



Australian Government

**Assessment Requirements for MARB016
Contribute to routine engine maintenance
on a vessel**

Release: 1

Assessment Requirements for MARB016 Contribute to routine engine maintenance on a vessel

Modification History

Release 1. New unit of competency.

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 and range of conditions on at least one occasion and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements and work practices
- assisting in maintaining and servicing marine:
 - cooling systems/components
 - batteries
 - engine mounting systems/components
 - exhaust systems/components
 - fuel systems/components
 - intake systems/components
 - lubrication systems/components
- communicating with other personnel using effective:
 - listening techniques
 - questioning to confirm understanding
 - verbal and non-verbal language
- confirming maintenance to be undertaken and identifying resource requirements with the officer in charge of the engineering watch
- ensuring behaviour reflects relevant current legislative and regulatory requirements
- ensuring currency of relevant WHS/OHS skills and knowledge
- identifying hazards and safety issues and reporting these to the engineering officer of the watch
- identifying tools, equipment and materials required to undertake maintenance tasks
- using electrical equipment safely and applying:
 - correct emergency procedures
 - different voltages in use on board
 - isolation procedures
 - precautions to prevent electric shock
 - safety precautions before commencing work
- using painting, lubrication and cleaning materials, and equipment safely.

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 electrical principles covering voltage, current, resistance, power, magnetic and inductance
- basic mechanical principles covering the concepts of mechanical, hydraulic and pneumatic systems
- causes of electric shock and precautions to be observed to prevent shock
- engine room cleaning procedure and relevant cleaning agents
- engine room hazards and safety including:
 - electrical safety
 - gas testing
 - head of water/fluid
 - heat stress
 - high pressures
 - hot fluids
 - mechanical safety
 - noise
 - pollution
 - steam
 - toxic gases
 - ventilation
 - vibration
- engine room machinery and equipment including:
 - air compressors
 - air start systems
 - bilge system, bilge pumps, bilge pick ups, bilge valves, bilge piping
 - engine protection devices (crankcase mist detectors)
 - hydraulic systems, power packs, rams and motors, directional control valves (DCVs)
 - oily water separators
 - pumps – positive displacement, centrifugal, axial flow
 - purifiers and clarifiers
 - refrigeration and air-conditioning plant
 - sewage treatment plant
 - slow speed, medium speed and high speed diesels

- steering systems
- osmosis plant
- valves – globe and full flow, screw down non return, screw lift, butterfly, ball, relief, non-return, gate
- water making (both fresh water generators and reverse)
- manufacturer safety guidelines and shipboard instructions
- purpose of isolation procedures and application of lock out tags
- rights and responsibilities of individuals about lock out and tagging of plant and equipment
- relevant WHS/OHS requirements, work practices and pollution control regulations and policies
- routine maintenance and repair procedures
- safe disposal of waste materials
- surface preparation techniques, including:
 - abrasive blast cleaning
 - flame cleaning
 - hand and power tool cleaning
- types, functions and limitations of marine:
 - cooling systems/components
 - engines
 - engine mounting systems/components
 - exhaust systems/components
 - fuel systems/components
 - intake systems/components
 - lubrication systems/components.

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the *Standards for Registered Training Organisations* current at the time of assessment.

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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 operational situation where routine maintenance can be undertaken on a range of marine engines. Where this is not available, in a simulated workplace operational situation that replicates workplace conditions.

Resources for assessment include access to:

- relevant documentation including workplace procedures, regulations, codes of practice and operation manuals
- tools, equipment, materials that replicate and are currently used in industry, including:
 - cleaning agents and equipment
 - hand tools
 - machine tools
 - measuring instruments
 - power tools
 - suitable marine engine and relevant components
 - relevant engine room machinery and equipment
 - relevant diagnostic equipment
- personal protective equipment 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>