



Australian Government

**Assessment Requirements for MARC047
Manage a propulsion unit using
appropriate engine systems and support
services**

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Modification History

Release 2. This is the second release of this unit of competency in the MAR Maritime Training Package.

- Minor statement changes in unit Application
- Minor MO505 statement changes in Knowledge Evidence
- Minor statement changes in Assessment Conditions.

Release 1. This is the first release of this unit of competency in the MAR Maritime Training Package.

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 necessary calculations associated with managing propulsion unit
- communicating effectively with other personnel
- completing routine pre-operational wheelhouse checks of propulsion unit, engine systems and support services, including:
 - ancillary systems and controls
 - engine systems and controls
 - gearing systems
 - hydraulic systems and controls
 - performance indicators
 - power generating units and controls
 - pumps and pumping systems:
 - bilge systems
 - cooling water systems
 - water pumping systems
 - safety alarm systems
 - speed and fuel consumption indicators
 - steering gear
- conducting wheelhouse shutdown and securing procedures for propulsion unit, engine systems and support services, including:
 - ancillary systems and controls
 - cooling water systems
 - engine systems and controls

- hydraulic systems and controls
- power generating units and controls
- pumps and pumping systems:
 - bilge systems
 - water pumping systems
- safety alarm systems
- speed indicators
- steering gear
- keeping records of monitoring and operation of safety and fire detection/suppression equipment, and any required remedial actions
- maintaining records of operation and maintenance of propulsion unit, ancillary power units, equipment and any related safety incidents
- monitoring and evaluating performance of propulsion unit, ancillary power units and equipment
- operating and monitoring propulsion unit, engine systems and support services safely, including:
 - ancillary systems and controls
 - engine systems and controls
 - gearing systems
 - hydraulic systems and controls
 - performance indicators
 - power generating units and controls
 - pumps and pumping systems:
 - bilge systems
 - cooling water systems
 - water pumping systems
 - safety alarm systems
 - speed and fuel consumption indicators
 - steering gear
- reading and interpreting:
 - manufacturer instructions and recommended procedures for operation of propulsion systems and auxiliary systems
 - maritime regulations, rules and instructions
 - operational orders from the organisation's safety management system (SMS)
- recognising when performance of propulsion unit or ancillary power units and equipment is unsatisfactory or outside specified limits and taking appropriate actions
- working collaboratively with other shipboard personnel and passengers during vessel operations.

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:

- characteristics of propulsion units, ancillary power units and equipment, including operational limits, vessel stopping distances and turning circles at various draughts, speeds and conditions of loading
- dangers associated with operation of shipboard ancillary power units and related hazard prevention strategies
- marine engineering terms
- methods for controlling and managing operation of shipboard propulsion units, ancillary power units and equipment
- operation of fire detection and suppression systems
- pre-start checks, operation, monitoring, shutdown and post-operational checks of:
 - bow and stern thruster units
 - controllable pitch propellers (CPP)
- principles of operation and control of various shipboard emergency systems
- procedures to be undertaken in the event of emergencies must include:
 - fire or explosion
 - flooding
 - loss of:
 - propulsion
 - electrical power
 - steering
- problems associated with remote control of propulsion unit, ancillary power units and equipment and appropriate preventative and remedial actions and solutions
- procedures for monitoring and evaluating performance of propulsion unit, ancillary power units and equipment
- relationship between vessel speed and fuel consumption, including meaning of economical revolutions per minute (r.p.m.) and its application
- relevant sections of state and territory maritime regulations, Marine Order 505 and Uniform Shipping Laws (USL) Code related to operation of propulsion plants and ancillary equipment
- relevant work health and safety (WHS)/occupational health and safety (OHS) legislation and policies
- requirements for waste management and control systems under the International Convention for the Prevention of Pollution from Ships (MARPOL)
- sequence of required actions when power unit becomes overloaded
- support services.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training current at the time of

assessment.

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.

Practical assessment must occur in a workplace, or realistic simulated workplace, under the normal range of workplace conditions.

Simulations and scenarios may be used where situations cannot be provided in the workplace or may occur only rarely, in particular for situations relating to emergency procedures and adverse weather conditions where assessment would be unsafe, impractical or may lead to environmental damage.

Resources for assessment must include access to:

- a commercial vessel greater than or equal to 12 metres in length
- applicable documentation, such as legislation, regulations, codes of practice, safety management system (SMS), equipment manufacturer's instructions, workplace procedures and operational manuals
- plant and equipment manufacturer instructions and recommended procedures
- relevant sections of state and territory maritime regulations, NCSV and USL Code related to operation of propulsion plants and ancillary equipment
- propulsion unit and engine systems must include:
 - ancillary systems and controls
 - diesel engines
 - engine systems and controls
 - gearing systems
 - hydraulic systems and controls
 - performance indicators
 - power generating units and controls
 - propeller shafting arrangements
 - pumps and pumping systems
 - safety alarm systems
 - speed and fuel consumption indicators
 - steering gear
- tools, equipment, materials and personal protective equipment (PPE) currently used in industry.

Links

Companion Volume Implementation Guides are found in VETNet -

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