



**Australian Government**

# **Assessment Requirements for AURRTR106 Diagnose and repair marine electrical systems**

**Release: 1**

# Assessment Requirements for AURRTR106 Diagnose and repair marine electrical systems

## Modification History

| Release   | Comments                                                                                                |
|-----------|---------------------------------------------------------------------------------------------------------|
| Release 1 | This version first released with AUR Automotive Retail, Service and Repair Training Package Version 6.0 |

## Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- diagnose and repair a fault in the following marine electrical systems and components:
  - dash instrumentation
  - switch and fuse panels
  - bilge pump system
  - lighting system
  - depth sounder or fish finder
  - global positioning system (GPS)
  - marine radio.

## Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- methods to locate and interpret information required to diagnose and repair marine electrical systems including:
  - information provided by customers and supervisors
  - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to diagnose and repair marine electrical systems including:
  - establishing serviceability of tools and equipment
  - documentation procedures
  - housekeeping procedures including:
    - examination of tools and equipment
    - storage of equipment
    - identification, tagging and isolation of faulty equipment
    - disposal of excess materials

- recycling procedures
- workplace health and safety (WHS) requirements relating to diagnosing and repairing marine electrical systems, including procedures for:
  - checking and dealing with flammable gas build-up in boats, including LPG and hydrogen, prior to starting electrical system work
  - working with potentially high-current electrical systems
- environmental requirements relating to diagnosing and repairing marine electrical systems
- operating principles of electrical systems and associated components, including:
  - Ohm's law
  - electromagnetic interference
- purpose and operation of electrical systems and components, including:
  - marine vessel lighting systems, including marine regulations for vessel lighting
  - dash instrumentation
  - switch and fuse panels
  - bilge pump systems
  - depth sounders and fish finders
  - GPS
  - marine radios
  - 12-volt marine accessories, including winches
  - autopilot and radar
  - marine battery charge management systems
  - networked communication topographies
- diagnostic testing procedures for marine electrical systems, including:
  - testing for circuit resistance, voltage drop and current draw
  - testing for open and short circuits
  - testing for shorts to power circuits and grounds
  - inspecting for component moisture ingress and connector damage
  - testing marine battery charge management systems
  - testing networked communication topographies
- repair procedures for marine electrical systems, including procedures for:
  - selecting wiring gauge
  - soldering wiring
  - insulating wiring
  - crimping terminals
  - removing and replacing connectors
  - repairing networked communication topographies
- post-repair testing procedures for marine electrical systems.

## Assessment Conditions

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

Assessment must include direct observation of tasks.

Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the marine electrical systems 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:

- marine repair workplace or simulated workplace
- workplace instructions
- manufacturer electrical system specifications
- marine vessel with faults in the electrical systems and components specified in the performance evidence
- diagnostic equipment for marine vessel electrical systems
- tools, equipment and materials appropriate for repairing marine vessel electrical systems.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

## Links

Companion Volume Implementation Guide is found on VETNet -

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