



Australian Government

**Assessment Requirements for MARB047
Undertake maintenance of 240 to 440
voltage alternating current electrical
systems**

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Modification History

Release 2. This is the second release of this unit of competency in the MAR Maritime Training Package.

- Minor statement changes in unit Application
- Minor statement changes in Assessment Conditions.

Release 1. This is the first release of this unit of competency in the MAR Maritime 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 and performance criteria on at least one occasion and include:

- applying safety requirements throughout work sequence, including the use of personal protective equipment (PPE)
- completing all work to specification
- completing records, including:
 - incident reports
 - maintenance logs
 - reports required under planned maintenance system
- developing effective planning documents
- ensuring correct requirements and details of maintenance of electrical systems and equipment
- implementing safe and environmentally responsible work practices in testing and maintenance activities
- locating, interpreting and applying manufacturer specifications for electrical systems and equipment
- operating alternating current (AC) systems and conducting operator preventive maintenance according to manufacturer recommendations, regulations and vessel operating procedures to ensure safe operation
- operating electrical systems and equipment according to manufacturer recommendations, regulations and vessel operating procedures to ensure safe operation providing high quality reports
- performing maintenance tasks, including:
 - battery maintenance
 - testing:
 - alarm systems
 - emergency alternator
 - power and lighting systems

- recognising electrical system faults and, where necessary, taking steps to make them immediately safe and initiate repair
- selecting and using appropriate processes, tools and equipment.

Knowledge Evidence

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

- AC systems not exceeding 440 volts (V) AC
- batteries, including types, care and maintenance, and hazards
- care of electrical systems and equipment in general including fault recognition
- charging systems, including:
 - alarms/indicators
 - regulators
- connecting batteries
- electric systems, including above 240 V AC and up to 440 V AC
- fault identification, location and safety implications
- operation and maintenance of starter motors, alternators and associated equipment
- personal safety
- protective devices on switchboards
- shore power connection
- special requirements for electrical system breakdown/s, including:
 - isolation procedures
 - stopping alternator/s
 - stopping main engine/s
 - switching to emergency power
- use of fuses and circuit breakers, including selection of correct capacity.

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 current at the time of assessment.

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.

Practical assessment must occur in a workplace, or realistic simulated workplace, under the normal range of workplace conditions.

Simulations and scenarios may be used where situations cannot be provided in the workplace or may occur only rarely, in particular for situations relating to emergency procedures and adverse

weather conditions where assessment would be unsafe, impractical or may lead to environmental damage.

Resources for assessment must include access to:

- a commercial vessel with inboard diesel propulsion power of greater than or equal to 375 kW or appropriate engine and auxiliary system ashore
- applicable documentation, such as legislation, regulations, codes of practice, workplace procedures and operational manuals
- tools, equipment, machinery, materials and personal protective equipment (PPE) currently used in industry
- electrical systems, including:
 - AC alternator (above 240 V AC and up to 440 V AC)
 - batteries
 - electrical motor starting circuits
 - emergency electrical supply
 - power and lighting
 - shore supply
 - switchboards.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>