

- accessing, interpreting and applying the organisation and site requirements and procedures
- work healthy and safety
- maintaining the standards for site/enterprise quality systems and processes
- performing work planning processes
- technical and operational capability and limitations of resources and workplace equipment being used
- applying reporting procedures

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years

Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.
**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

SkillsDMC RII Companion Volumes - http://www.skillsdmc.com.au/

RIIRIS201D Conduct local risk control

Modification History

Release	Comment
1	This unit replaces RIIRIS201B Conduct local risk control
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to conduct local risk control in the Resources and Infrastructure Industries.
This unit is appropriate for those working in operational roles.
No licensing, legislative or certification requirements apply to this unit at the time of publication.

Elements and Performance Criteria

1 Plan and prepare for risk control	1.1 Access, interpret and apply risk management documentation and ensure the work activity is compliant 1.2 Inspect work area conditions to identify potential hazards 1.3 Apply risk management procedures to deal with recognised hazards 1.4 Recognise the type and scope of unresolved hazards and their likely impact
2 Assess and identify unacceptable risk	2.1 Assess and determine consequence of an event 2.2 Consider and determine likelihood of the event 2.3 Identify criteria for the acceptability/unacceptability of the risk 2.4 Assess risk against criteria to identify if it warrants 'unacceptable risk' status and action 2.5 Effectively communicate and clarify the decision to others
3 Identify, assess and implement risk treatments	3.1 Identify and consider all possible risk treatment options 3.2 Identify options by preliminary analysis and consideration of options 3.3 Analyse options, including resource requirements 3.4 Select most appropriate and effective course of action 3.5 Plan and prepare the course of action in detail and acquire/obtain required resources and approval 3.6 Implement the approved risk treatment 3.7 Review risk management processes
4 Complete records and reports	4.1 Effectively communicate accurate information to others on the course of action and implementation 4.2 Complete written records and reports for hazards and actions from personal risk assessment

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIIRIS201B Conduct local risk control

Links

SkillsDMC RII Companion Volumes - http://www.skillsdmc.com.au/

Assessment Requirements for RIIRIS201D Conduct local risk control

Modification History

Release	Comment
1	This unit replaces RIIRIS201B Conduct local risk control
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locate and apply relevant documentation, policies and procedures
- works effectively with others to undertake and complete conducting of local risk control including:
  - communicating clearly and concisely with others to receive and clarify treatment information
  - communicating clearly and concisely the likelihood and consequence of an identified risk
- demonstrates completion of conducting local risk control that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
  - identifying 'unacceptable risk' using the acceptability/unacceptability criteria
  - working with others to determine risk controls
  - assessing and determining consequence and likelihood of potential risk
  - controlling risk by selecting and implementing most appropriate treatment
  - reporting written information about risk assessment and treatment implementation

Knowledge Evidence

The candidate must demonstrate knowledge in conducting local risk control through:

- accessing, interpreting and applying the organisation and site requirements and procedures for:
  - organisation risk management policy, procedure requirements
  - conducting worksite risk management procedures
  - conducting and maintaining worksite communication, reporting and recording procedures
- identifying and assessing hazards, risks, acceptability of risks and controls
- reading, preparing and using worksite safety systems information

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years

Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.
**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

SkillsDMC RII Companion Volumes - http://www.skillsdmc.com.au/

RIIRIS301D Apply risk management processes

Modification History

Release	Comment
1	This unit replaces RIIRIS301B Apply risk management processes.
2	Performance Evidence and Knowledge Evidence replaced with correct information.
3	Performance Evidence and Knowledge Evidence amended.
4	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to apply risk management processes in the Resources and Infrastructure Industries.
This unit is appropriate for those working in operational or supervisory roles.
Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Relevant information must be sourced prior to application of the unit.

Elements and Performance Criteria

1. Plan and prepare for risk management	1.1 Access, interpret and apply risk management documentation and ensure the work activity is compliant 1.2 Inspect and analyse work area conditions regularly and systematically to identify potential hazards 1.3 Access, interpret and apply existing procedures to control identified hazards 1.4 Identify hazards not controlled by existing procedures 1.5 Recognise the type and scope of unresolved hazards and their likely impact
2. Assess and identify unacceptable risk	2.1 Consider and determine the likelihood of an event 2.2 Evaluate and determine the consequence of the event 2.3 Consider and determine the risk level (likelihood and consequence combined) 2.4 Identify or source the criteria for determining the acceptability/unacceptability of the risk 2.5 Evaluate the risk and identify ‘unacceptable risk’ status
3. Review risk management documentation	3.1 Monitor and review working instructions 3.2 Seek authority and approval to amend in writing the working instructions 3.3 Seek authority and approval to action amendments to the working instructions
4. Identify and recommend controls	4.1 Identify the range of controls which may eliminate or minimise the risk 4.2 Conduct a detailed analysis of feasible options including the identification of resource requirements 4.3 Select the most appropriate control for dealing with the situation
5. Contribute to the implementation of controls	5.1 Write up the risk management plans selected control in detail, including resource requirements 5.2 Gain authorisation for selected control 5.3 Document and review controls for the job 5.4 Apply procedures to control recognised hazards 5.5 Communicate information on the control and its implementation

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIIRIS301B Apply risk management processes

Links

SkillsDMC RII Companion Volumes - http://www.skillsdmc.com.au/

Assessment Requirements for RIIRIS301D Apply risk management processes

Modification History

Release	Comment
1	This unit replaces RIIRIS301B Apply risk management processes.
2	Performance Evidence and Knowledge Evidence replaced with correct information.
3	Performance Evidence and Knowledge Evidence amended.
4	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- obtains and applies relevant documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of risk management processes including:
  - applying relevant operational information
  - applying common industrial terminology
- works effectively with others to undertake and complete the application of risk management processes that meets all the required outcomes, including:
  - complying with written and verbal reporting requirements and procedures
  - communicating clearly and concisely with others to receive and clarify work instructions
  - communicating clearly and concisely with others to coordinate work activities
  - engaging co-workers, employers and supervisors in the risk management processes
- demonstrates completion of the application of risk management processes that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
  - applying planning and organising skills to the risk management processes
  - identifying or sourcing criteria to determine unacceptable risk
  - identifying and recognising type and scope of hazards and their impact
  - assessing and determining the consequence, likelihood and level of potential risk
  - identifying unacceptable risk using the acceptable/unacceptable criteria
  - assessing options for appropriate controls and implementing accordingly
  - identifying and obtaining required resources
  - preparing and maintaining written records and report requirements
  - reviewing risk management documentation
  - identifying and recommending controls
  - contributing to the implementation of controls

Knowledge Evidence

The candidate must demonstrate knowledge of the following when applying the risk management process:

- WHS legislation and regulations
- appropriate resources and infrastructure context and language
- topics or subject areas which are target for assessment and treatment
- site risk management systems and their application
- conventions and requirements for written communications including report writing
- problem solving techniques

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years

Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.
**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

SkillsDMC RII Companion Volumes - http://www.skillsdmc.com.au/

RIIWHS201D Work safely and follow WHS policies and procedures

Modification History

Release	Comment
1	The unit replaces RIIOHS201A Work safely and follow OHS policies and procedures.
2	Editorial corrections.
3	Amended Application field.
4	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to work safely and follow WHS policies and procedures in the Resources and Infrastructure Industries.
This unit is appropriate for those working in operational roles.
Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.
Note: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

Elements and Performance Criteria

1. Access and apply site safety procedures	1.1 Access, interpret and apply work health and safety procedures and ensure the work activity is compliant 1.2 Carry out isolation of energy sources and immobilisation of potential energy sources 1.3 Locate destinations by interpreting and applying site plans, transport rules and signage 1.4 Identify, act on, and report breaches in site safety
2. Apply personal safety measures	2.1 Select and wear personal protective equipment 2.2 Establish and maintain a clean and tidy safe working area 2.3 Obtain permits and clearances before specialised work is carried out 2.4 Apply safe manual handling procedures 2.5 Identify and apply site procedures for conducting high-risk activities
3. Apply operational safety measures	3.1 Recognise and respond to alarms 3.2 Identify and clarify responsibility in responding to emergency situations 3.3 Apply basic fire fighting techniques 3.4 Identify emergency escape route(s) and procedures
4. Maintain personal wellbeing	4.1 Identify risks to personal wellbeing and recognise preventative strategies 4.2 Identify, act on, and report situations which may endanger others 4.3 Access and explain verbally or in writing the requirements for fitness for duty 4.4 Comply with all work health and safety policies including smoking, alcohol and drug use
5. Identify and report incidents	5.1 Recognise and communicate incident and injury statistics 5.2 Report and prepare written records of incidents and injuries 5.3 Contribute to and participate in incident investigations

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIIOHS201A Work safely and follow OHS policies and procedures

Links

SkillsDMC RII Companion Volumes - http://www.skillsdmc.com.au/

Assessment Requirements for RIIWHS201D Work safely and follow WHS policies and procedures

Modification History

Release	Comment
1	The unit replaces RIIOHS201A Work safely and follow OHS policies and procedures.
2	Editorial corrections.
3	Amended Application field.
4	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant documentation, policies and procedures
- demonstrates completion of working safely and following WHS policies and procedures that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
  - sourcing, interpreting, clarifying and applying site safety information
  - listening carefully to health and safety instructions and information
  - responding ot and clarifying information and directions
  - carrying out work instructions that complies with WHS policies and procedures
  - selecting, wearing and caring for personal protective equipment for all activities that require personal protective equipment
  - applying safe lifting and manual handling techniques
  - identify and report on WHS issues to appropriate personnel
  - recognising and following procedure to respond to alarms
  - completing workplace reporting procedures

Knowledge Evidence

The candidate must possess knowledge of work safely and follow WHS policies and procedures through:

- determining equipment safety requirements
- identifying personal protective equipment
- follows hazardous substances procedures and handling techniques
- location of safety data sheets (SDS) information and their application
- adhering to isolation procedures
- identifying lifting techniques, including for both manual and automated lifting
- locating and complying with WHS procedures
- application of site safety requirements and procedures
- participating in procedures for workplace management of others (e.g. consultation, safety representatives, committees, dispute resolution)
- determining potential of biological effects (e.g. circadian rhythms, sleep, alertness, fatigue, stress, effects of heat stress and hypothermia)
- details of site drug and alcohol policy
- locating and using emergency equipment

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years

Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.
**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

SkillsDMC RII Companion Volumes - http://www.skillsdmc.com.au/

RIIWHS204D Work safely at heights

Modification History

Release	Comments
1	This unit replaces RIIOHS204A Work safely at heights.
2	Formatting corrections.
3	Inserted Application information.
4	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to work safety at heights in the Resources and Infrastructure Industries.
This unit it appropriate for those working in operational roles where they are required to perform work at heights.
Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.
Note: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

Elements and Performance Criteria

1. Identify work requirements	1.1 Access, interpret and apply height safety procedures and ensure the work activity is compliant 1.2 Inspect site to determine layout and physical condition, condition of structures, prevailing weather conditions, equipment requirements and potential hazards 1.3 Adhere to WHS requirements 1.4 Identify, select and check safety equipment for serviceability 1.5 Identify, manage and report potential risks and hazards
2. Identify work procedures and instructions	2.1 Consult with authorised personnel to select materials, tools and equipment and check for serviceability 2.2 Select, wear and care for personal protective equipment 2.3 Inspect/install fall protection and perimeter protection equipment 2.4 Identify approved methods of moving tools and equipment to work area and minimise potential hazards associated with tools at heights 2.5 Ensure safety system has been installed correctly 2.6 Select and install appropriate signs and barricades
3. Access and install equipment	3.1 Consult with authorised personnel to ensure anchor fall protection and associated equipment is correctly fitted and adjusted 3.2 Ensure all required equipment is installed 3.3 Use recommended methods to access work area for people, tools and equipment

	3.4 Locate tools and materials to eliminate or minimise the risk of items being knocked down
4. Perform work at heights	4.1 Check access from ground to work area and ensure it is safe 4.2 Keep fall equipment in place and adjusted appropriately for movement during work 4.3 Undertake manual handling of materials and equipment 4.4 Locate materials and equipment ensuring that they are safely secured and distributed 4.5 Check safety system periodically for compliance 4.6 Monitor risk control measures to ensure that they are effective and appropriate 4.7 Reassess risk control measures, as required, in accordance with changed work practices and/or site conditions and undertake alterations
5. Clean up work area	5.1 Consult with authorised personnel to ensure safety system is dismantled and removed 5.2 Clear work area and dispose of or recycle materials 5.3 Clean, check, maintain and store tools and equipment

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIIOHS204A Working safely at heights

Links

SkillsDMC RII Companion Volumes - http://www.skillsdmc.com.au/

Assessment Requirements for RIIWHS204D Work safely at heights

Modification History

Release	Comments
1	This unit replaces RIIOHS204A Work safely at heights.
2	Formatting corrections.
3	Inserted Application information.
4	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant documentation, policies and procedures
- demonstrates completion of working safely at heights that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
  - accessing, interpreting and applying technical and safety information for working at heights
  - assessing hazards and risk associated with working at heights and implement control methods
  - selecting wearing and caring for personal protective equipment
  - identifying required safety systems including fall protection and associated equipment
  - checking that fitting, adjusting and anchoring of fall protection and associated equipment is correct
  - performing work safely at heights

Knowledge Evidence

The candidate must demonstrate knowledge of the following when working safely at heights:

- names and functions of equipment, components and materials
- complying with equipment manufacturer's instructions and specifications
- safe shifting and handling of tools and materials
- adhering to statutory and regulatory authority requirements
- the nature of work undertaken at heights
- complying with heights safety systems
- the processes of providing for safe working practices
- using safety equipment/systems and considerations to facilitate working safely at heights
- complying with safe work methods

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years

Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.
**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

SkillsDMC RII Companion Volumes - http://www.skillsdmc.com.au/

RIIWHS301D Conduct safety and health investigations

Modification History

Release	Comment
1	The unit replaces RIIOHS301A Conduct safety and health investigations.
2	Editorial corrections.
3	Amended Application field.
4	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to conduct safety and health investigations in the Resources and Infrastructure Industries.
This unit is appropriate for those working in technical specialist roles.
Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.
Note: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

Elements and Performance Criteria

1 Determine the objectives	1.1 Access, interpret and apply safety and health investigation procedures and documentation and ensure the work activity is compliant 1.2 Determine the scope of the investigation. Ensure pre- and post-incident timeframe is consistent with all requirements 1.3 Determine the proposed investigation objectives from an analysis of the available information and factors 1.4 Test the proposed objectives and clarify the scope of the investigation 1.5 Ensure the final objectives and scope of the investigation will be achievable within available resources and authority constraints
2 Gather information	2.1 Maintain site security and integrity of evidence in accordance with all requirements 2.2 Plan and prepare for the systematic collection of information 2.3 Schedule information collection and completion to ensure minimum backtracking or repeat actions 2.4 Ensure methods used to collect and examine information, including interviewing and recording, meet all requirements 2.5 Collect, test and organise all appropriate information
3 Evaluate information	3.1 Assess and evaluate information for validity and reliability and organise as evidence to aid decision making 3.2 Undertake further research where information is unclear or inadequate, and rectify 3.3 Analyse the evidence to determine the cause(s) of the incident 3.4 Draw conclusion(s) based on agreed standard 3.5 Ensure the findings address the established factual objectives
4 Identify courses of action	4.1 Frame options for the courses of action 4.2 Ensure options are provided in a form which meets the audience requirements, can be easily understood and enables the selection of the most appropriate course of action 4.3 Ensure the course of action selected will resolve the issues and reduce the probability of recurrence 4.4 Ensure the selected course of action can be implemented in accordance with all requirements
5 Prepare and present investigation reports	5.1 Prepare investigation reports 5.2 Present written and graphical reports clearly and concisely in a

	format which can be readily understood 5.3 Present the reports to the required audience 5.4 Review the investigation process and pass recommendations for process changes and improvements to the appropriate authority

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIIOHS301A Conducting safety and health investigations

Links

SkillsDMC RII Companion Volumes - http://www.skillsdmc.com.au/

Assessment Requirements for RIIWHS301D Conduct safety and health investigations

Modification History

Release	Comment
1	The unit replaces RIIOHS301A Conduct safety and health investigations.
2	Editorial corrections.
3	Amended Application field.
4	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant legislation, documentation, policies and procedures
- demonstrates completion of conducting safety and health investigations that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
  - determining objective and authority of the investigation
  - planning and organising activity to gather evidence
  - undertaking research to gather evidence
  - engaging others in the investigation process
  - questioning and actively listening to those involved in the investigation
  - correctly collecting and maintaining the integrity of evidence
  - identifying and/or confirming the linkages between factors and outcomes, causes and effects and direct/indirect causal relationships
  - drawing draw conclusions and identifying appropriate course of action to resolve issue
  - writing clearly, concisely and effectively report investigation outcomes and presenting the outcomes to others

Knowledge Evidence

The candidate must demonstrate knowledge of conducting safety and health investigations:

- topic or subject area which is the target for the investigation
- theory of safety and health investigative research and analysis
- symptoms and possible immediate effects of post-traumatic stress in an investigation situation
- appropriate Industry context
- site procedures and conventions related to safety and health investigations
- site risk management processes and their applications
- conventions and requirements for written communications, including report writing

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years

Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.
**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

SkillsDMC RII Companion Volumes - http://www.skillsdmc.com.au/

SIRXINV001A Perform stock control procedures

Modification History

The version details of this endorsed unit are in the table below. The latest information is at the top.

Release	Comments
Second Release	Editorial updates

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to handle stock in a retail environment. It involves receiving and processing incoming goods, rotating stock and dispatching goods.

Application of the Unit

This unit applies to team members who handle and move stock, to ensure efficient stock control within the retail environment. Team members are required to receive and process incoming goods, dispatch outgoing goods, rotate stock and maintain stock levels, assist with stocktaking, and report problems or discrepancies in stock to relevant personnel according to store policy and relevant legislation, whilst using safe working practices.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Nil

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements and Performance Criteria

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
1. Receive and process incoming goods.	1.1. Maintain cleanliness and orderliness in receiving bay according to ***store policy and procedures***. 1.2. Unpack goods using correct ***handling techniques*** and ***equipment***, according to store policy. 1.3. Remove and promptly dispose of packing materials, according to store policy and relevant ***legislative requirements***. 1.4. Check incoming stock and validate against purchase orders and delivery documentation, according to store policy and relevant legislative requirements. 1.5. Inspect items received for damage, quality, use by dates, breakage or discrepancies and record, according to store policy. 1.6. Record stock levels on store ***stock systems***, according to store policy. 1.7. Rotate and store stock, according to the first in first out (FIFO) principle. 1.8. Dispatch stock to appropriate area or department. 1.9. Apply stock price and code labels when required according to store policy.
2. Rotate stock.	2.1. Carry out stock rotation procedures, according to store routine and policy. 2.2. Perform store code checking and reporting procedures, including recording of waste and markdowns. 2.3. Place merchandise to achieve a balanced, fully stocked display appearance and promote sales. 2.4. Place excess stock in storage or dispose of, according to store policy and legislative requirements. 2.5. Maintain safe lifting, shifting and carrying techniques according to store Work Health and Safety (WHS) policy and legislative requirements.

Required Skills and Knowledge

This section describes the essential skills and knowledge and their level, required for this unit.

Required skills

- literacy and numeracy skills to:
  - follow set routines and procedures
  - use electronic labelling and ticketing equipment
  - stock records and delivery documentation
  - report problems

Required knowledge

- store policy and procedures in regard to:
  - stock control
  - store labelling policy
  - product quality standards
  - correct unpacking of goods
  - out-of-date, missing or damaged stock
  - equipment used
  - stock location
  - waste disposal
  - methods of storage
  - delivery documentation
  - stock record documentation
  - dispatch documentation
  - reporting faults and problems
- relevant legislation and statutory requirements in regard to stock control, including WHS
- relevant industry codes of practice

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, the range statement and the Assessment Guidelines for this Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the following is essential:

- consistently applies store policy and procedures, industry codes of practice, relevant legislation and statutory requirements in regard to stock control
- consistently applies safe working practices in the manual handling and moving of stock according to WHS legislation and store policy
- interprets and applies manufacturer instructions with regard to handling stock and using relevant equipment
- receives and processes incoming goods and dispatches outgoing goods according to store policy and procedures
- rotates stock and performs out-of-code checking and reporting according to store policy and procedures
- interprets and processes information accurately and responsibly.

Context of and specific resources for assessment

Assessment must ensure access to:

- a retail work environment
- relevant equipment, including:
  - stock moving equipment
  - manual and electronic labelling and ticketing equipment
- computers and stock recording equipment
- relevant documentation, such as:
  - invoices, packing slips, dispatch documents and order forms
  - recording and tally sheets
  - store policy and procedures manuals
  - WHS regulations
  - relevant legislation and statutory requirements
  - industry codes of practice.

Methods of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- observation of performance in the workplace
- third-party reports from a supervisor
- written or verbal questioning to assess knowledge and

	understanding • review of portfolios of evidence and third-party workplace reports of on-the-job performance.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • SIRXCCS001A Apply point-of-sale handling procedures • SIRXRSK001A Minimise theft • SIRXCCS002A Interact with customers • SIRXFIN001A Balance point-of-sale terminal.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording in the performance criteria is detailed below.

Store policy and procedures may relate to:	• stock control • reception and dispatch • WHS • food safety.
Handling techniques may vary according to:	• stock characteristics • industry codes of practice • legislative requirements.
Equipment may include:	• electronic bar coding equipment • weighing machines • thermometers • trolley return equipment • portable data entry • cutting equipment • protective clothing.
Legislative requirements may include:	• WHS • hazardous substances and dangerous goods • labelling of workplace substances • waste removal and environmental protection • transport, storage and handling of goods.
Stock systems may be:	• manual • electronic.

Unit Sector(s)

Cross-Sector

Competency field

Inventory

SIRXINV002A Maintain and order stock

Modification History

The version details of this endorsed unit are in the table below. The latest information is at the top.

Release	Comments
Second Release	Editorial updates

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to maintain and order stock in a retail environment. It involves monitoring receipt and dispatch of goods, maintaining stock records, coordinating stocktake, identifying stock losses, processing orders and following up on orders.

Application of the Unit

This unit applies to retail staff who are responsible for monitoring and coordinating stock levels, storage, distribution and reorder cycles. It includes rostering staff, organising and coordinating stocktakes, maintaining accurate records and routinely reporting on inventory status to relevant personnel according to store policy and procedures.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Nil

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements and Performance Criteria

Element	Performance criteria
Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
1. Monitor receipt and dispatch of goods.	1.1. Delegate responsibility for receipt and dispatch of goods to ***appropriate staff.***
	1.2. Implement store procedures in regard to receipt, dispatch and secure storage of goods.
	1.3. Observe ***staff*** functions to ensure store procedures are followed and documentation is completed correctly.
	1.4. Implement store procedures to ensure goods inspected for quantity and quality on receipt.
	1.5. Act upon variations to quantity and quality of delivered goods, according to ***store policy and procedures***.
	1.6. Supervise safe ***handling and storage of goods***, according to store policy.
2. Maintain stock records.	2.1. Monitor and maintain stock levels at required levels.
	2.2. Maintain, monitor and adjust stock reorder cycles as required.
	2.3. Inform team members of their individual responsibilities in regard to recording of stock.
	2.4. Maintain stock storage and movement ***records***, according to store policy.
	2.5. Record stock discrepancies and follow procedures according to store policy.
	2.6. Monitor stock performance and identify and ***report*** fast and slow selling items according to store policy.
3. Coordinate stocktake or cyclical count.	3.1. Interpret policy and procedures in regard to ***stocktaking*** and cyclical counts and explain to team members.
	3.2. ***Roster*** staff, according to allocated budget and time constraints.
	3.3. Allocate stocktaking tasks to individual team members.
	3.4. Provide team members with clear directions for the performance of each task.
	3.5. Allocate team members to ensure effective use of staff resources to complete task.
	3.6. Produce accurate reports on stocktake data, including discrepancies, for management.

4. Identify stock losses.	4.1. Identify, record and assess losses against potential loss forecast on a regular basis. 4.2. Identify avoidable losses and establish reasons. 4.3. Recommend and implement possible solutions.
5. Process orders.	5.1. Process and raise orders for stock as requested, according to store policy and procedures. 5.2. Maintain ***ordering and recording system***. 5.3. Ensure availability of sample range, according to buying plan. 5.4. Order pricing materials as required. 5.5. Record negotiated purchase and supply agreements and file for retrieval.
6. Follow up orders.	6.1. Monitor delivery process to meet agreed deadlines. 6.2. Handle routine supply problems or refer to management as required by store policy. 6.3. Maintain ongoing liaison with buyers, store or departments, warehouse and ***suppliers*** to ensure continuity of supply. 6.4. Distribute stock, according to store or department allocation.

Required Skills and Knowledge

This section describes the essential skills and knowledge and their level, required for this unit.

Required skills

- technical skills to:
  - use store stocktaking systems
  - use electronic recording equipment
- interpersonal skills to:
  - inform team members of their responsibilities and give instructions
  - explain policies and procedures to staff
  - allocate tasks and provide directions for performance of tasks
  - liaise with buyers, store and departments, warehouse and suppliers through clear and direct communication
  - ask questions to identify and confirm requirements
  - use language and concepts appropriate to cultural differences
  - use and interpret non-verbal communication
- management skills to coordinate stock takes
- negotiation skills to handle supply problems
- literacy and numeracy skills to:
  - prepare and present stock control reports and documentation
  - process orders
  - maintain delivery and supply records
  - maintain stock distribution records
  - maintain stock ordering and recording systems

Required knowledge

- store policy and procedures in regard to:
  - stock control
  - store merchandising system
  - current and future stock levels
  - bar codes, labels and price tags
  - store stock recording system
  - stock replenishment and reorder procedures
  - inter- and intra-store and department transfers
  - reporting of stock discrepancies and damage
  - identifying and recording stock losses
  - identifying and recording discrepancies
  - existing suppliers
  - quality control procedures and requirements
  - receipt and dispatch of goods, including inspection for quality and quantity

- relevant licensing requirements for moving stock mechanically
- relevant legislation and statutory requirements
- relevant industry codes of practice
- relevant Work Health and Safety (WHS) legislation and codes of practice

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, the range statement and the Assessment Guidelines for this Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the following is essential:

- consistently implements and monitors store policy and procedures regarding receipt, dispatch and secure storage of goods
- regularly monitors staff implementation of store procedures and documentation in regard to receipt, dispatch and secure storage of goods
- monitors stock levels, storage, movement and reorder cycles on a regular basis.
- organises and coordinates stocktake according to store policy and procedures
- consistently raises and processes stock orders and maintains record system according to store policy and procedures
- monitors delivery processes and distributes stock to ensure continuity of supply.

Context of and specific resources for assessment

Assessment must ensure access to:

- a retail work environment
- relevant documentation, such as:
  - store policy and procedures for receipt and dispatch of goods
  - store procedures for stocktake
  - WHS legislation and codes of practice
  - industry codes of practice
  - legislation and statutory requirements
  - store merchandising and marketing policy and procedures
  - inter- and intra-store and department transfer procedures
  - store quality control procedures and requirements.

Methods of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- observation of performance in the workplace
- third-party reports from a supervisor
- written or verbal questioning to assess knowledge and understanding

- review of portfolios of evidence and third-party workplace reports of on-the-job performance.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording in the performance criteria is detailed below.

Appropriate staff may include:	• frontline staff • relevant managers • supervisor • team leader • specialist staff.
Staff may include:	• full-time, part-time, casual or contract staff • people from a range of social, cultural and ethnic backgrounds • people with varying degrees of language and literacy levels.
Store policy and procedures in regard to:	• stock control • stock control system • recording procedures • procedures for investigating discrepancies • store merchandise and marketing • pricing, labelling and packaging requirements • quality control policy and procedures.
Handling and storage of goods may vary according to:	• stock characteristics • industry codes of practice.
Records may be:	• manual • digital.
Reports for management may include:	• financial reports • business documents • informal reports • stocktake reports.
Stocktaking may be:	• cyclical • compliance driven.
Roster may include:	• varying levels of staff training • staffing levels • routine or busy trading conditions • full-time, part-time or casual staff • range of staff responsibilities.
Ordering and recording system may be:	• manual • digital.
Suppliers may include:	• existing contacts • new contacts

- local suppliers
- overseas supplies.

Unit Sector(s)

Cross-Sector

Competency field

Inventory

SIRXMER201 Merchandise products

Modification History

The version details of this endorsed unit are in the table below. The latest information is at the top.

Release	Comments
First Release	This is a revised unit, based on and equivalent to SIRXMER001A Merchandise products.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to merchandise products within a retail store. It involves the consistent application of store policies and procedures in regard to displaying, merchandising, ticketing, labelling, pricing and storing stock. It also includes the application of correct manual handling, storage and display techniques according to stock characteristics, industry codes of practice, and relevant legislation.

Application of the Unit

This unit applies to frontline retail personnel.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Nil

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements and Performance Criteria

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
1. Place and arrange merchandise.	1.1. Unpack ***merchandise*** according to ***store policy and procedures*** and ***legislative requirements***. 1.2. Place merchandise on floor, fixtures and shelves in determined locations according to work health and safety (WHS) legislative requirements. 1.3. ***Display*** merchandise to achieve a balanced, fully-stocked appearance and promote sales. 1.4. Identify damaged, soiled or out-of-date stock and take corrective action as required according to store procedures. 1.5. Place stock range in line with fixtures, ticketing, prices and bar codes. 1.6. Rotate stock according to stock requirements and store procedure. 1.7. Ensure stock presentation conforms to special ***handling techniques*** and other ***safety requirements***.
2. Prepare and apply labels and tickets.	2.1. Prepare ***labels and tickets*** for window, wall or floor displays according to store policy. 2.2. Prepare tickets using electronic equipment or neatly by hand according to design specifications and store procedures. 2.3. Identify soiled, damaged, illegible or incorrect labels and tickets and take corrective action according to store procedures. 2.4. Use, maintain and store electronic ticketing and labelling equipment according to manufacturer's instructions and store procedures. 2.5. Place labels and tickets visibly and correctly on merchandise. 2.6. Replace labels and tickets according to store policy.
3. Maintain displays.	3.1. Reset or dismantle unsuitable or out-of-date displays and ***special promotion areas*** as directed. 3.2. Assist supervisor in selection of merchandise for display. 3.3. Arrange and face up merchandise as directed and according to layout specifications and load-bearing capacity of fixtures. 3.4. Maintain correct pricing and information on merchandise according to store procedures, industry codes of practice and

	legislative requirements.
	3.5. Identify optimum stock levels and replenish stock according to store policy.
	3.6. Remove excess packaging and maintain display areas in a clean and tidy condition.
4. Protect merchandise.	4.1. Identify and apply correct handling, storage and display techniques according to stock characteristics and legislative requirements.

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- literacy and numeracy skills to:
  - prepare machine or manual labels and tickets
  - read and interpret store procedures and guidelines
  - read and interpret manufacturer instructions
- self-management skills to complete tasks in a set timeframe
- technology skills to operate and maintain manual and electronic labelling and ticketing equipment

Required knowledge

- store policies and procedures in regard to:
  - availability and use of display materials
  - correct storage of stock
  - correct storage procedures for labelling and ticketing equipment and materials
  - location of display areas
  - merchandise range
  - merchandising, ticketing and pricing of stock
  - scheduling for building or rotating displays
  - stock replenishment
  - stock rotation
  - store promotional themes, including advertising, catalogues and special offers
- correct manual handling techniques for protection of self and merchandise
- principles of display
- elements and principles of design and trends in retail design
- relevant WHS regulations, including:
  - manual handling
  - hygiene and sanitation
  - hazardous substances
  - labelling of workplace substances
- relevant legislation and statutory requirements relating to merchandising product
- pricing procedures, including inclusion and exclusion of GST
- relevant industry codes of practice relating to merchandising product

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the following is essential:

- applies store policies and procedures and legislative requirements in regard to displaying, merchandising, ticketing, pricing and storing stock
- displays merchandise on floor, fixtures, shelves and display areas, in determined locations, according to special manual handling techniques and other safety requirements
- prepares display labels and price tickets for merchandise with regard to store policies and procedures
- operates, maintains and stores a range of ticketing equipment according to:
  - store policy and procedures
  - industry codes of practice
  - manufacturer instructions and design specifications
- identifies damaged, soiled or out-of-date stock and takes corrective action as required by store procedures and legislative requirements
- maintains display areas and replenishes stock as required according to store procedures and legislative requirements
- performs correct manual handling, storage and display techniques.

Context of and specific resources for assessment

Assessment must ensure access to:

- a real or simulated retail work environment
- a range of ticketing and pricing equipment
- merchandise for display
- display materials and props
- cleaning materials
- relevant documentation, such as:
  - store policy and procedure manuals on housekeeping, merchandising and WHS
  - manufacturer instructions and operation manuals for electronic ticketing equipment
  - relevant legislation and industry codes of practice.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- observation of performance in the workplace
- customer feedback
- answers to questions about specific skills and knowledge
- review of portfolios of evidence and third-party workplace reports of on-the-job performance.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- SIRXSLS201 Sell products and services
- SIRXSLS002A Advise on products and services.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the individual, accessibility of the item, and local industry and regional contexts) may also be included.

Merchandise may be characterised by:	• type • brand • size • customer needs • colour • price.
Store policy and procedures in regard to:	• merchandising of stock • preparing and displaying labels and tickets • maintaining displays.
Legislative requirements may include:	• pricing requirements, including GST requirements • industry codes of practice • discounted items • Australian Consumer law.
Display may include:	• setting new displays • maintaining existing displays.
Handling techniques may vary according to:	• stock characteristics • store policy • legislative requirements • industry codes of practice.
Safety requirements may relate to:	• transport, storage and handling of goods • hazardous substances • labelling of workplace substances.
Preparation of ***labels and tickets*** may involve:	• pricing gun • shelf tickets • shelf talkers • written labels • swing ticketing • bar coding • price boards • header boards.
Special promotion areas may be:	• permanent or temporary • interior or exterior • publicly accessible • windows

- shelves
- wall fixtures
- on floor.

Unit Sector(s)

Cross-Sector

Competency Field

Merchandising

SIRXRSK002A Maintain store security

Modification History

The version details of this endorsed unit are in the table below. The latest information is at the top.

Release	Comments
Second Release	Editorial updates

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to maintain store security in a retail environment. It involves implementing store policy and procedures to ensure store security, informing team members and providing ongoing supervision and training to facilitate awareness and detection of theft.

Application of the Unit

This unit applies to team leaders and supervisors who interpret, apply and monitor security procedures according to store policy, industry codes of practice, relevant legislation and statutory requirements. A person undertaking this role maintains frontline security as well as reporting security concerns and providing ongoing supervision and training for staff on security procedures.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Pre-Requisites

Nil

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements and Performance Criteria

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
1. Monitor and maintain store security.	1.1. Implement ***store policy and procedures*** to ensure store security is maintained. 1.2. Monitor and review ***security procedures***, according to store policy and ***legislative requirements***. 1.3. Implement procedures to minimise theft of easily stolen merchandise. 1.4. Maintain security of cash, cash register and keys according to store policy. 1.5. Implement store procedures in regard to ***transactions***. 1.6. Inform ***team members*** of store policy and procedures in regard to security. 1.7. Provide team members with ***feedback*** in regard to implementation or non implementation of store security procedures. 1.8. Provide staff with ongoing supervision and ***training*** to facilitate awareness and detection of theft. 1.9. ***Report*** matters likely to affect store security, according to store policy.
2. Facilitate awareness and detection of theft.	2.1. Inform ***team members*** of store policy and procedures in regard to security. 2.2. Provide team members with ***feedback*** in regard to implementation or non implementation of store security procedures. 2.3. Provide staff with ongoing supervision and ***training*** to facilitate awareness and detection of theft.

Required Skills and Knowledge

This section describes the essential skills and knowledge and their level, required for this unit.

Required skills

- interpersonal skills to:
  - provide information, feedback and training to staff
  - report relevant matters through clear and direct communication
  - ask questions to identify and confirm requirements
  - share information
  - give instructions
  - use and interpret non-verbal communication
  - provide team leadership
- literacy skills to:
  - interpreting and applying Work Health and Safety (WHS) documents
  - reporting procedures
  - analytical skills to evaluate performance analysis

Required knowledge

- store policy and procedures in regard to:
  - security
  - cash and non-cash transactions
  - external or internal theft
  - suspicious circumstances
  - armed robbery
  - staff security training
  - procedures for opening and closing premises
- relevant legislation and statutory regulations, particularly in relation to checking of customers' bags and purchases
- types of store alarm and security systems used in the retail industry

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, the range statement and the Assessment Guidelines for this Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of the following is essential:

- consistently applies store policy and procedures, industry codes of practice, relevant legislation and statutory requirements in regard to store security
- accurately applies relevant legislation and statutory regulations particularly in regard to checking of customers' bags and purchases
- interprets, applies and monitors security procedures in regard to:
  - cash handling, and cash and non-cash transactions
  - internal or external theft or suspicious circumstances
  - armed robbery
  - opening and closing premises
- implements store policy and procedures in regard to:
  - reporting on matters related to store security
  - staff security supervision and training.

Context of and specific resources for assessment

Assessment must ensure access to:

- a retail work environment
- relevant documentation, such as:
  - store policy and procedures in regard to security
  - legislation and statutory requirements
  - WHS legislation
- relevant equipment such as:
  - alarm systems
  - point-of-sale equipment
  - communication equipment.

Methods of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- third-party reports from a supervisor
- observation of performance in the workplace
- a role play

- customer feedback
- written or verbal questioning to assess knowledge and understanding
- review of portfolios of evidence and third-party workplace reports of on-the-job performance.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- SIRXOHS002A Maintain store safety.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording in the performance criteria is detailed below.

Store policy and procedures in regard to:	• security • checking bags • cash and non-cash transactions • surveillance of merchandise • reporting problems and faults.
Security procedures may deal with:	• customers • staff or staff property • visitors, sales representatives, contractors and vendors • stock • records • cash and cash movement • equipment • premises • opening and closing of premises • theft • armed robbery • events likely to endanger customers or staff.
Legislative requirements may include:	• privacy or confidentiality laws • Trade Practices and Fair Trading Acts • consumer law • awards or agreements • property offences • credit laws • reporting procedures • criminal law.
Transactions may include:	• cash • EFTPOS • cheques • credit cards or store cards • smart cards • lay-by • returns • exchanges

- gift vouchers.

Team members may include:

- small work teams
- store team
- corporate team
- full-time, part-time, casual or contract staff
- people with varying degrees of language and literacy
- people from a range of cultural, social and ethnic backgrounds
- people with a range of responsibilities and job descriptions.

Feedback may be given:

- verbally
- in writing
- in groups
- individually.

Training may include:

- mentoring or coaching
- off-the-job training
- on-the-job training.

Report may be:

- verbal
- written
- formal
- informal.

Unit Sector(s)

Cross-Sector

Competency field

Risk Management and Security

TAEDEL301A Provide work skill instruction

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to conduct individual and group instruction and demonstrate work skills, using existing learning resources in a safe and comfortable learning environment. The unit covers the skills and knowledge required to determine the success of both the training provided and one's own personal training performance. It emphasises the training as being driven by the work process and context.

Application of the Unit

Application of the unit	This unit supports a wide range of applications across any workplace setting and so can be used by any organisation. Its use is not restricted to training organisations.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Organise instruction and demonstration	1.1. Gather information about ***learner characteristics*** and learning needs 1.2. Confirm a ***safe learning environment*** 1.3. Gather and check ***instruction and demonstration objectives*** and seek assistance if required 1.4. Access and review relevant ***learning resources*** and ***learning materials*** for suitability and relevance, and seek assistance to interpret the contextual application 1.5. Organise access to necessary equipment or physical resources required for instruction and demonstration 1.6. Notify learners of ***details*** regarding the implementation of the learning program and/or delivery plan
2. Conduct instruction and demonstration	2.1. Use interpersonal skills with learners to establish a safe and comfortable learning environment 2.2. Follow the learning program and/or delivery plan to cover all learning objectives 2.3. Brief learners on any ***OHS procedures*** and requirements prior to and during training 2.4. Use ***delivery techniques*** to structure, pace and enhance learning 2.5. Apply ***coaching*** techniques to assist learning 2.6. Use communication skills to provide information, instruct learners and demonstrate relevant work skills 2.7. Provide opportunities for practice during instruction and through work activities 2.8. Provide and discuss feedback on learner performance to support learning
3. Check training performance	3.1. Use ***measures*** to ensure learners are acquiring and can use new technical and generic skills and knowledge 3.2. Monitor learner progress and outcomes in consultation with learner 3.3. Review relationship between the trainer/coach and the learner and adjust to suit learner needs
4. Review personal training performance and finalise documentation	4.1. Reflect upon personal performance in providing instruction and demonstration, and document strategies for improvement 4.2. Maintain, store and secure learner records according

ELEMENT	PERFORMANCE CRITERIA
	to organisational and legal requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- verbaland non-verbal communication techniques, such as:
  - asking relevant and appropriate questions
  - providing explanations
  - demonstrating
  - using listening skills
  - providing information clearly
- safety skills to implement OHS requirements, by acting and responding safely in order to:
  - identify hazards
  - conduct prestart-up checks if required
  - observe and interpret learner behaviour that may put people at risk
- time-management, skills to:
  - ensure all learning objectives are covered
  - pace learning
- reflection skills in order to:
  - identify areas for improvement
  - maintain personal skill development
- literacy skills to:
  - complete and maintain documentation
  - read and follow learning programs and plans
  - read and analyse learner information
- technology skills to operate audio-visual and technical equipment
- interpersonal skills to:
  - engage, motivate and connect with learners
  - provide constructive feedback
  - maintain appropriate relationships
  - establish trust
  - use appropriate body language
  - maintain humour
  - demonstrate tolerance
  - manage a group
  - recognise and be sensitive to individual difference and diversity
- observation skills to:
  - monitor learner acquisition of new skills, knowledge and competency

REQUIRED SKILLS AND KNOWLEDGE
requirements • assess learner communication and skills in interacting with others • identify learner concerns • recognise learner readiness to take on new skills and tasks
Required knowledge

• learner characteristics and needs
• content and requirements of the relevant learning program and/or delivery plan
• sources and availability of relevant learning resources and learning materials
• content of learning resources and learning materials
• training techniques that enhance learning and when to use them
• introductory knowledge of learning principles and learning styles
• key OHS issues in the learning environment, including:
  • roles and responsibilities of key personnel
  • responsibilities of learners
  • relevant policies and procedures, including hazard identification, risk assessment, reporting requirements, safe use of equipment and emergency procedures
  • risk controls for the specific learning environment

Evidence Guide

EVIDENCE GUIDE	
The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	Assessment must address the scope of this unit and reflect all components of the unit. A range of appropriate assessment methods and evidence-gathering techniques must be used to determine competency. A judgement of competency should only be made when the assessor is confident that the required outcomes of the unit have been achieved and that consistent performance has been demonstrated.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to:
	• carry out aminimum of three training sessions, involving demonstrating and instructing particular work skills for different groups; with each session addressing:
	  • different learning objectives
	  • a range of techniques and effective communication skills appropriate to the audience.

Context of and specific resources for assessment	Evidence must be gathered in the workplace wherever possible. Where no workplace is available, a simulated workplace must be provided.
Method of assessment	
Guidance information for assessment	For further information about assessment of this and other TAE units, refer to relevant implementation guidance published on the IBSA website (www.ibsa.org.au).

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Learner characteristics may include:	• language, literacy and numeracy levels • learning styles • past learning and work experiences • specific needs • workplace culture.
Safe learning environment may include:	• exit requirements • personal protective equipment • safe access • safe use of equipment.

Instruction and demonstration objectives may include:	• competencies to be achieved
	• generic and technical skills, which may be:
	  • provided by the organisation
	  • developed by a colleague
	  • individual or group objectives
	  • learning outcomes.

Learning resources may include:	• any material used to support learning, such as:
	  • learner and user guides
	  • trainer and facilitator guides
	  • example training programs
	  • specific case studies
	  • professional development materials
	  • assessment materials
	• a variety of formats
	• those produced locally
	• those acquired from other sources.

Learning materials may include:	• handouts for learners • materials sourced from the workplace, e.g. workplace documentation, operating procedures, and specifications.
Details may include:	• location and time • outcomes of instruction or demonstration

RANGE STATEMENT	
	• reason for instruction or demonstration • who will be attending instruction session.
OHS procedures may include:	• emergency procedures • hazards and their means of control • incident reporting • use of personal protective equipment • safe work practices • safety briefings • site-specific safety rules.
Delivery techniques may include:	• coaching • demonstration • explanation • group or pair work • providing opportunities to practise skills and solve problems • questions and answers.
Coaching may include:	• learning arrangements requiring immediate interaction and feedback • on-the-job instruction and 'buddy' systems • relationships targeting enhanced performance • short-term learning arrangements • working on a one-to-one basis.
Measures may include:	• informal review or discussion • learner survey • on-the-job observation • review of peer coaching arrangements.

Unit Sector(s)

Unit sector	Delivery and facilitation

Competency field

Competency field	

Co-requisite units

Co-requisite units		

TLID1001A Shift materials safely using manual handling methods

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

This unit involves the skills and knowledge required to shift loads using manual handling methods, including assessing the risks associated with relocating the load, planning the relocation process and carrying out the relocation in accordance with the plan. Licensing, legislative, regulatory or certification requirements are applicable to this unit.

Application of the Unit

Application of the Unit

Work must be carried out in compliance with the relevant OH&S regulations concerning the manual handling and movement of loads.

Work is performed under some supervision generally within a team environment.

Work involves the application of the basic principles for the safe manual handling techniques and movement of loads when shifting materials using manual handling methods as part of day-to-day work.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

Employability Skills Information

Employability Skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Assess risks associated with the relocation of the load	1.1 Products, goods or materials to be relocated are identified and assessed for the appropriate method of relocation
	1.2 Locations for storage are determined and potential routes to be followed are identified
	1.3 Effect of load relocation on original load base is predicted
	1.4 Points of balance are estimated
	1.5 Required clearances are compared to available space and adjustments are made
	1.6 Effects of moving contents which may be loose, liquid, dangerous or hazardous are considered
	1.7 Potential risks in route(s) which may be followed are considered
	1.8 Risks to self are identified arising from the required lifting, load carrying, set down or movement of the goods
	1.9 Manual handling procedures for lifting, lowering and carrying, pushing and pulling are identified
	1.10 Team lifting processes are considered for application
	1.11 Appropriate personal protective equipment is worn
	1.12 Size to weight ratio of items to be manually handled are identified
2 Plan load relocation	2.1 Relocation of the load is planned consistent with the code of practice for manual handling
	2.2 Process for relocating load is proposed including predicting and planning for potential difficulties
	2.3 Proposed process is checked against code of practice and workplace procedures for compliance
3 Relocate load	3.1 Actions for lifting, lowering and carrying, pulling and pushing a load are in accordance with workplace procedures and OH&S requirements
	3.2 Applications appropriate for team relocation of load are identified
	3.3 Team lifting tasks are coordinated
	3.4 Planned process and route are followed
	3.5 Relocated materials are set down without damage to goods, personnel or equipment and checked for stability
	3.6 Relocation is checked to see that it meets work requirements, with any variance(s) reported

Required Skills and Knowledge

REQUIRED KNOWLEDGE AND SKILLS

This describes the essential knowledge and skills and their level required for this unit.

Required knowledge:

- Relevant OH&S procedures and guidelines concerning the manual lifting and movement of loads
- Risks when manually lifting and handling materials and goods and related precautions to control the risk, including: the load on the spine during lifting; controlled actions on a movement during lifting; rotation and side movement of the spine during lifting; postures and positions during lifting; work layout; the type, weight and position of the load; frequency of shifting operations; distance over which load is to be shifted; and time allowed for the shifting of the load
- Workplace procedures and policies for manual handling
- Housekeeping standards procedures required in the workplace
- Site layout and obstacles

Required skills:

- Communicate effectively with others when manually lifting and handling materials and goods
- Read and interpret instructions, procedures and information relevant to the manual lifting and handling of materials and goods
- Interpret and follow operational instructions and prioritise work
- Work collaboratively with others when manually lifting and handling materials and goods
- Adapt appropriately to cultural differences in the workplace, including modes of behaviour and interactions with others
- Promptly report and/or rectify any identified problems that may arise when manually lifting and handling materials and goods in accordance with regulatory requirements and workplace procedures
- Implement contingency plans for unexpected situations that may occur when manually lifting and handling materials and goods
- Apply precautions and required action to minimise, control or eliminate risks that may exist when manually lifting and handling materials and goods
- Monitor work activities in terms of planned schedule
- Modify activities depending on differing operational contingencies, risk situations and environments
- Apply fatigue management knowledge and techniques
- Work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- Operate and adapt to differences in loads and materials in accordance with standard operating

Required skills:

procedures

- Select and use required personal protective equipment conforming to industry and OH&S standards

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills, the range statement and the assessment guidelines for this Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria of this unit and include demonstration of:
  - applying the underpinning knowledge and skills
  - interpreting manual handling risks
  - using correct manual handling practices
  - applying relevant legislation and workplace procedures

Context of and specific resources for assessment

- Performance is demonstrated consistently over a period of time and in a suitable range of contexts
- Resources for assessment include:
  - a range of relevant exercises, case studies and/or other simulated practical and knowledge assessment, and/or
  - access to an appropriate range of relevant operational situations in the workplace
- In both real and simulated environments, access is required to:
  - relevant and appropriate materials and equipment, and
  - applicable documentation including workplace procedures, regulations, codes of practice and operation manuals

Method of assessment

- As a minimum, assessment of knowledge must be conducted through appropriate assessments using written/practical/oral assessments
- Practical assessment must occur:
  - through activities in an appropriately simulated

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	environment, and/or • in an appropriate range of situations in the workplace

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

The shifting operations may be conducted:	• in a range of work environments • by day or night
Customers may be:	• internal or external
Workplaces may comprise:	• large, medium or small worksites
Work may be conducted in:	• restricted spaces • exposed conditions • controlled or open environments
Materials to be shifted may include:	• goods • large luggage items • baggage items • equipment and tools • cleaning materials • components and parts of vehicles and equipment such as tyres, batteries, lifting gear, etc. • materials used in the course of work such as drums of fuel, raw materials, packaging, etc.
Loads to be shifted may be:	• irregularly shaped • packaged or unpackaged • labelled or unlabelled
Hazards in the work area may include exposure to:	• chemicals • dangerous or hazardous substances • movements of equipment, goods and materials • weight of items being handled
Personnel in the work area may include:	• workplace personnel • site visitors • contractors • official representatives

RANGE STATEMENT

Communication in the work area may include:	• phone • electronic data interchange • fax • email • internet • radio • oral, aural or signed communications
Depending on the type of organisation concerned and the local terminology used, workplace procedures may include:	• company procedures • enterprise procedures • organisational procedures • established procedures
Personal protective equipment may include:	• gloves • safety headwear and footwear • safety glasses • two-way radios • high visibility clothing
Information/documents may include:	• goods identification numbers and codes • manifests, bar codes, goods and container identification • manufacturers specifications for equipment/tools • workplace procedures and policies • supplier and/or client instructions • material safety data sheets • codes of practice including the National Standards for Manual Handling and the Industry Safety Code • relevant legislation, regulations and related documentation • award, enterprise bargaining agreement, other industrial arrangements • standards and certification requirements • quality assurance procedures • emergency procedures
Applicable regulations and legislation may include:	• relevant state/territory OH&S legislation • relevant state/territory environmental protection legislation • workplace relations regulations • workers compensation regulations • licence, patent or copyright arrangements • dangerous goods and air freight regulations • export/import/quarantine/bond requirements • marine orders

Unit Sector(s)

Not Applicable

Competency Field

Competency Field D - Load Handling

TLILIC2001A Licence to operate a forklift truck

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor	This unit specifies the outcomes required for the operation of a powered industrial truck equipped with a mast and an elevating load carriage to which is attached a pair of fork arms or other attachment, for licensing purposes. This definition also includes a truck on which the operator is raised with the attachment for order-picking.

Application of the Unit

Application of the Unit	THIS UNIT REQUIRES THE OPERATOR TO BE ABLE PLAN THE WORK, CONDUCT ROUTINE CHECKS ON THE FORKLIFT, SHIFT LOADS IN A SAFE MANNER, AND SHUT DOWN AND SECURE THE EQUIPMENT AFTER THE COMPLETION OF OPERATIONS. This unit is based on the National Standard for Licensing Persons Performing High Risk Work. This unit in its current form meets state and territory licensing requirements. Any alteration will result in a unit which is not acceptable to regulators for the purpose of licensing.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

Employability Skills Information

Employability Skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Not Applicable

Elements and Performance Criteria

ELEMENT *Elements describe the essential outcomes of a unit of competency.*	**PERFORMANCE CRITERIA** *Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.*
1. Plan work	1.1 Potential workplace ***hazards*** are identified 1.2 ***Hazard control measures*** are identified consistent with ***appropriate standards*** to ensure the safety of personnel and equipment 1.3 Appropriate ***forklift*** truck is selected according to the load and workplace conditions 1.4 Working area is inspected to determine appropriate path of movement for loads and forklift truck 1.5 ***Communication methods*** are identified according to ***procedures***
2. Conduct routine checks	2.1 Forklift is visually checked for any damage or defects 2.2 All ***signage and labels*** are visible and legible according to the ***appropriate standard*** 2.3 All controls are located and identified 2.4 ***Pre-start operational checks*** are carried out according to ***procedures*** 2.5 ***Forklift*** is started according to ***procedures*** and checked for any abnormal noise 2.6 ***Post-start operational checks*** are carried out according to ***procedures*** 2.7 All forklift functions and safety devices are tested to their maximum according to ***procedures*** 2.8 Defects and damage are reported and recorded according to ***procedures***, and appropriate action is taken
3. Shift load	3.1 The weight of load is assessed to ensure compliance with ***forklift*** truck data plate specifications 3.2 Appropriate ***hazard prevention/control measures*** are implemented and communicated with personnel in the work area 3.3 ***Forklift*** is operated at a safe speed and according to ***procedures*** 3.4 Loads are moved and placed to ensure stability of material and avoidance of hazards

	3.5 Load movement is monitored constantly ensuring safety to personnel and load, and structural stability 3.6 ***Unplanned and/or unsafe situations*** are responded to in line with ***procedures***
4. Shut down and secure forklift truck	4.1 ***Forklift*** truck is parked to avoid hazards 4.2 Forklift is ***shut down*** according to ***procedures*** 4.3 Routine post-operational forklift checks are carried out according to ***procedures*** 4.4 Forklift is secured to prevent unauthorised access/use 4.5 All defects and damage are reported and recorded according to ***procedures***, and appropriate action is taken

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This describes the essential skills and knowledge and their level required for this unit.
Required skills:
• Accurately interpret information relating to conducting forklift truck operations (e.g. procedures) • Safely conduct forklift truck operations including all functions to the maximum height and load capacity • Identify hazards associated with the operation of the forklift truck, assess risks and put into place effective hazard prevention/control measures for those hazards identified • Use communication skills at a level sufficient to communicate with other site personnel (e.g. receive and interpret work instructions, safety information, emergency procedures) • Drive forklift with load in forward and reverse, maintaining visibility • Verify problems and equipment faults and demonstrate appropriate response procedures
Required knowledge:
• Methodology of determining the weight of a load • Commonwealth, state or territory OH&S legislation, standards relevant to the safe operation for the forklift trucks • Understanding of forklift characteristics and capabilities (including use of load data plates) • Understanding of the hierarchy of hazard identification and control • Organisational and workplace standards, requirements, policies and procedures for

REQUIRED SKILLS AND KNOWLEDGE
conducting operations for the crane class • Procedures for the recording, reporting and maintenance of workplace records and information • Forklift truck operations and safe operating techniques • Typical routine problems encountered in the operation of the crane and equipment and adjustments required for correction

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, the range statement and the assessment guidelines for the Training Package.	
Overview of assessment	• Successful assessment of this unit meets the competency requirement of the National Standard for Licensing Persons Performing High Risk Work. • State/territory OH&S regulators have mandated the use of Assessment Instruments and Instructions for Assessment for this unit which have been endorsed by the national body responsible for OH&S matters.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	• Compliance with OH&S licensing legislation. • Communicate and work safely with others in the work area. • Identify hazards associated with the operation of the forklift truck and put in place effective hazard controls for those hazards identified. • Conduct pre-start-up, operational, moving loads and shut down and secure checks of the forklift truck according to procedures. • Operate the forklift truck and move loads safely, including driving and manoeuvring, picking up and placing of loads at various stack heights. • Drive forklift truck with load in forward and reverse, maintaining visibility.
Context of and specific resources for assessment	• Assessment of the safe application of knowledge and skills to workplace tasks (performance) must be undertaken using the endorsed Assessment Instrument.

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	• Assessment of performance must be undertaken either in the workplace or in a realistically simulated workplace setting.
	• Assessment must occur under standard and authorised work practices, safety requirements and environmental constraints.
	• Applicants must have access to:
	  • Personal Protective Equipment (PPE) for the purpose of the Performance Assessment
	  • associated equipment appropriate to forklift truck operations
	  • suitable loads as described by the endorsed Assessment Instrument
	  • manufacturers specifications
	  • appropriate forklift truck in a safe condition.

Method of assessment	• Assessment must be conducted using the endorsed Assessment Instrument. These Instruments provide instruction on their application. • The use of '**simulators**' in the assessment of this unit of competency is **not acceptable**. • Assessment may be in conjunction with the assessment of other units of competency. • Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge. • Assessment must confirm a reasonable inference that competency is not only able to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.
Guidance information for assessment	• Further information about endorsed Assessment Instruments may be obtained from state/territory OH&S regulators.

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below.

RANGE STATEMENT	
Hazards	May include but not limited to: • ground conditions (e.g. condition of pavement, slopes) • overhead hazards (e.g. powerlines, service pipes) • insufficient lighting • traffic (e.g. pedestrians, vehicles, other plant) • weather (e.g. wind, lightning, rain) • forklift instability (e.g. overloading, poor load placement, irregular loads) • other hazards (e.g. dangerous materials)
Hazard control measures	Refers to the systematic process of eliminating or reducing the risk to personnel and property through the application of controls It includes the application of the hierarchy of control, the six-step preference of control measures to manage and control risk: 1 elimination 2 substitution 3 isolation 4 engineering control measures 5 using safe work practices 6 personal protective equipment
Appropriate standards	May include but not limited to: • legislation • Australian standards • manufacturer's specifications • industry standards (where applicable)
Forklift truck	May include but not be limited to: • counterbalanced • reach trucks • rough terrain • internal combustion petrol, diesel, gas • electric
Communications methods	May include but not limited to: • verbal and non-verbal language • written instructions • signage

RANGE STATEMENT	
	• hand signals • listening • questioning to confirm understanding • appropriate worksite protocol
Procedures	May include but not limited to: • manufacturer's guidelines (instructions, specifications or checklists) • industry operating procedures • workplace procedures (work instructions, operating procedures, checklists)
Pre-start operational checks	May include but not limited to: • safety devices fitted where appropriate • forklift data plate fitted and interpreted • logbook, handbook or operating manuals available • external visual check including, evidence of damage, leaks, visual evidence of structural weaknesses (including paint separation or stressed welds) is carried out • forklift attachment is checked for security • approved modifications and/or attachments fitted to manufacturer's specifications (e.g. as per forklift or attachment data plate) are identified • checks for adaptations or modifications outside manufacturer's specifications (e.g. not listed on the forklift or attachment data plate) are carried out • maintenance logbook/records checked
Post-start operational checks	May include checks of the forklift truck and equipment after start-up to ensure: • hazard warning systems (for example lights and horns), are functional • attachment movements and control functions are smooth and comply with operating requirements • steering, transmission and brake functions comply with operating requirements
Hazard prevention/control measures	May include but not limited to: • barricades and traffic control • safety tags on electrical switches/isolators

RANGE STATEMENT	
	• insulated powerlines • safety observer used inside exclusion zone • disconnected power • pedestrian control (barricades, signs, etc.) • excavation safeguards • movement of obstructions • personal protective equipment • adequate illumination
Unplanned and/or unsafe situations	May include but not limited: • failure/loss of control (e.g. brakes and steering) • failure of equipment (e.g. hydraulic system) • environmental condition
Shut down	May include, but is not limited to: • parking in a suitable location away from dangerous areas • fork arms are correctly positioned (tips down, tilted forward, lowered to ground) • appropriate transmission/gear is selected for parking (relevant to transmission type) • hand/parking brake is applied • engine power is turned off • ignition key is removed (if applicable) • LPG gas cylinder valve is shut off (where fitted) • securing equipment against unauthorised operation • securing the site • ensuring access ways are clear • identifying and segregating defective equipment and reporting to authorised personnel • batteries are connected to the charger (if applicable)

Unit Sector(s)

Not Applicable

AUR Automotive Retail, Service and Repair Training Package

Modification History

Release	Comments
Release 1	Primary release
Release 1.1	ISC upgrade Unit AURKTJ003 updated to correct data
Release 2	3 new qualifications: • AUR30514 Certificate III in Marine Mechanical Technology • AUR31114 Certificate III in Heavy Commercial Vehicle Mechanical Technology • AUR40514 Certificate IV in Vehicle Loss Assessing 31 new units of competency: • AURAFA009 Carry out research into the automotive industry • AURETK003 Operate electrical test equipment • AURETR046 Remove and refit vehicle batteries • AURETR047 Recharge vehicle batteries • AURETR048 Construct and test basic electronic circuits • AURTTA027 Carry out basic vehicle servicing operations • AURTTB007 Remove and replace brake assemblies • AURTTC004 Remove and replace radiators • AURTTD006 Remove and replace vehicle front suspension springs • AURTTD007 Remove and replace steering assemblies • AURTTE006 Remove and replace conventional engine assemblies • AURTTE007 Dismantle and assemble single cylinder four-stroke petrol engines • AURTTE008 Dismantle and assemble multi-cylinder four-stroke petrol engines • AURTTE009 Remove and replace engine cylinder heads • AURTTJ003 Remove and replace wheel and tyre assemblies • AURTTX012 Dismantle and assemble manual conventional transmissions • AURTTX013 Remove and replace clutch assemblies • AURVLA001 Identify and report vehicle claim fraud indicators • AURVNA001 Provide vehicle loss assessments and identify repair requirements

	• AURVNA002 Provide vehicle total loss assessments • AURVNA003 Review vehicle repair quotations • AURVNA004 Apply insurance industry knowledge to vehicle loss assessments • AURVNA005 Inspect quality of vehicle repair work • AURVNA006 Identify and value vehicle salvage • AURVNA007 Apply automotive mechanical and electrical knowledge to vehicle loss assessments • AURVNA008 Apply automotive body and paint knowledge to vehicle loss assessments • AURVNN001 Evaluate vehicle bodywork for damage and identify repair requirements • AURVNP001 Evaluate vehicle paintwork for damage and identify refinish requirements • AURVTA005 Clean vehicles • AURVTP029 Prepare surface and prime repaired body panels • AURVTW010 Set up and use welding equipment 4 revised units of competency: • AURKTJ001 Remove, inspect and fit earthmoving and off-the-road tyres • AURKTJ002 Remove, inspect and fit earthmoving and off-the-road wheel and rim assemblies • AURKTJ003 Perform minor repairs to earthmoving and off-the-road tyres • AURKTJ006 Use earthmoving and off-the-road tyre handlers
Release 2.1	ISC Upgrade: 1 new skill set • AURSS00026 Percussive Drill Maintenance and Advanced Systems Diagnosis Skill Set 1 revised qualification: • AUR31114 Certificate III in Heavy Commercial Vehicle Mechanical Technology 2 new imported units • AURKTR3001 Diagnose and repair electric-over-hydraulic control systems • AURTTA4026 Diagnose complex faults in vehicle electric-over-hydraulic systems

Credit Arrangements

Credit Arrangements for AUR Automotive Retail, Service and Repair Training Package (Release 2.1)	
Qualification Code and Title	**Credit Arrangement Details**
AUR30514 Certificate III in Marine Mechanical Technology	At the time of endorsement of this Training Package no national credit arrangements exist.
AUR31114 Certificate III in Heavy Commercial Vehicle Mechanical Technology	At the time of endorsement of this Training Package no national credit arrangements exist.
AUR32613 Certificate III in Automotive Tyre Management	At the time of endorsement of this Training Package no national credit arrangements exist.
AUR40514 Certificate IV in Vehicle Loss Assessing	At the time of endorsement of this Training Package no national credit arrangements exist.

Links

Implementation Guide - http://www.asacompanionvolumes.com.au/aur-implementation-guide

AURSS00026 Percussive Drill Maintenance and Advanced Systems Diagnosis Skill Set

Modification History

Release	Comment
Release 1	New Skill Set

Description

Not applicable.

Pathways Information

The skill set may only be undertaken in addition to or as part of one of the following:

- Certificate III in Automotive Mechanical or Automotive Electrical Qualification
- Certificate III in Engineering - Mechanical or Electrical/Electronic Qualification
- Certificate III in Electrotechnology Electrician or Electrical Fitting Qualification

Licensing/Regulatory Information

Licensing, legislative, regulatory or certification requirements may apply to this skill set. Readers should ensure that they have also read the part of the Training Package that outlines licensing and regulatory requirements.

Skill Set Requirements

A total of **3 units of competency** must be completed.

Units	
AURKTR3001	Diagnose and repair electric-over-hydraulic control systems
AURTTA3013	Repair hydraulic systems
AURTTA4026	Diagnose complex faults in vehicle electric-over-hydraulic systems

Target Group

This is a skill set covering the requirements for technicians who require the skills and knowledge to enable them to diagnose and repair hydraulic and electrical faults on machines associated with percussive drilling rigs within the mining industry.
The skill set targets tradespeople and final year apprentices working as automotive mechanical/electrical technicians, engineering mechanical/electrical/electronic technicians or electrotechnology electrician/electrical fitters.

Suggested words for Statement of Attainment

These competencies from AUR Automotive Retail, Service and Repair Training Package meet the needs of those required to diagnose and repair hydraulic and electric-over-hydraulic control systems within the mining industry on machines associated with percussive drilling. The units are drawn from endorsed Training Packages, and provide the skills and knowledge required by persons diagnosing and repairing hydraulic and electric-over-hydraulic control systems on machines associated with percussive drilling.

Custom Content Section

Not applicable.