



Australian Government

MARC2005A Operate inboard and outboard motors

Release 1

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Modification History

Release 1

This is the first release of this unit.

This unit replaces and is equivalent to TDMMR3007B Operate and carry out basic service checks on small vessel marine propulsion systems.

Unit Descriptor

This unit involves the skills and knowledge required to operate inboard and outboard motors, and to diagnose basic faults.

Application of the Unit

This unit applies to deck and engine workers working in the maritime industry on vessels up to 12 metres. They could be working independently or as part a vessel crew.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

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|---|-----|--|
| 1 Operate inboard and outboard motors | 1.1 | <i>Pre-start checks</i> are performed on the motor |
| | 1.2 | Fuel is checked to ensure there is adequate fuel, including a reserve, on board |
| | 1.3 | Motor is <i>started</i> and stopped safely and correctly |
| | 1.4 | Motor controls are used to manoeuvre the vessel safely to complete work tasks |
| | 1.5 | Motor is operated within safe limits during normal manoeuvres |
| 2 Secure vessel on completion of work task | 2.1 | Vessel is moored safely |
| | 2.2 | Fuel system is closed down |
| | 2.3 | Vessel is secured |
| | 2.4 | Fuel is stored to minimise environmental and fire hazards where appropriate |
| | 2.5 | Unserviceable equipment is reported and tagged out as unserviceable |
| 3 Maintain inboard and outboard motors | 3.1 | Fuel filters are drained of excess water |
| | 3.2 | Batteries and connections are maintained to ensure reliable electrical supply to the motor |
| | 3.3 | Engine and gearbox oil is checked and lubrication is applied |
| | 3.4 | Engine mounting gear is checked as necessary |
| 4 Identify basic inboard and outboard motor faults | 4.1 | Operating difficulties caused by fuel-related factors are identified |
| | 4.2 | Electrical faults are identified, tagged out and reported |
| | 4.3 | Motor <i>propulsion faults</i> are identified, tagged out and reported |

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required Skills:

- Berth a vessel
- Check and operate an inboard or outboard motor
- Conduct pre-start, running and shut down checks on inboard and outboard motors, and tag out and report faults
- Estimate fuel consumption
- Manoeuvre to maintain a steady course
- Read and interpret company standard operating procedures (SOPs) about operating inboard and outboard engines
- Store an outboard motor
- Use inboard and outboard motor steering system

Required Knowledge:

- Battery connection and hazards
- MARPOL requirements
- Motor:
 - cooling systems
 - fuel systems
 - lubricating systems
- Standard procedures to tag out and report faults
- Troubleshooting techniques
- Work health and safety (WHS)/occupational health and safety (OHS) requirements and work practices

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, the required skills and knowledge, the range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

The evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the Elements, Performance Criteria, Required Skills, Required Knowledge and include:

- working safely at all times
- scheduling manufacturer specified maintenance.

Context of and specific resources for assessment

Performance is demonstrated consistently over time and in a suitable range of contexts.

Resources for assessment include access to:

- industry-approved marine operations site where using an inboard and outboard motor to handle a vessel in sheltered waters may be conducted
- tools, equipment and personal protective equipment currently used in industry
- relevant regulatory and equipment documentation that impacts on work activities
- range of relevant exercises, case studies and/or other simulated practical and knowledge assessments
- appropriate range of relevant operational situations in the workplace.

In both real and simulated environments, access is required to:

- relevant and appropriate materials and equipment
- applicable documentation including workplace procedures, regulations, codes of practice and operation manuals.

Method of assessment

Practical assessment must occur in an:

- appropriately simulated workplace environment and/or
- appropriate range of situations in the workplace.

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate to this unit:

- direct observation of the candidate using an inboard and outboard motor to handle a vessel in sheltered waters
- direct observation of the candidate applying relevant WHS/OHS requirements and work practices.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

In all cases where practical assessment is used it should be combined with targeted questioning to assess Required Knowledge.

Assessment processes and techniques must be appropriate to the language and literacy requirements of the work being performed and the capacity of the candidate.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below.

- Pre-start checks may include:
- Amount of fuel in the fuel tank
 - Appropriate fuel
 - Cooling water intake submerged
 - Fuel hose connected, full and free of restrictions
 - Fuel tank depressurised
 - Motor attachment points
 - Water depth
- Started may include:
- Electric start
 - Pull start
- Propulsion faults may include:
- Bent or broken propeller
 - Broken shear pin or drive spline
 - Fouling
 - Spark plugs

Unit Sector(s)

Not applicable.

Competency Field

Equipment Operations