



**Australian Government**

# **MARC017 Operate 240 to 440 voltage alternating current electrical systems**

**Release: 1**

# MARC017 Operate 240 to 440 voltage alternating current electrical systems

## Modification History

Release 1. New unit of competency.

## Application

This unit involves the skills and knowledge required to operate a 240 to 440 voltage alternating current (AC) electrical system according to technical specifications and safe operating limits.

This unit applies to engine workers in the maritime industry working 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.

## Pre-requisite Unit

Not applicable.

## Competency Field

C - Equipment Operations

## Unit Sector

Not applicable.

## Elements and Performance Criteria

- |                                     |     |  |
|-------------------------------------|-----|--|
| <b>1 Prepare for operation</b>      | 1.1 | Risks to self, others and the environment are identified according to organisational procedures  |
|                                     | 1.2 | Routine pre-operational checks of electrical systems are completed prior to use according to manufacturer specifications and organisational procedures |
| <b>2 Operate electrical systems</b> | 2.1 | Suitable personal protective equipment is selected and used according to organisational procedures   |
|                                     | 2.2 | Electrical systems are operated in a safe and controlled manner  |

- 2.3 Performance of direct current (DC) and AC electrical systems is monitored
  - 2.4 AC electrical demand is monitored and additional generators are paralleled or disconnected as required
  - 2.5 Ship to shore electrical supply is connected and disconnected when required following established practices and organisational procedures
  - 2.6 Faults or malfunctions are identified and reported according to organisational procedures
  - 2.7 Faults or malfunctions are rectified and corrective actions are taken and recorded according to organisational procedures
  - 2.8 Procedures to be undertaken in emergencies are recognised and implemented
- 3 Complete operations and check electrical systems**
- 3.1 Shut-down procedures are conducted according to manufacturer instructions and organisational procedures
  - 3.2 Operational records are completed according to organisational 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 must

- alternators

- include:
- batteries and associated circuits
  - control circuits
  - fire detection
  - motors
  - starter circuits
  - switchboard

- Emergencies must include:
- failure of:
    - generator
    - emergency generator
    - fire
    - flooding

- Operational records must include:
- logbooks
  - maintenance records
  - operational orders from the organisation's safety management system
  - plant and equipment manufacturer instructions and recommended procedures
  - relevant maritime authorities documentation relating to operating electrical systems

## Unit Mapping Information

This is a new unit. This unit is equivalent to MARC4007A Operate 240 to 440 voltage alternating current electrical systems.

## Links

Companion Volume implementation guides are found in VETNet -

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