



**Australian Government**

# **AURRTR006 Diagnose and repair marine electrical systems**

**Release: 1**

# AURRTR006 Diagnose and repair marine electrical systems

## Modification History

Release	Comment
Release 1	New unit of competency.

## Application

This unit describes the performance outcomes required to diagnose and repair faults in the low-voltage electrical systems of marine vessels, such as dash instrumentation, switch and fuse panels, bilge pumps and lighting, global positioning systems (GPS), depth sounders, fish finders, communications equipment and radars.

It applies to those working in the marine service and repair industry.

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

## Competency Field

Marine

## Unit Sector

Technical - Electrical and Electronic

## 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 and italicised text is used, further information is detailed in the range of conditions section.
1. Prepare to diagnose marine electrical system	1.1 Job requirements are determined from workplace instructions 1.2 Diagnostic information is sourced and interpreted 1.3 Diagnostic options are analysed and those most appropriate to the circumstances are selected 1.4 Hazards associated with the work are identified and risks are managed

<b>Elements</b>	<b>Performance Criteria</b>
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	1.5 Diagnostic tools and equipment are selected and checked for serviceability
2. Diagnose electrical system	<p>2.1 Diagnostic tests are carried out according to workplace procedures and <i>safety requirements</i></p> <p>2.2 Faults are identified from diagnostic test results and causes of faults are determined</p> <p>2.3 Diagnosis findings, including recommendations for necessary repairs or adjustments, are reported according to workplace procedures</p>
3. Repair electrical system	<p>3.1 Repair information is sourced and interpreted</p> <p>3.2 Repair options are analysed and those most appropriate to the circumstances are selected</p> <p>3.3 Repair tools, equipment and materials are selected and checked</p> <p>3.4 Repairs and component replacements and adjustments are carried out according to manufacturer specifications, workplace procedures and safety requirements, and without causing damage to components or systems</p> <p>3.5 Post-repair testing is carried out according to workplace procedures to confirm fault rectification, and any further problems detected as having been introduced during the repair process are rectified</p>
4. Complete work processes	<p>4.1 Final inspection is made to ensure work is to workplace expectations and vessel is presented ready for use</p> <p>4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected</p> <p>4.3 Tools and equipment are checked and stored according to workplace procedures</p> <p>4.4 Workplace documentation is processed according to workplace procedures</p>

## 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.

<b>Skills</b>	<b>Description</b>
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<b>Skills</b>	<b>Description</b>
Learning skills to:	<ul style="list-style-type: none"> <li>locate appropriate sources of information efficiently.</li> </ul>
Reading skills to:	<ul style="list-style-type: none"> <li>interpret information from manufacturer and workshop literature when seeking marine electrical system specifications and procedures</li> <li>interpret wiring diagrams.</li> </ul>
Writing skills to:	<ul style="list-style-type: none"> <li>legibly and accurately fill out workplace documentation when reporting diagnostic findings, making repair recommendations, and recording parts and material used.</li> </ul>
Oral communication skills to:	<ul style="list-style-type: none"> <li>clarify instructions</li> <li>report diagnostic findings and make repair recommendations.</li> </ul>
Numeracy skills to:	<ul style="list-style-type: none"> <li>use basic mathematical operations, including addition, subtraction, multiplication and division, to calculate current flow, resistance and voltage</li> <li>interpret numbers on electrical measuring equipment and calculate deviations from manufacturer specifications.</li> </ul>
Planning and organising skills to:	<ul style="list-style-type: none"> <li>plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed within workplace timeframes.</li> </ul>
Technology skills to:	<ul style="list-style-type: none"> <li>use electrical measuring equipment, such as multimeters.</li> </ul>

## 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.

<b><i>Safety requirements</i></b> must include:	<ul style="list-style-type: none"> <li>work health and safety (WHS) and occupational health and safety (OHS) requirements, including procedures for: <ul style="list-style-type: none"> <li>checking and dealing with flammable gas build-up in boats prior to starting electrical system work</li> <li>working with potentially high-current electrical systems.</li> </ul> </li> </ul>
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## Unit Mapping Information

No equivalent unit.

## Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>