



Australian Government

Department of Education, Employment and Workplace Relations

TDMMB2907B RECOGNISE AND CORRECT DETERIORATED FITTINGS AND MACHINERY

Revision Number: 1

TDMMB2907B RECOGNISE AND CORRECT DETERIORATED FITTINGS AND MACHINERY

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 2 to recognise deteriorated fittings and machinery on a small commercial vessel, including corroded and defective fittings and machinery components, faulty and corroded pipework, and worn down tail shafts and initiate appropriate corrective action.

Application of the Unit

Application of the unit	The unit has applications in the qualification for a Marine Engine Driver Grade 2 (MED 2) as per relevant sections of Part D of the National Standard for Commercial Vessels (NSCV), i.e. Certificate III in Transport&Distribution (Marine Engine Driving - Grade 2).
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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 2.
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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 Plan and carry out maintenance procedures on fittings and machinery	- a Checks of vessel's fittings and machinery are organised and carried out in accordance with company maintenance schedules and manufacturer's instructions - b Any deterioration of a vessel's fittings and machinery is identified and appropriate maintenance action initiated or carried out within limits of responsibility of a Marine Engine Driver Grade 2 - c Worn fittings, equipment parts, bearings and shafts are correctly identified and appropriate action initiated for repair or replacement - d Preventative maintenance procedures are followed to reduce corrosion on fittings and machinery in accordance with manufacturer's instructions - e Lubricants are applied to moving parts of vessel's fittings and machinery in accordance with manufacturer's instructions - f Faulty and corroded pipework is identified and reported for repair or replacement in accordance with procedures - g Appropriate assistance is provided to contractors carrying out maintenance work on fittings and machinery - h Records of maintenance work are completed in accordance with established procedures

ELEMENT	PERFORMANCE CRITERIA
2 Select and use maintenance equipment and materials	- a Tools and equipment are correctly identified and used in accordance with OH&S requirements and equipment manufacturer's instructions - b Maintenance materials are obtained, handled, prepared and applied in accordance with OH&S and pollution control requirements and manufacturer's instructions - c Defective equipment and materials are identified and reported, repaired and/or replaced as required - d Maintenance equipment is correctly cleaned and stored after use - e Unused materials are disposed of or returned to store in accordance with OH&S and pollution control requirements, established procedures and manufacturer's instructions
3 Follow safety and hazard control procedures	- a All required safety precautions and regulations are followed when correcting deteriorated fittings and machinery - b Safety, hazard minimisation and pollution control procedures and regulations are followed at all times during the work on fittings and machinery - c Where relevant, procedures and precautions necessary for entry into confined spaces on a vessel are correctly followed - d Personal protection clothing and equipment is used as required during checks and repair work operations in accordance with safety regulations

Required Skills and Knowledge

REQUIRED KNOWLEDGE

This describes the knowledge required for this unit.

- 1 Relevant sections of State and Territory maritime regulations, NSCV and USL Code dealing with the maintenance of small vessels
- 2 Relevant OH&S and pollution control legislation and codes of practice
- 3 Procedures for the checking the fittings and machinery on a small vessel and carrying out related basic maintenance
- 4 Typical problems related to the inspection and maintenance of fittings and machinery on small vessels and appropriate action and solutions
- 5 The nature and causes of corrosion of marine surfaces and structures and the available methods for its control, including surface preparation, painting, antifouling and the use of sacrificial anodes
- 6 Safety, environmental and hazard control precautions and procedures relevant to the checking and basic maintenance of fittings and machinery
- 7 Principal features of the fittings and machinery found on typical small vessels
- 8 Construction and layout of a typical small vessel, including an understanding of layouts for pipework, tail shaft assembly and installed machinery
- 9 A basic understanding of the properties and application of materials used in small vessel construction
- 10 Typical vessel and machinery specifications, operating manuals, and specifications
- 11 Procedures for reading and interpreting machinery performance readings and indications
- 12 Purpose and content of material safety data sheets

REQUIRED SKILLS

This describes the basic skills required for this unit.

- 1 Use basic verbal communication skills required when recognising and correcting deteriorated fittings and machinery on a small vessel

REQUIRED SKILLS

- 2 Read, interpret and apply operating and service manuals and instructions for the recognition and correction of deteriorated fittings and machinery on a small vessel
- 3 Read and interpret material safety data sheets
- 4 Read and interpret machinery performance readings and indications
- 5 Complete any required operational and servicing records
- 6 Work safely and collaboratively with others when recognising and correcting deteriorated fittings and machinery on a small vessel
- 7 Select and use relevant tools and equipment as per instructions
- 8 Recognise faulty equipment and take appropriate action as per operating instructions
- 9 Recognise routine problems when recognising and correcting deteriorated fittings and machinery on a small vessel and take appropriate action
- 10 Adapt to differences in vessels, equipment and operating and servicing procedures
- 11 Recognise deteriorated fittings and machinery on a small vessel or vessels of less than 750 kW propulsion power

Evidence Guide

Evidence Guide

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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.

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| 1 Critical aspects of evidence required to | Assessment must confirm appropriate knowledge and skills to: <ol style="list-style-type: none">a Recognise and correct deteriorated fittings and machinery on a small vessel within limits of responsibility of a of a Marine |
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Evidence Guide

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demonstrate competency in this unit	Engine Driver Grade 2 - b Organise and carry out routine maintenance to minimise corrosion and deterioration of fittings and machinery on a small vessel - c Identify typical problems related to the basic maintenance of fittings and machinery on a small vessel and take appropriate action in conjunction with crew - d Exercise all required safety, environmental and hazard control precautions and procedures during checking and basic maintenance operations - e Communicate effectively with others when carrying out maintenance procedures on board a small vessel
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 recognising and correcting deteriorated fittings and machinery on a small vessel 2 organising and carrying out preventative maintenance to minimise corrosion and deterioration of fittings and machinery on a small vessel 3 applying safety precautions relevant to hull checking and basic maintenance operations - c Shows evidence of application of relevant workplace procedures, including: 1 relevant sections of State and Territory marine regulations, NSCV and USL Code 2 OH&S and pollution control regulations and hazard prevention policies and procedures 3 job procedures and work instructions

Evidence Guide

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- 4 relevant vessel manufacturer's guidelines relating to routine checking and basic maintenance of fittings and machinery
- 5 environmental protection procedures when carrying out maintenance operations

Evidence Guide (continued)

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2 Evidence required for demonstration of consistent performance (continued)

- d Action is taken promptly to report and/or rectify problems identified during checking and basic maintenance of fittings and machinery
- 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

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:
 - 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

Evidence Guide (continued)

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4 Specific resources required for assessment

Access is required to opportunities to:

- a participate in a range of exercises, case studies and other simulated practical and knowledge assessments that demonstrate the skills and knowledge to recognise and correct deteriorated fittings and machinery and carry out basic maintenance to minimise corrosion and deterioration of fittings, pipework and machinery on a small vessel; and/or
- b carry out checks and basic maintenance on fittings and machinery on a small operational 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

a. Work must be carried out:	1 in compliance with the relevant sections of the Australian Uniform Shipping Laws (USL) Code applicable to small trading vessels
b. Work is performed:	1 within operational requirements, with responsibility for own outputs in relation to specified quality standards and limited responsibility for others in achieving the specified quality and quantity of outcomes

Range Statement

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| c. Work involves: | <ol style="list-style-type: none"> 1 the operation and routine servicing of the engines and propulsion system on a small vessel and the application of solutions to a defined range of servicing problems |
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2. WORKSITE ENVIRONMENT

a Vessel may include:	1 any small commercial vessel within the limits of responsibility of a Marine Engine Driver Grade 2
b Checks and work on a vessel's fittings and machinery may be carried out:	1 while underway 2 when berthed or moored 3 when slipped
c Checks and related work of fittings and machinery may include:	1 routine checks for deterioration 2 identification of any deterioration or wearing of a vessel's fittings and machinery 3 identification and correction of any faults or corrosion of vessel's pipework 4 recognition and measurement of tail shaft wear 5 servicing of vessel's fittings and machinery

Range Statement (continued)

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VARIABLE	SCOPE
c Checks and related work of fittings and machinery may include: (continued)	6 restoration of weathered surfaces 7 application of lubricants to moving parts of vessel's equipment
d Maintenance tools and equipment may include:	1 hand tools 2 greasing and lubrication tools 3 electric power tools such as grinders, sanders and drills, 4 pneumatic power tools such as grinders, sanders and drills 5 protective clothing and equipment such as: - i eye and ear protection - ii safety boots and helmet - iii dust and fume masks
e Documentation and records may include:	1 relevant sections of State and Territory marine regulations, NSCV and USL Code 2 OH&S and pollution control regulations and procedures 3 maintenance procedures 4 maintenance records 5 manufacturer's instructions, specifications and procedures 6 material safety data sheets

Range Statement (continued)

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	7 relevant Australian standards relevant to the maintenance of fittings and machinery on board small vessels
f Applicable legislation, regulations and codes may include:	1 State and Territory marine regulations related to the operation of small vessels 2 National Standard for Commercial Vessels and USL Code 3 relevant Commonwealth, State and Territory OH&S and pollution control legislation 4 relevant Australian standards

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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