



Australian Government

MARC009 Operate and monitor marine internal combustion engines, propulsion plant and auxiliary 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 safely operate marine internal combustion engines, propulsion plant and auxiliary systems on a vessel up to 750 kW.

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.

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 for sea | 1.1 Fuels and lubricating fluids required for proposed voyage are acquired |
| | 1.2 Spares and stores required for proposed voyage are acquired |
| | 1.3 Flammable/explosive materials are stowed and managed according to regulatory and organisational requirements |

- 1.4 Work health and safety (WHS)/occupational health and safety (OHS) hazards in engine room are identified, risk assessed and corrective actions taken according to organisational practices
 - 1.5 Pre-start checks are conducted on machinery and equipment according to organisational procedures and manufacturer specifications
 - 1.6 Engines are started according to manufacturer specifications and vessel procedures
 - 1.7 Starting faults are recognised and rectified according to manufacturer specifications and fault-finding procedures
- 2 Operate engines, propulsion plant and auxiliary systems**
 - 2.1 Engines, propulsion plant and auxiliary systems are operated within technical specifications
 - 2.2 Main propulsion plant and auxiliary systems are operated and monitored to ensure they are within operating limits specified by vessel procedures and manufacturer recommendations
 - 2.3 Environmental implications associated with operation of engine, propulsion plant and auxiliary systems are identified and controlled where possible
 - 2.4 Accidental or operational discharge of polluting substances are recorded according to regulatory requirements and organisational procedures
 - 2.5 Operational faults are recognised and rectified in accordance with manufacturer specifications and fault-finding procedures
 - 2.6 Operational records are kept according to regulatory requirements and organisational procedures
 - 2.7 Appropriate action is taken when a malfunction or emergency occurs
- 3 Secure vessel after voyage**
 - 3.1 Engines, propulsion plant and auxiliary systems are shut down according to manufacturer specifications and vessel procedures
 - 3.2 All damage and repairs requiring action are recorded 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.

Spares and stores include one or more of the following:

- cleaning products and materials
- grease
- liquefied petroleum gas (LPG)
- machinery spare parts
- oils
- paint
- refrigeration gas
- tools, hand and power

Flammable/explosive materials must include:

- liquid fuels
- LPG
- refrigerant gas

Work health and safety (WHS)/occupational health and safety (OHS) hazards include one or more of the following:

- heavy objects securely lashed
- leaking fuel
- loose machinery guards
- slippery decks

Engines, propulsion plant and auxiliary systems include one or more of the following:

- auxiliary equipment and associated spaces
- cooling systems
- fuel systems
- gearbox
- lubricating systems
- marine two- and four-stroke:
- diesel engines
- petrol engines
- propeller and immediate shafting alignment
- pumping systems
- refrigeration systems
- steering systems
- sterndrive and water jet drive units

Environmental implications include one or more of the following:

- accidental release of refrigeration gas
- excessive noise
- exhaust emissions
- loss of fuel and oil overboard
- pumping bilges

Polluting substances include one or more of the following:

- chemicals
- oils
- refrigeration gases
- sewage

Operational records include one or more of the following:

- ballast log
- maintenance logs
- oil record book
- running logs

Emergencies include one or more of the following:

- emergency steering
- failure of the main engine
- fire
- flooding

Unit Mapping Information

This is a new unit. This unit is equivalent to MARC3005A Operate and monitor marine internal combustion engines, propulsion plant and auxiliary systems.

Links

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