



Australian Government

**Assessment Requirements for UEERA0068
Repair and service self-contained carbon
dioxide refrigeration and heat pump
systems**

Release: 1

Assessment Requirements for UEERA0068 Repair and service self-contained carbon dioxide refrigeration and heat pump systems

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least two separate occasions and include:

- applying relevant legislation, industry standards and practices
- applying relevant work health and safety (WHS)/occupational health and safety (WHS/OHS) requirements and workplace procedures and practices, including using risk control measures
- applying sustainable energy principles and practices
- dealing with unplanned events/situations in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- discharging/charging refrigerant/lubricants and pressure testing the system without damage to components
- documenting operating conditions correctly
- identifying the conditions of the carbon dioxide (CO₂) refrigerant at various locations in the vapour compression system in a trans-critical and sub-critical state
- locating and rectifying leaks
- pressure testing, evacuating, charging/discharging refrigerant/lubricants and determining the operating conditions of CO₂ vapour compression systems
- recording measurements
- selecting and using appropriate measuring devices correctly
- using calculation methods accurately.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- CO₂ refrigeration compressors and lubricants, including:
 - types, construction and their applications
 - types of compatible compressor oil (Polyolester (POE) and Polyaphalefin (PAO))
 - safe handling of lubricants for CO₂ applications using safety data sheets (SDS)/material

safety data sheets (MSDS)

- cylinder regulators
- moisture problems with CO² systems
- refrigerant CO² cylinders and regulators
- refrigerant conditions
- refrigeration principles
- relevant industry standards, codes and practices
- relevant job safety assessments or risk mitigation processes, including hazards associated with CO²
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements
- relevant workplace documentation, including service manuals and service documentation
- relevant workplace policies and procedures
- self-contained systems employing CO² refrigerant at trans-critical condition, including:
 - basic operation
 - domestic refrigerators and freezers
 - heat pumps
 - water heaters
 - refrigerated cabinets
 - systems and major components
 - typical applications
- service gauges
- service procedures
- CO² refrigerant, including:
 - benefits of using CO² as a refrigerant
 - thermophysical properties
- servicing tools, equipment and safe working procedures, including:
 - cylinder regulators
 - moisture problems with CO² systems
 - refrigerant CO² cylinders and regulators
 - refrigerant conditions
 - service gauges
 - service procedures
 - system standing pressure as a result of power loss
- system components, construction and operation, including:
 - capillary tubes and accurators
 - CO² evaporator design features
 - CO² sub-cooler design features
 - electronic expansion valves
 - liquid-suction heat exchangers

- pressure relief devices
- refrigerant flow controls
- system standing pressure as a result of power loss.
- trans-critical CO² refrigeration and heat pump systems.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in suitable simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment (PPE) currently used in industry
- resources that reflect current industry practices in relation to servicing, repairing and determining the operating conditions of CO² vapour compression and liquid recirculation/cascade systems
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>