



Australian Government

MARB3002A Perform routine engine maintenance on a vessel

Release 1

MARB3002A Perform routine engine maintenance on a vessel

Modification History

Release 1

This is the first release of this unit.

Unit Descriptor

This unit involves the skills and knowledge required to service engines and engine components on a vessel.

Application of the Unit

This unit applies to an Integrated Rating performing a range of engine maintenance activities as required on a range of vessels.

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

- | | |
|--|---|
| 1 Plan engine maintenance tasks | <ul style="list-style-type: none">1.1 Planned maintenance system is accessed to establish engine maintenance requirements for vessel1.2 Maintenance tasks are proposed and prioritised in conjunction with others involved in or affected by the maintenance work1.3 Resource requirements are identified and allocated to ensure efficient completion of tasks1.4 Maintenance tasks to be performed are recorded in the maintenance schedule according to organisational procedures |
| 2 Prepare for engine service | <ul style="list-style-type: none">2.1 Nature and scope of work requirements are confirmed2.2 Service procedures, workshop manuals and manufacturer specifications are accessed and interpreted2.3 Tools, equipment and materials required for servicing task are identified and prepared2.4 Engine and components are visually inspected for external signs of defects according to maintenance documentation2.5 Electrical components are identified and safe use of electrical equipment is ensured2.6 Engine is started, ran up to operating temperature and checked for leaks, abnormal noises and pressures2.7 Test results are compared with manufacturer/component supplier specifications to determine compliance or non-compliance2.8 Results are documented with supporting information and recommendations are made as to serviceability and repair |
| 3 Service engines and engine components | <ul style="list-style-type: none">3.1 Work health and safety (WHS)/occupational health and safety (OHS) requirements are identified and observed3.2 Service operations are performed according to organisational procedures and manufacturer/component supplier specifications3.3 Fluid level checks and replenishments are carried out according to manufacturer/component supplier specifications3.4 Appropriate lubricants are applied to engine3.5 Equipment/components requiring replacement are changed according to manufacturer/component supplier specifications |

- 3.6 Adjustments are made according to manufacturer/component supplier specifications
- 4 Complete work**
- 4.1 Engine is inspected to ensure protective guards, cowlings and safety features are in place
- 4.2 Engine is cleaned according to organisational procedures
- 4.3 Materials that can be reused are collected and stored according to manufacturer specifications and organisational procedures
- 4.4 Tools and equipment are cleaned, maintained and stored according to manufacturer specifications and organisational procedures
- 4.5 Waste and scrap is removed according to legislative requirements and organisational procedures
- 4.6 Unserviceable equipment is tagged and faults are identified according to organisational procedures

Required Skills and Knowledge

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

Required Skills:

- Assist in servicing marine:
 - fuel systems/components
 - ignition systems/components
 - intake systems/components
 - exhaust systems/components
 - lubrication systems/components
 - cooling systems/components
 - engine mounting systems/components

Required Knowledge:

- Basic electrical theory covering voltage, current, resistance, power, magnetic and inductance
- Mechanical theory covering the concepts and principles of mechanical, hydraulic and pneumatic systems
- Types, functions and limitations of marine:
 - engines
 - fuel systems/components
 - ignition systems/components
 - intake systems/components
 - exhaust systems/components
 - lubrication systems/components
 - cooling systems/components
 - engine mounting systems/components
- WHS/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:

- ensuring currency of relevant WHS/OHS skills and knowledge
- ensuring behaviour reflects relevant current legislative and regulatory requirements.

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 performing routine engine maintenance on a vessel 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 performing routine engine maintenance on a vessel
- direct observation of 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.

- | | |
|--|--|
| Maintenance tasks may include: | <ul style="list-style-type: none">• Greasing and oiling of machinery• Inspection and maintenance of:<ul style="list-style-type: none">• hoists and lifting equipment• hatches, watertight doors ports and deadlights• Routine inspection of hand and power tools, measuring instruments and machinery tools• Safe disposal of waste materials• Surface preparation and painting |
| Tools, equipment and materials may include: | <ul style="list-style-type: none">• Cleaning materials• Hand tools• Machine tools• Measuring instruments• Power tools |
| Safe use of electrical equipment must include: | <ul style="list-style-type: none">• Awareness of safety precautions to be taken before commencing work• Emergency procedures• Isolation procedures• Precautions to be taken to prevent electric shock• Voltages in use on board |

Unit Sector(s)

Not applicable.

Competency Field

Equipment Checking and Maintenance