



**Australian Government**

# **Assessment Requirements for MARC042 Operate electrical systems**

**Release: 1**

# Assessment Requirements for MARC042 Operate electrical systems

## Modification History

Release 1. New unit of competency. Licensing/regulatory information has been incorporated in accordance with Regulatory requirements. Assessment Requirements have been strengthened in accordance with Regulatory requirements.

## 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:

- adjusting electrical supply to accommodate load demand
- applying work health and safety (WHS)/occupational health and safety (OHS) and pollution control, legislation and policies
- connecting and disconnecting shore supply
- locating, interpreting and applying manufacturer specifications for electrical systems and equipment
- operating and monitoring alternating current (AC) and direct current (DC) electrical systems according to manufacturer recommendations, regulations and vessel operating procedures to ensure safe operation
- operating electrical systems and equipment
- performing isolation, lock out and tag out procedures
- recognising and rectifying operational faults.

## 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:

- adjusting low voltage electrical supply to accommodate load demand, including:
  - changing electrical supply to a larger alternator
  - connecting further alternators in parallel
- basic care of electrical systems and equipment in general - fault recognition
- batteries:
  - care
  - hazards
  - types
- charging systems:
  - alarms or indicators

- regulators
- connecting batteries in series and parallel
- earth indicating devices
- electric systems above 32 V DC and up to 415 V AC
- emergency supply and regulatory requirements
- fault identification, location and safety implications
- operation of fuses and circuit breakers
- operation of protection devices on the switchboard
- operation of starter motors, alternators and associated equipment
- personal safety
- process for recognising and rectifying operational faults, including:
  - activation of protection devices on the switchboard
  - battery faults
  - blown fuses and open circuit breakers
  - earth faults
  - failure of alternators to produce voltage
  - failure of starter motors
  - faults with shore power connections including phase rotations
- process for recognising non-essential electrical systems be isolated.
- process for requesting non-essential electrical systems be isolated
- shore power connection
- single and three-phase power
- uses of fuses and circuit breakers and selection of correct capacity
- WHS/OHS requirements and work practices.

## Assessment Conditions

Assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment. As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations 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:

- applicable documentation, such as legislation, regulations, codes of practice, safety management systems (SMS), workplace procedures and operational manuals
- a commercial vessel with inboard diesel propulsion power of  $\geq 150$  kW or appropriate

electrical systems ashore

- tools, equipment, machinery, materials and relevant personal protective equipment (PPE) currently used in industry.

## **Links**

Companion Volume implementation guides are found in VETNet -

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