



Australian Government

MARB2001A Perform basic servicing and maintenance of main propulsion unit and auxiliary systems

Release 1

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Modification History

Release 1

This is the first release of this unit.

Unit Descriptor

This unit involves the skills and knowledge required to perform basic maintenance and servicing of main propulsion units and auxiliary systems.

Application of the Unit

This unit applies to engine workers in the maritime industry working as a Marine Engine Driver Grade 3 on vessels up to 500 kW.

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 Prepare for work | <ul style="list-style-type: none">1.1 Manufacturer equipment specifications are obtained1.2 Safety requirements associated with maintaining equipment and workplace environment are implemented1.3 Tasks are planned and sequenced in conjunction with others involved in or affected by maintenance work1.4 Tools and equipment are selected and checked for serviceability1.5 Work area is prepared |
| 2 Carry out routine service | <ul style="list-style-type: none">2.1 Equipment is inspected and inspection results are compared with manufacturer specification2.2 Servicing tasks are carried out to specification2.3 Mechanical equipment and system components are checked with appropriate instruments2.4 Faulty items or components are identified and serviceability/unserviceability is determined2.5 Unserviceable equipment is tagged according to workplace procedures |
| 3 Repair/replace faulty components | <ul style="list-style-type: none">3.1 Equipment is safely isolated according to regulations and/or work health and safety (WHS)/occupational health and safety (OHS) requirements3.2 Faulty items or components are removed using appropriate tools and equipment according to workplace procedures3.3 Replaceable items are selected or serviceable items are fitted according to manufacturer specifications3.4 Adjustments are made to equipment or components to comply with specifications3.5 Operational check is carried out on system to ensure its compliance with manufacturer specification3.6 Maintenance report is completed according to workplace procedures |
| 4 Clean up | <ul style="list-style-type: none">4.1 Work area is cleared and cleaned4.2 Materials are disposed of or recycled according to legislative and workplace requirements |

- 4.3 Tools and equipment are cleaned, checked and stored according to workplace procedures

Required Skills and Knowledge

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

Required Skills:

- Complete relevant log books and service reports
- Demonstrate safe and environmentally responsible work practices in servicing and maintenance activities
- Read and interpret gauges
- Read and interpret manufacturer specifications and safety data sheets (SDS)/material safety data sheets (MSDS)
- Service and maintain propulsion machinery and auxiliary equipment to manufacturer specifications

Required Knowledge:

- Bleeding fuel systems
- Care of low voltage electrical systems on a vessel including precautions necessary when charging batteries
- Environmental impacts and minimisation measures associated with servicing and maintaining propulsion machinery and auxiliary equipment
- Job safety analyses (JSAs) and safe work method statements
- Manufacturer specifications for servicing and maintaining propulsion machinery and auxiliary equipment
- Operating principles and operating methods for propulsion machinery and auxiliary equipment
- Potential risks and hazards associated with servicing and maintaining propulsion machinery and auxiliary equipment
- Processes of maintaining propulsion machinery and auxiliary equipment
- Relevant WHS/OHS and personal protective equipment (PPE) requirements
- Routine checks required when servicing and maintaining propelling machinery, auxiliary equipment and other mechanical equipment

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 The evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the

demonstrate competency in this unit

Elements, Performance Criteria, Required Skills, Required Knowledge and include:

- completing all work to specification
- selecting and using appropriate processes, tools and equipment
- providing the required amount of detail in reports.

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 basic servicing and maintenance of main propulsion units and auxiliary systems 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 servicing and maintaining main propulsion units and auxiliary systems
- 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.

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|----------------------------------|---|
| Equipment must include: | <ul style="list-style-type: none">• Auxiliary equipment• Bilge systems• Cooling, lubricating and fuel systems• Drive train assembly• Fire pumping arrangements• Low voltage electrical systems• Monitoring machinery• Petrol, diesel and outboard engines• Shore power leads and connections• Steering gear• Two and four stroke engines |
| Safety requirements may include: | <ul style="list-style-type: none">• WHS/OHS requirements of the state or territory (specifically relating to PPE, use of tools and equipment, workplace environment and safety, handling of materials, hazard control, hazardous materials and substances)• PPE including that prescribed under legislation, regulation and organisational policies and procedures• Safe operating procedures including recognising and preventing hazards associated with the use of tools and equipment, dangerous materials, working at heights, working at proximity to others, worksite visitors and the public• Emergency procedure including emergency shutdown and stopping of equipment, extinguishing fires, organisational first aid requirements, evacuation |
| Tools and equipment may include: | <ul style="list-style-type: none">• Hand and power tools• Ladders• Test equipment |
| Servicing tasks may include: | <ul style="list-style-type: none">• Battery maintenance• Carrying out manufacturer instructions for pre-start checks• Checking:<ul style="list-style-type: none">• shaft glands• strainers• cooling system• fuel levels• fuel systems• Greasing• Oiling |

- Visual check for oil leaks
- Visually checking, identifying and reporting obvious equipment faults
- Faulty items or components may include:
 - Batteries and connections
 - Engine parts
 - Fuel pump
- Materials may include:
 - Rags
 - Spent oil

Unit Sector(s)

Not applicable.

Competency Field

Equipment Checking and Maintenance