



Australian Government

**Assessment Requirements for MARB031
Maintain marine internal combustion
engines, propulsion plant and auxiliary
systems**

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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 statement changes in Assessment Conditions.

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.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria on at least one occasion and include:

- applying safety requirements throughout the work sequence, including the use of personal protective equipment (PPE)
- completing:
 - all work to specifications
 - basic user maintenance of marine internal combustion engine, propulsion plant and auxiliary systems to manufacturer specifications and survey requirements, so as to prevent pollution of the marine environment
- completing maintenance records
- developing effective planning documents
- implementing safe and environmentally responsible work practices
- lubricating
- maintaining emergency equipment
- overhauling pumps
- performing breakdown maintenance in the event of failure of:
 - engine systems
 - auxiliary systems
- planning maintenance activities according to technical, legislative, safety and procedural specifications
- reading and interpreting:
 - manufacturer specifications
 - safety data sheets (SDS)/material safety data sheets (MSDS).

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- basic hydraulic systems and user maintenance requirements
- basic vessel construction
- bearing types, materials, installation and lubrication
- cleaning chemicals
- common faults in:
 - steering gear
 - refrigeration systems
- coolants
- corrosion prevention
- coupling types, fitting, keys and keyways
- cross connections between bilge systems and seawater systems, including fire main
- electro-hydraulic steering gear
- emergency steering systems
- engine:
 - construction
 - fault-finding techniques
 - fuel injection, timing and control equipment
 - performance and reasons for lack of performance
 - protection arrangements
 - routine/remedial maintenance
- faults that can occur with firefighting equipment and systems
- fire main system and components, including pumps, hoses and nozzles
- fixed firefighting systems and associated remote shut-offs and closing of appliances
- glands, packing and seals
- heat exchanger, keel cooler and raw water cooling systems, including their construction and maintenance
- maintenance of marine two- and four-stroke diesel and petrol engines
- maintenance of watertight openings and hull fittings
- marine gearbox faults and emergency operation
- method of propulsion reversal including controllable pitch propeller construction
- oil filter changing procedures
- oil quality monitoring
- oily water separator
- planned maintenance
- preparation for survey
- process for carrying out checks of the vessel hull, equipment and fittings, including:
 - anodes

- propeller damage
- rudder
- ship side valves
- stern tube
- water intakes
- watertight hatches and openings
- cleaning and or replacing filters
- process for cleaning:
 - coolers
 - strainers
- propeller types, fitting, keys and keyways, securing nuts and locking
- pump capabilities and requirements for priming
- refrigeration systems and components
- relevant regulations and codes of practice relating to the maintenance of engineering equipment and systems, such as firefighting
- routine and remedial maintenance of steering systems
- rudder and stock bearing supports
- rudder construction and rudder types
- safe operation of hand and power tools
- seawater circulating systems
- shutting down machinery
- statutory and organisational requirements for documentation relating to the maintenance of engineering equipment and systems, such as firefighting
- storage of liquefied petroleum gas (LPG) cylinders
- testing of LPG detectors
- tiller arm attachment
- types of:
 - deck machinery
 - pumps and safety devices
- wet sump lubrication systems
- WHS/OHS requirements.

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 only rarely, in particular for situations relating to emergency procedures where assessment would be unsafe, impractical or may lead to environmental damage.

Resources for assessment must include access to:

- applicable documentation, such as legislation, regulations, codes of practice, workplace procedures and operational manuals, including manufacturer specifications and SDS/MSDS
- a commercial vessel with inboard diesel propulsion power of greater than or equal to 150 kW or appropriate engine, propulsion plant and auxiliary systems ashore
- tools, equipment, machinery, materials and relevant 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>