



Australian Government

**TDMMB3607B PREPARE A SMALL
VESSEL'S MACHINERY FOR SEA
WITHIN THE LIMITS OF
RESPONSIBILITY OF A MARINE
ENGINE DRIVER GRADE 3**



Australian Government

Release: 1

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Modification History

Not applicable.

Unit Descriptor

UNIT DESCRIPTOR:

This unit involves the skills and knowledge required within the limits of responsibility of a Marine Engine Driver Grade 3 to prepare a small commercial vessel's machinery for sea, including the start up and shut down of the main propulsion and auxiliary machinery and associated systems.

Application of the Unit

Application of the unit	The unit has applications in the qualification for a Marine Engine Driver Grade 3 (MED 3) as per relevant sections of Part D of the National Standard for Commercial Vessels (NSCV), i.e. Certificate II in Transport&Distribution (Marine Engine Driving - Grade 3).
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Licensing/Regulatory Information

Licensing/legislative requirements	The unit is consistent with the relevant sections of State and Territory maritime regulations and NSCV/USL Code for a MED 3.
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Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance Criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the Evidence Guide.</i>
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
. 1 Prepare the start up of main and auxiliary machinery	. a Method of preparing the start up of main propulsion and auxiliary machinery is in accordance with manufacturer's specifications and instructions b Procedures for making available fuels, lubricants, cooling water and air for the start up of main propulsion and auxiliary machinery is in accordance with manufacturer's specifications and instructions c Required precautions are taken prior to start up of main propulsion and auxiliary machinery to minimise and control hazards and operational risks d Problems with the start up of main propulsion and auxiliary machinery are identified and investigated and appropriate action is initiated to rectify any problems that occur e Where applicable, petrol driven outboard engines are prepared for operation in accordance with manufacturer's instructions

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ELEMENT	PERFORMANCE CRITERIA
2 Start up and warm up main propulsion and auxiliary machinery	- a Main propulsion and auxiliary machinery is started up and warmed up accordance with manufacturer's specifications and instructions and established marine practice - b Sequence and timing of start up and shut down of main propulsion and auxiliary machinery is appropriate for safe and efficient operation - c Checks of pressures, temperatures, and revolutions during the start up and warm up period are made in accordance with manufacturer's technical specifications and appropriate action is initiated when out of specified limits - d Main propulsion and auxiliary machinery is operated within manufacturer's recommended limits - e Running and maintenance logs are maintained in accordance with procedures and manufacturer's specifications and instructions - f Where applicable, petrol driven outboard engines are operated in accordance with manufacturer's instructions
3 Prepare and shut down of main propulsion and auxiliary machinery	- a Method of preparing the shut down of main propulsion and auxiliary machinery is in accordance with manufacturer's specifications and instructions - b Required precautions are taken prior to shut down of main propulsion and auxiliary machinery to minimise and control hazards and operational risks - c Problems with the shut down of main propulsion and auxiliary machinery are identified and investigated and appropriate action is initiated to report and rectify the problems - d Where applicable, petrol driven outboard engines are shut

ELEMENT	PERFORMANCE CRITERIA
	down in accordance with manufacturer's instructions
	e The cooling down of the engine is monitored in accordance with manufacturer's specifications and instructions

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DRIVER GRADE 3**

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

REQUIRED KNOWLEDGE

This describes the knowledge required for this unit.

- 1 Relevant OH&S and pollution control legislation, codes of practice, policies and procedures
- 2 Procedures for the start up and shut down of main propulsion and auxiliary machinery and associated systems on a small commercial vessel, (including petrol driven outboard motors)
- 3 Operational characteristics and performance specifications for the various types of main propulsion and auxiliary machinery and associated systems found on small commercial vessels
- 4 The nature and causes of start up and shut down malfunctions of main propulsion and auxiliary machinery and associated systems and the available methods for their detection and rectification
- 5 Safety, environmental and hazard control precautions and procedures relevant to the start up and shut down of main propulsion and auxiliary machinery and associated systems
- 6 Basic principles of engines and propulsion systems used on a small vessel, including basic theory of:
 - a internal combustion engines
 - b fuel systems

REQUIRED SKILLS AND KNOWLEDGE

- c engine cooling and lubrication
- 7 Types of operational and servicing records that must be maintained on a small vessel

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REQUIRED SKILLS

This describes the basic skills required for this unit.

- 1 Use basic verbal communication skills required when preparing a small vessel's machinery for sea
- 2 Read, interpret and apply simple instructions on the preparation of a small vessel's machinery for sea, including all required OH&S procedures and precautions
- 3 Read and interpret material safety data sheets
- 4 Read and interpret machinery performance readings and indications
- 5 Start up and shut down main propulsion and auxiliary machinery and associated systems on a small commercial vessel
- 6 Complete any required operational and servicing records
- 7 Work safely and collaboratively with others during the preparation of a small vessel's machinery for sea
- 8 Select and use relevant tools and equipment as per instructions
- 9 Recognise faulty equipment and take appropriate action as per operating instructions
- 10 Recognise routine problems during the preparation of a small vessel's machinery for sea and take appropriate action
- 11 Adapt to changes in equipment and procedures in the workplace
- 12 Follow required work schedule as per company requirements

Evidence Guide

Evidence Guide

TDMMB3607B PREPARE A SMALL VESSEL'S MACHINERY FOR SEA WITHIN THE LIMITS OF RESPONSIBILITY OF A MARINE ENGINE DRIVER GRADE 3

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

1 Critical aspects of evidence required to demonstrate competency in this unit	Assessment must confirm appropriate knowledge and skills to: - a Prepare a small vessel's machinery for sea, including the start up and shut down of the main propulsion and auxiliary machinery and associated systems typically found on a small commercial vessel - b Exercise all required safety, environmental and hazard control precautions and procedures when starting up and shutting down the main propulsion and auxiliary machinery and associated systems - c Communicate effectively with others during start up and shut down operations
2 Evidence required for demonstration of consistent performance	- a Performance is demonstrated consistently over a period of time and in a suitable range of contexts - b Consistently applies underpinning knowledge and skills when: 1 starting up and shutting down the main propulsion and auxiliary machinery and associated systems found on a small commercial vessel 2 identifying problems and hazards with the start up and shut down of the main propulsion and auxiliary machinery and initiating appropriate action for rectification 3 exercising all required safety, environmental and hazard control precautions and procedures when starting up and shutting down the main propulsion and auxiliary

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

	machinery and associated systems 4 communicating effectively with others during start up and shut down operations 5 applying safety precautions relevant to start up and shut down operations c Shows evidence of application of relevant workplace procedures, including: 1 relevant maritime regulations 2 OH&S regulations and hazard prevention policies and procedures 3 standard operating procedures 4 following on-board housekeeping processes d Action is taken promptly to report and/or rectify machinery malfunctions e Work is completed systematically with required attention to detail f Recognises and adapts appropriately to cultural differences in the workplace, including modes of behaviour and interactions among crew and others
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Evidence Guide (continued)

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3 Context of assessment

- a Assessment of competency must comply with the assessment requirements of the relevant maritime regulations
- b Assessment of this unit must be undertaken within relevant marine authority approved and audited arrangements by a registered training organisation:

3 Context of assessment	a Assessment of competency must comply with the assessment requirements of the relevant maritime regulations 1 As a minimum, assessment of knowledge must be conducted through appropriate written/oral examinations, and 2 Appropriate practical assessment must occur: i at the registered training organisation; and/or ii on an appropriate working or training vessel
4 Specific resources required for assessment	Access is required to opportunities to: a Participate in a range of practical and theoretical assignments, exercises, case studies and other assessments that demonstrate the skills and knowledge to start up and shut down the main propulsion and auxiliary machinery and associated systems typically found on a small commercial vessel; and/or b Start up and shut down the main propulsion and auxiliary machinery and associated systems in a range of operational situations on a small commercial or training vessel

Range Statement

Range Statement

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The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

VARIABLE

SCOPE

1. GENERAL CONTEXT

The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

a. Work must be carried out:	1 in compliance with the relevant sections of the State and Territory marine regulations and the National Standard for Commercial Vessels
b. Work is performed:	1 within established procedures, with responsibility for own outputs in relation to specified quality and safety standards
d. Work requires:	1 limited responsibility for others in achieving outcomes, including the application of solutions to a variety of predictable maintenance problems

2. WORKSITE ENVIRONMENT

a Vessel may include:	1 any small commercial vessel within limits of responsibility of a Marine Engine Driver Grade 3
b The vessel's machinery maybe prepared:	1 by day or night 2 under any permissible conditions of weather 3 while alongside a berth or on a mooring
c Propulsion plant configurations may include:	1 medium and high speed diesel propulsion 2 petrol driven outboard engine 3 reduction gears 4 thrust blocks and shaft bearings 5 governors

The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

d Auxiliary machinery and associated systems may include:	1	fresh and salt water cooling systems
	2	fuel system
	3	lubricating oil cooling systems

Range Statement (continued)

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VARIABLE	SCOPE
d Auxiliary machinery and associated systems may include: (continued)	4 lubrication systems 5 waste management and pollution control systems 6 pumps and associated systems 7 small diesel generators 8 fixed firefighting installations and fire control systems
e Sources of information and documentation may include:	1 relevant sections of the State and Territory marine regulations, NSCV and USL Code dealing with the operation of small vessels 2 equipment manufacturer's instructions, specifications and procedures 3 running and maintenance logs
f Applicable regulations and legislation may include:	1 State and Territory marine regulations related to the operation of small vessels 2 National Standard for Commercial Vessels 3 relevant international, Commonwealth, State and Territory

VARIABLE	SCOPE
	OH&S and pollution control legislation

Unit Sector(s)

Not applicable.

Field

Field B Equipment Checking and Maintenance

Relationship to other units

Relationship to other units	The unit may be assessed in conjunction with other units that relate to the functions of the occupation(s) concerned.
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