



Australian Government

MARB007 Undertake basic maintenance of electrical systems

Release: 1

MARB007 Undertake basic maintenance of electrical systems

Modification History

Release 1. New unit of competency.

Application

This unit involves the skills and knowledge required to complete basic maintenance of electrical systems.

This unit applies to engine workers in the maritime industry working as a Marine Engine Driver Grade 2 Near Coastal on vessels up to 750 kW or as a Marine Engine Driver Steam or as a Marine Engine Driver Grade 1 Near Coastal on vessels up to 1500 kW.

WARNING: Relevant state/territory training and qualification requirements need to be fulfilled by any persons carrying out installation, maintenance and/or repair of refrigeration equipment especially with regard to preventing the escape of refrigerants into the atmosphere and to electrical work.

Relevant state/territory electrical licensing requirements apply to persons carrying out installation, maintenance and/or repair of electrical circuits or systems that are 50 V alternating current (AC) or above, or 120 V direct current (DC) or above, on a vessel.

Pre-requisite Unit

Not applicable.

Competency Field

B - Equipment Checking and Maintenance

Unit Sector

Not applicable.

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Plan maintenance activities

- 1.1 Maintenance plan is accessed to determine electrical system maintenance requirements
- 1.2 Inspections are conducted and additional non-routine maintenance requirements are determined
- 1.3 System specifications and diagrams for electrical systems are

	obtained
	1.4 Tasks are planned and sequenced in conjunction with others involved in or affected by maintenance work
	1.5 Consumables and equipment are selected and checked for serviceability
2 Complete preventative maintenance	2.1 Electrical system is safely isolated according to regulatory and work health and safety (WHS)/occupational health and safety (OHS) requirements
	2.2 WHS/OHS risk control measures and procedures for carrying out work are followed
	2.3 Preventative maintenance is carried out in compliance with system specifications
	2.4 Methods for dealing with unexpected situations are selected on the basis of safety and specified work outcomes
	2.5 Work is carried out efficiently without waste of materials and damage to equipment and machinery or other services
	2.6 Maintenance work is checked to verify that it conforms with technical specifications
3 Complete breakdown maintenance	3.1 Nature of breakdown is confirmed using maintenance records and/or log book entries related to reported breakdown
	3.2 Restrictions are applied to operations, if necessary, and Master is notified
	3.3 Limits of repair work that can be carried out are established according to relevant state/territory electrical licensing requirements
	3.4 System is isolated
	3.5 Repair work is carried out according to system specifications
	3.6 Master is notified of completion of repair work and details are documented
4 Clean up and complete documentation	4.1 Work area is cleared and cleaned
	4.2 Materials are disposed of or recycled according to legislative and workplace requirements

- 4.3 Tools and equipment are cleaned, checked and stored according to workplace procedures
- 4.4 Electrical system and equipment are put back into service and monitored for correct operation according to organisational practices
- 4.5 Maintenance report is completed according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Specifies different 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.

Range is restricted to essential operating conditions and any other variables essential to the work environment.

- Electrical systems include one or more of the following:
- AC generators
 - alarm systems
 - batteries
 - emergency electrical supply
 - emergency generators
 - generators
 - motor starting circuits
 - power and lighting
 - shore supply
 - steering gear circuits
 - switchboards

- Maintenance requirements include one or more of the following:
- battery maintenance
 - motor replacement
 - replacing:
 - light bulbs
 - faulty wiring
 - testing:
 - alarm systems
 - emergency generator
 - power and lighting systems
- Consumables and equipment include one or more of the following :
- hand and power tools rated for electrical work
 - replacement parts
 - test equipment
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- Nature of breakdown include one or more of the following:
- blown fuses or open circuit breakers
 - earthing
 - failure of electricity generating systems
 - motor brake failure to release
 - motor failure
 - shorting
- Materials include one or more of the following :
- batteries
 - damaged wiring
 - used lamps
 - rags

Unit Mapping Information

This is a new unit. This unit is equivalent to MARB3007A Undertake basic maintenance of electrical systems.

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for MARB007 Undertake basic maintenance of electrical systems

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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 simple maintenance of electrical systems
- implementing safe and environmentally responsible work practices
- reading and interpreting system specifications.

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:
 - charging systems
 - maintenance
 - types and associated hazards
- connecting batteries in series and parallel
- connection to shore power
- earth indicating devices
- electrical distribution systems
- isolation of electrical circuits
- main faults that can occur in:
 - AC electrical systems
 - DC electrical systems
- maintenance and operation of batteries
- own ability and limits to rectify irregularities and faults
- protection devices
- single and three-phase AC power
- starter motors, alternators and associated equipment
- switchboard and protection devices
- uses of fuses and circuit breakers
- use of multi-meter to test voltage and continuity.

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

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