



Australian Government

Department of Education, Employment and Workplace Relations

TDMMB4807A MANAGE THE OPERATIONS AND MAINTENANCE ON VESSELS LIMITED BY TONNAGE OR NEAR COASTAL OPERATIONS

Release: 1

TDMMB4807A MANAGE THE OPERATIONS AND MAINTENANCE ON VESSELS LIMITED BY TONNAGE OR NEAR COASTAL OPERATIONS

Modification History

Not applicable.

Unit Descriptor

UNIT DESCRIPTOR:

This unit involves the skills and knowledge required to manage the operations of a commercial ocean-going vessel limited by tonnage or near coastal operations, including administration of a vessel's stability and cargo operations and planned maintenance system in compliance with Australian and international regulations and guidelines, protection of the marine environment and the safety of the vessel and persons on board. This includes vessels on international voyages of 500 GT or less, in the case of a master or chief mate, and vessels of 3,000 GT or less in the case of a watchkeeper.

Application of the Unit

Application of the unit	The unit has application in qualifications for Master or Chief Mate on a vessel of less than 500 gross tonnage, or for a Watchkeeper on a vessel of less than 3,000 GT, operating in international waters, i.e. Diploma of Transport&Distribution(Maritime Operations - Deck Watchkeeper). The unit is also applicable to qualifications for Masters and Chief Mates of vessels up to 3,000 GT operating in near coastal waters.
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Licensing/Regulatory Information

Licensing/legislative requirements	The unit is consistent with the relevant sections of STCW 95 and Marine Orders under the Australian Navigation Act 1912.
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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 Manage the maintenance of a vessel's stability and safety parameters in both normal and adverse operational conditions	. a Interpret and analyse a vessel's dynamic stability b Correctly maintain a vessel's stability in normal and adverse conditions c Correctly maintain a vessel's safety parameters within normal operational limits during cargo operations
2 Administer the planning of cargo operations on a vessel limited by tonnage or near coastal operations	a Manage the effect of cargo operations on a vessel's stability b Conduct and utilise a draft survey c Administer appropriate procedures for all cargo operations

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3 Administer a planned maintenance system	- a Plan for the routine preventative maintenance of a vessel is correctly interpreted and implemented - b Arrangements are made for maintenance activities to be carried out at the required times - c Repairs to vessel's hull or equipment and/o repair or replacement of equipment or components are organised in accordance with procedures
4 Dock or slip a vessel limited by tonnage or near coastal operations	- a Type of slipway, dock or vessel lifting facility is identified and its suitability for the type of hull assessed - b Hull data is correctly interpreted and recorded - c Appropriate plan is prepared for procedures to be taken on-board vessel prior to, during and on completion of the proposed slipping or docking operations - d Cradle is correctly prepared prior to the slipping of the vessel - e Appropriate precautions are taken prior to slipping and refloating of the vessel and when shoring/supporting the vessel - f Vessel is correctly refloated after slipping and maintenance operations
5 Carry out inspection and maintenance procedures on a vessel limited by tonnage or near coastal operations	- a Inspections of the vessel's hull, equipment and components are carried out as per company maintenance schedules and vessel manufacturer's instructions - b Any deterioration of a vessel's structure and fittings are identified and appropriate maintenance action initiated in accordance with OH&S and pollution control requirements, company procedures and manufacturer's instructions - c Lubricants, marine preservatives or finishes are applied correctly using appropriate application equipment in

	accordance with OH&S requirements, company procedures and manufacturer's instructions d Problems in the application of lubricants, marine preservatives and finishes and other maintenance materials and chemicals are identified and reported and appropriate remedial action initiated e Records of maintenance and lubrication work carried out are completed as per procedures
6 Administer the correct selection and use of maintenance equipment and materials	a Tools and equipment are correctly identified and used in accordance with OH&S requirements, company procedures and equipment manufacturer's instructions b Maintenance materials are obtained, handled, prepared and applied in accordance with manufacturer's instructions and OH&S and pollution control requirements c Defective equipment and materials are identified and reported, repaired and/or replaced as required d Maintenance equipment and materials are correctly cleaned and stored after use, with unused materials disposed of or returned to store in accordance with established procedures and manufacturer's instructions

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Required Skills and Knowledge

REQUIRED KNOWLEDGE

This describes the knowledge required for this unit.

- 1 Relevant sections of applicable maritime regulations
- 2 Relevant OH&S and pollution control legislation and policies
- 3 Procedures for the checking and inspecting of a vessel's stability during a range of operational conditions, including the loading and discharging of cargo, as part of routine procedures to ensure compliance with the company requirements and established safety rules and regulations
- 4 Procedures for the initiation and coordination of repair and/or replacement procedures on board vessels
- 5 The nature and causes of corrosion of marine surfaces and structures and the available methods for its control
- 6 Safety, environmental and hazard control precautions and procedures relevant to inspection and maintenance operations
- 7 Principal features of the structure of a vessel, with a basic understanding of the properties and application of materials used in vessel construction
- 8 Slipping and docking procedures suitable for various types of hull forms, including communication techniques used
- 9 Typical problems related to the slipping and maintenance of vessels and appropriate action and solutions
- 10 Maintenance records that must be maintained on a vessel to meet the requirements of the company and regulatory authorities

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REQUIRED SKILLS

This describes the basic skills required for this unit.

- 1 Communicate effectively with other personnel when managing the operations and maintenance of a vessel limited by tonnage or near coastal operations
- 2 Communicate with multilingual crew where applicable using established techniques
- 3 Interpret and monitor the application of procedures for managing the operations and maintenance of a vessel limited by tonnage or near coastal operations
- 4 Read and interpret vessel and machinery specifications, gross and net tonnage, machinery design drawings, machine drawings, operational manuals, specifications and electrical and control circuit diagrams
- 5 Interpret and follow all safety management procedures and precautions when managing the operations and maintenance of a vessel limited by tonnage or near coastal operations
- 6 Read and interpret material safety data sheets
- 7 Provide leadership to other shipboard personnel when managing the operations and maintenance of a vessel limited by tonnage or near coastal operations
- 8 Prepare appropriate reports on the outcomes of inspection and maintenance activities
- 9 Identify problems that can occur when managing the operations and maintenance of a vessel and initiate appropriate action
- 10 Adapt to differing types of vessels and equipment
- 11 Take appropriate precautions to prevent pollution of the marine environment
- 12 Monitor the selection and use of publications, materials, tools and other equipment involved in the management of operations and maintenance of a vessel limited by tonnage or near coastal operations

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.

1 Critical aspects of evidence required to demonstrate competency in this unit	Assessment must confirm appropriate knowledge and skills to: - a Manage routine operational procedures on a vessel limited by tonnage or near coastal operations involving the appropriate administration of a vessel's stability and cargo operations in both normal and adverse operational conditions to the required international standard - b Carry out procedures to slip or dock a vessel limited by tonnage or near coastal operations in preparation for maintenance - c Initiate and coordinate maintenance, repair or replacement of faulty or damaged equipment or vessel's structure in accordance with company procedures and manufacturer's instructions - d Identify typical problems related to the maintenance of a vessel limited by tonnage or near coastal operations and take appropriate action in conjunction with other officers and crew - e Exercise all required safety, environmental and hazard control precautions and procedures during inspection and maintenance operations - f Communicate effectively with others when administering the operational and maintenance procedures on board a vessel limited by tonnage or near coastal 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 carrying out routine operational and maintenance inspections

- 2 identifying and evaluating operational and maintenance problems and determining appropriate courses of action
- 3 initiating and coordinating operational and maintenance activities on board a vessel
- 4 applying safety precautions relevant to operational and maintenance operations
- 5 identifying and implementing improvements to routine maintenance procedures
- 6 managing a vessel's stability in both normal and adverse operational conditions to the required international standard
- 7 managing a vessel's cargo operations to the required international standard

Evidence Guide (continued)

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2 Evidence required for demonstration of consistent performance (continued)

- 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 and work instructions
 - 4 relevant vessel manufacturer's guidelines relating to routine operational and maintenance procedures
 - 5 environmental protection procedures when carrying out operational and maintenance operations
- d Action is taken promptly to report and/or rectify operational and maintenance problems
- 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
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 manage maintenance on board a vessel limited by tonnage or near coastal operations; and/or b manage maintenance procedures on an operational commercial or training vessel limited by tonnage or near coastal operations during seetime training

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
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1. GENERAL CONTEXT

a. Work must be carried out:	1 in compliance with the relevant maritime regulations
b. Work is performed:	1 within broad 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
c. Work involves:	1 the conduct of operational management procedures on board a vessel and the application of solutions to a defined range of unpredictable operational and maintenance problems. Planning and administering the routine stability, cargo operations, maintenance and dry dock or slipping procedures for a vessel is required, together with a range of emergency situations which could occur
d. Work requires:	1 Responsibility for the management of a range of operational and maintenance procedures on board a vessel

2. WORKSITE ENVIRONMENT

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 Vessel may include:	1 a vessel of less than 500 gross tonnage operating in international waters 2 a vessel of less than 3,000 GT operating in near coastal waters
b Operational management of a vessel may be carried out:	1 while underway 2 when berthed or moored 3 when slipped or in dry dock 4 during routine or unplanned events

Range Statement (continued)

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c Operational management and maintenance may include, but is not limited to:	1 routine maintenance inspections 2 identification of any deterioration of a vessel's structure and fittings 3 Administration of repairs of minor faults and imperfections in painted surfaces and managing the preparation of marine surfaces prior to the application of the prescribed marine coating 4 identification of faulty equipment or fittings and arranging for repair or replacement 5 managing the application of lubricants to moving parts of vessel's equipment 6 managing of a vessel's stability in both normal and adverse operational conditions 7 management of a vessel's cargo operation procedures
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c Operational	1 routine maintenance inspections
d Publications, tools and equipment required for operational management and maintenance may include, but are not limited to:	1 cargo and stability calculators and publications 2 electric and pneumatic power tools such as grinders, sanders and drills and hand tools, including chipping hammers and scrapers 3 marine preservative finish application equipment such as brushes, spay guns, rollers and greasing and lubrication tools 4 rinsing and storing equipment 5 protective clothing and equipment such as: - i eye and ear protection - ii safety boots - iii dust and fume masks
e Deterioration of vessel's structure and fittings may include, but is not limited to:	1 corrosion of hull fittings and equipment 2 decay of timber surfaces 3 osmosis and underwater blistering of painted and fibreglass finishes
f Slipping and docking may involve:	1 patent slip 2 mobile lift equipment (travel lift) 3 lift platforms (hydraulic/cable) 4 single point lifts (cranes) 5 graving, floating and slave docks

Range Statement (continued)

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g Documentation and records may include, but are not limited to:	1 relevant maritime regulations 2 maintenance schedules and records 3 company maintenance procedures 4 vessel and equipment manufacturer's instructions, specifications and recommended procedures 5 instructions of relevant maritime authorities related to the operations and maintenance of vessels 6 stability and cargo documents pertaining to a vessel limited by tonnage or near coastal operations
h Applicable legislation, regulations and codes may include, but are not limited to:	1 relevant sections of AMSA Marine Orders 2 sections of the IMO STCW 95 Convention and Code related to the capacities of Master, Chief Mate and Watchkeeper on a vessel limited by tonnage or near coastal operations 3 relevant international, Commonwealth, State and Territory OH&S 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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