



Australian Government

**Assessment Requirements for MARC017
Operate 240 to 440 voltage alternating
current electrical systems**

Release: 1

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Modification History

Release 1. New unit of competency.

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:

- carrying out necessary calculations associated with managing electrical systems including:
 - battery ampere-hours and efficiency
 - series and parallel configuration of battery supply
 - adding resistors in series and parallel, and calculating current
- connecting to shore power
- isolating electrical circuits
- maintaining records of operating and maintaining electrical systems, and any related safety incidents
- monitoring and evaluating performance of electrical systems
- performing switchboard operations including the monitoring of electrical supply and procedures for paralleling generators
- reading and interpreting:
 - manufacturer instructions for the operation of electrical systems
 - maritime regulations, rules and instructions
- recognising problems that may occur with electrical systems and taking appropriate preventative and remedial action
- recognising when performance of electrical systems is unsatisfactory or outside of specified limits and taking appropriate action
- starting emergency generator and supply switchboard where available
- using hydrometer
- using multi-meter to test for voltage and continuity.

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:

- battery:
 - operation
 - charging circuits and hazards associated with charging batteries
 - types, care and hazards

- characteristics of electrical systems
- dangers associated with operation of shipboard electrical systems and related hazard prevention strategies
- earth detection devices
- electrical distribution systems including emergency arrangements
- faults associated with electrical systems and appropriate preventative and remedial action, and solutions
- methods for managing operation of shipboard electrical systems
- motor and alternator construction
- motor starter circuits
- own ability and limits to rectify irregularities and faults
- principles of operation of various shipboard emergency systems including fire detection system, internal communications system and emergency generator
- procedures for monitoring and evaluating performance of electrical systems
- relevant sections of state and territory maritime regulations, National Standard for Commercial Vessels (NSCV) and Uniform Shipping Laws (USL) Code
- relevant work health and safety (WHS)/occupational health and safety (OHS) legislation and policies
- safety devices fitted to switchboard and other electrical systems including fuses and circuit breakers
- sequence of required action when power unit becomes overloaded
- shore power arrangements
- single and three phase AC power generation.

Assessment Conditions

Assessors must satisfy National Vocational Education and Training Regulator (NVR)/Australian Quality Training Framework (AQTF) assessor requirements.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect 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:

- tools, equipment, machinery, materials and personal protective equipment currently used in industry
- applicable documentation such as legislation, regulations, codes of practice, workplace procedures and operational manuals
- range of relevant exercises, case studies and/or simulations.

Links

Companion Volume implementation guides are found in VETNet -

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