



**Australian Government**

# **MARC2006A Operate main propulsion unit and auxiliary systems**

**Release 1**

# MARC2006A Operate main propulsion unit and auxiliary systems

## Modification History

Release 1

This is the first release of this unit.

## Unit Descriptor

This unit involves the skills and knowledge required to safely operate the main propulsion unit and auxiliary systems on a vessel up to 12 metres not exceeding 250 kW propulsion power.

## Application of the Unit

This unit applies to deck and engine workers working in the maritime industry on vessels up to 12 metres.

## 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

- |  |   |
|--|---|
| <b>1 Prepare propulsion unit and auxiliary system for use</b>              | <ul style="list-style-type: none"><li>1.1 Appropriate <i>personal protective clothing and equipment</i> is selected, used, maintained and stored according to work health and safety (WHS)/occupational health and safety (OHS) requirements</li><li>1.2 Routine <i>pre-operational checks</i> are carried out on <i>equipment</i> according to manufacturer specifications and workplace requirements</li><li>1.3 Deviations from the norm are promptly identified and rectified</li><li>1.4 Adjustments are made to achieve a safe and efficient operation</li><li>1.5 Inability to start up equipment is reported promptly and accurately to appropriate personnel</li></ul> |
| <b>2 Operate propulsion unit and auxiliary system</b>                      | <ul style="list-style-type: none"><li>2.1 Equipment is operated in a <i>safe and controlled manner</i></li><li>2.2 Performance and efficiency of equipment is monitored according to manufacturer instructions</li><li>2.3 Equipment is maintained within defined operating limits when running, to achieve optimum safety and efficiency</li><li>2.4 <i>Environmental implications</i> associated with the operation of the equipment are identified and controlled</li><li>2.5 Deviations from normal operations are promptly identified</li><li>2.6 Action is taken to rectify irregularities to maintain optimum safety and efficiency</li></ul>                            |
| <b>3 Check and complete propulsion unit and auxiliary system operation</b> | <ul style="list-style-type: none"><li>3.1 Equipment shut-down procedures are carried out according to manufacturer specifications and workplace procedures</li><li>3.2 Equipment operational records are maintained according to workplace procedures</li><li>3.3 Equipment damage, malfunctions or irregular performance are recorded and reported according to workplace procedures</li><li>3.4 Equipment is cleaned according to manufacturer specifications and workplace procedures</li></ul>  |

## Required Skills and Knowledge

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

### Required Skills:

- Implement safe and environmentally responsible work practices
- Measure and calculate volumes, consumption and servicing requirements
- Operate propulsion machinery and ancillary equipment to industry standards

### Required Knowledge:

- Environmental impacts and minimisation measures associated with operating propulsion machinery and auxiliary equipment
- Factors associated with the safe operation of propelling and auxiliary equipment
- Manufacturer specifications for operating propulsion machinery and auxiliary equipment
- Operating principles and operating methods for propulsion machinery and auxiliary equipment
- Potential risks and hazards associated with operating propulsion machinery and auxiliary equipment
- Potential risks and hazards involved with types of fuels for example petrol, diesel, LPG
- Preparing for the use of propelling machinery, auxiliary equipment and other mechanical equipment
- Routine checks required with the operation of propelling machinery, auxiliary equipment and other mechanical equipment
- Shore power connections and associated hazards
- Use of low voltage electrical systems
- What to do in the case of malfunctions and emergencies with propelling machinery, auxiliary equipment and other mechanical equipment
- 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:

- attention to appropriate level of detail in recordkeeping
- 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 operating propulsion and auxiliary equipment 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 operating propulsion and auxiliary equipment on a vessel
- 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.

Personal protective clothing and equipment may include:

- Boots
- Gloves
- Hard hat
- Hearing protection
- Overalls
- Protective eyewear
- Respirator or facemask

Pre-operational checks may include:

- Checking and confirming equipment calibration settings
- Inspecting safety guards, power take off stubs and shafts
- Observing and monitoring noise levels for correct operation
- Pre-start and safety checks including:
  - oils and lubricants
  - fuel systems
  - leads
  - lines
  - connections

Equipment must include:

- 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

Safe and controlled manner may include:

- Appropriate selection and use of machinery and equipment
- Maintaining workloads within specifications
- Using operational techniques for the specific location and weather conditions

Environmental implications may include:

- Excessive noise and exhaust emissions
- Incorrect use of maintenance debris for example

- oils, containers, chemical residues
- Hazardous substances

## **Unit Sector(s)**

Not applicable.

## **Competency Field**

Equipment Operations