



Australian Government

MARC010 Operate electrical systems

Release: 2

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Modification History

Release 2. Range of Conditions updated to include relevant information.

Release 1. New unit of competency.

Application

This unit involves the skills and knowledge required to operate 220 to 440 voltage alternating current (AC) 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 Grade 1 Near Coastal on vessels up to 1500 kW or as a Marine Engine Driver Steam.

This unit has links to legislative and certification requirements.

Pre-requisite Unit

Not applicable.

Competency Field

C - Equipment Operations

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 Prepare electrical systems and equipment for operation

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| 1.1 | Risks to self, others and the environment are identified according to organisational procedures |
| 1.2 | Pre-operational checks are carried out according to manufacturer specifications and organisational procedures |

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| 2 Operate electrical systems and equipment | 2.1 Electrical systems and equipment are operated according to manufacturer specifications, regulations and vessel procedures |
| | 2.2 Performance of electrical equipment is monitored |
| | 2.3 AC electrical supply is monitored and demand is adjusted |
| | 2.4 Operational faults are recognised and recorded, and corrective action is taken according to manufacturer specifications and fault-finding procedures |
| 3 Connect and disconnect ship to shore electrical supply | 3.1 Vessel is positioned and secured for connecting to shore electrical supply |
| | 3.2 Power cable is inspected and connected to shore supply |
| | 3.3 Procedures for changing from vessel supply to shore supply are implemented following vessel procedures |
| | 3.4 Electrical supply is monitored for correct operation according to vessel procedures |
| | 3.5 Operational faults are recognised and recorded, and corrective action is taken according to vessel procedures |
| | 3.6 Procedures for changing from shore supply to vessel supply are implemented following vessel procedures |
| | 3.7 Power cable is disconnected, inspected and stored |

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 and equipment include one or more of the following:	• batteries • charging systems • fuses and circuit breakers • generators/alternators • motors • shore power connection • starter motors • switchboards
Adjusted include one or more of the following:	• changing electrical supply to a larger alternator • connecting further alternators in parallel • requesting non-essential electrical systems be isolated
Operational faults include one or more of the following:	• battery faults • earth faults • failure of: • starter motors • alternators to produce voltage • faults with shore power connections including phase rotations • operation of fuses and circuit breakers • operation of protection devices on the switchboard

Unit Mapping Information

This is a new unit. This unit is equivalent to MARC3007A Operate electrical systems.

Links

MAR Maritime Training Package Companion Volume Implementation Guide at: -
http://companion_volumes.vetnet.education.gov.au/Pages/TrainingPackage.aspx?pid=22