



Australian Government

**MARC041 Operate and monitor marine
internal combustion engines, propulsion
plant and auxiliary systems**

Release: 1

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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.

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 people working in the maritime industry in the capacity of:

- chief engineer on vessels with an inboard engine with propulsion power <1500 kW within the exclusive economic zone (EEZ) or
- second engineer on vessels with an inboard engine with propulsion power <3000 kW within the EEZ or
- chief or second engineer on a vessel with an outboard engine with unlimited propulsion power within the EEZ or
- assistant under direct supervision of a chief engineer; and
- worker in the engine room on vessels up to 80 metres in length with propulsion power <3000 kW.

Licensing/Regulatory Information

Legislative and regulatory requirements are applicable to this unit. This unit is one of the requirements to obtain Australian Maritime Safety Authority (AMSA) certification as a Marine Engine Driver Grade 2 NC and a Marine Engine Driver Grade 1 NC as defined in the National Standard for Commercial Vessels (NSCV) Part D. The AMSA mandated practical assessment (AMPA) is a requirement for AMSA certification as a Marine Engine Driver Grade 2 NC. The Australian Maritime Safety Authority (AMSA) mandated practical assessment (AMPA) will cover a range, but not all, of the requirements identified in the Performance Evidence and Knowledge Evidence. The AMPA shall be undertaken in accordance with its instructions.

Assessors of AMPA must hold as a minimum:

- a current certificate of competency issued under Marine Safety (Domestic Commercial Vessel) National Law Act 2012 at the same level as the qualification being assessed with at least 12 months' relevant sea service, or
- a relevant seafarer certificate, as engineer issued under the Navigation Act 2012.

Note: 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.

Pre-requisite Unit

Not Applicable

Competency Field

C - Equipment Operations

Unit Sector

Not Applicable

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for sea

2 Operate engines, propulsion plant and

PERFORMANCE CRITERIA

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

- 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 or 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
- 2.1 Engines, propulsion plant and auxiliary systems are operated within technical specifications

auxiliary systems

- 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** Damage and repairs requiring action are recorded according to organisational procedures

Foundation Skills

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

Range of Conditions

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

Unit Mapping Information

This unit replaces and is equivalent to MARC009 Operate and monitor marine internal combustion engines, propulsion plant and auxiliary systems.

Links

Companion Volume implementation guides are found in VETNet -

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