



Australian Government

MARD5002A Manage operations and maintenance on vessels limited by tonnage or near coastal operations

Release 1

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Modification History

Release 1

This is the first release of this unit.

This unit replaces and is equivalent to TDMMB4807A Manage the operations and maintenance on vessels limited by tonnage or near coastal operations.

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. It includes administration of vessel stability, 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 people on board.

Application of the Unit

This unit applies to people who work in the maritime industry as Master or Chief Mate on a vessel of up to 500 gross tonnage (GT) or as a Watchkeeper on a vessel up to 3000 GT or as Master or Chief Mate on vessels up to 3000 GT operating in near coastal waters.

The unit is consistent with the relevant sections of STCW 95 and Marine Orders under the Australian Navigation Act 2012.

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

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| 1 Manage maintenance of vessel stability and safety parameters | <ul style="list-style-type: none">1.1 <i>Vessel</i> dynamic stability is interpreted and analysed1.2 Vessel stability is correctly maintained in normal and adverse operational conditions1.3 Vessel safety parameters are correctly maintained within normal operational limits during cargo operations |
| 2 Administer planning of cargo operations on vessel limited by tonnage or near coastal operations | <ul style="list-style-type: none">2.1 Impact of cargo operations on vessel stability is managed2.2 Draft survey is conducted and used2.3 Appropriate procedures are administered for all cargo operations |
| 3 Administer planned maintenance system | <ul style="list-style-type: none">3.1 Vessel routine preventative maintenance plan is correctly interpreted and implemented3.2 Arrangements are made for maintenance activities to be carried out at required times3.3 Repairs to vessel hull or equipment and/or repair or replacement of equipment or components are organised according to procedures |
| 4 Dock or slip vessel limited by tonnage or near coastal operations | <ul style="list-style-type: none">4.1 Type of slipway, dock or vessel lifting facility is identified and suitability for type of hull assessed4.2 Hull data is correctly interpreted and recorded4.3 Appropriate plan is prepared for procedures to be taken onboard vessel prior to, during and on completion of proposed slipping or docking operations4.4 Cradle is correctly prepared prior to slipping of vessel4.5 Appropriate precautions are taken prior to slipping and refloating of vessel and when shoring/supporting vessel |

- 4.6 Vessel is correctly refloated after slipping and maintenance operations
- 5 **Carry out inspection and maintenance procedures on vessel limited by tonnage or near coastal operations**
 - 5.1 Inspections of vessel hull, equipment and components are carried out according to company maintenance schedules and vessel manufacturer instructions
 - 5.2 ***Deterioration of vessel structure and fittings*** is identified and appropriate maintenance action is initiated according to work health and safety (WHS)/occupational health and safety (OHS) and pollution control requirements, company procedures and manufacturer instructions
 - 5.3 Lubricants, marine preservatives or finishes are applied correctly using appropriate application equipment according to WHS/OHS requirements, company procedures and manufacturer instructions
 - 5.4 Problems in application of lubricants, marine preservatives, finishes and other maintenance materials and chemicals are identified and reported, and appropriate remedial action is initiated
 - 5.5 Records of maintenance and lubrication work carried out are completed according to procedures
- 6 **Administer correct selection and use of maintenance equipment and materials**
 - 6.1 Tools and equipment are correctly identified and used according to WHS/OHS requirements
 - 6.2 Maintenance materials are obtained
 - 6.3 Defective equipment and materials are identified and reported
 - 6.4 Maintenance equipment and materials are correctly cleaned and stored after use

Required Skills and Knowledge

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

Required Skills:

- Communicate effectively with other personnel when managing operations and maintenance of vessel limited by tonnage or near coastal operations
- Communicate with multilingual crew using established techniques
- Comply with relevant maritime regulations
- Identify problems that can occur when managing operations and maintenance of vessel and initiate appropriate action
- Interpret and follow all safety management procedures and precautions when managing operations and maintenance of vessel limited by tonnage or near coastal operations
- Interpret and monitor application procedures for managing operations and maintenance of vessel limited by tonnage or near coastal operations
- Monitor selection and use of publications, materials, tools and other equipment involved in managing operations and maintenance of vessel limited by tonnage or near coastal operations
- Prepare appropriate reports on outcomes of inspection and maintenance activities
- Provide leadership to other shipboard personnel when managing operations and maintenance of vessel limited by tonnage or near coastal operations
- Read and interpret:
 - safety data sheets (SDS)/material safety data sheets (MSDS)
 - vessel and machinery specifications, gross and net tonnage, machinery design drawings, machine drawings, operational manuals, specifications, and electrical and control circuit diagrams
- Take appropriate precautions to prevent pollution of marine environment

Required Knowledge:

- Applicable legislation, regulations and codes of practice
- Documents and records, including:
 - relevant maritime regulations
 - company maintenance procedures
 - instructions of relevant maritime authorities related to operations and maintenance of vessels
 - maintenance schedules and records
 - vessel and equipment manufacturer instructions, specifications and recommended procedures
 - stability and cargo documents pertaining to vessel limited by tonnage or near coastal operations
- Maintenance records that must be kept on vessel to meet requirements of company and

regulatory authorities

- Nature and causes of corrosion of marine surfaces and structures, and available methods for its control
- Operational management and maintenance:
 - routine maintenance inspections
 - administering repairs of minor faults and imperfections in painted surfaces and managing preparation of marine surfaces prior to application of prescribed marine coating
 - identifying deterioration of vessel structure and fittings
 - identifying faulty equipment or fittings and arranging for repair or replacement
 - managing application of lubricants to moving parts of vessel equipment
 - managing vessel stability both normal and adverse operational conditions
 - managing vessel cargo operation procedures
- Principal features of structure of vessel, with a basic understanding of properties and application of materials used in vessel construction
- Procedures for:
 - checking and inspecting vessel stability during a range of operational conditions, including loading and discharging of cargo as part of routine procedures to ensure compliance with company requirements and established safety rules and regulations
 - initiating and coordinating repair and/or replacement procedures on board vessels
- Publications, tools and equipment required for operational management and maintenance:
 - cargo and stability calculators and publications
 - electric and pneumatic power tools such as grinders, sanders, drills and hand tools, including chipping hammers and scrapers
 - marine preservative finish application equipment such as brushes, spray guns, rollers and greasing and lubrication tools
 - rinsing and storing equipment
 - protective clothing and equipment (eye and ear protection, safety boots, dust and fume masks)
- Relevant sections of applicable maritime regulations
- Relevant WHS/OHS and pollution control legislation and policies
- Safety, environmental and hazard control precautions and procedures relevant to inspection and maintenance operations
- Slipping and docking procedures suitable for various types of hull forms, including communication techniques used
- Typical problems relating to slipping and maintaining vessels and appropriate action and solutions

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:

- taking prompt action to report and/or rectify operational and maintenance problems
- completing work systematically with required attention to detail
- recognising and adapting appropriately to cultural differences in the workplace, including modes of behaviour and interactions among crew and others
- carrying out operational management of vessel while underway, when berthed or moored, when slipped or in dry dock, during routine or unplanned events.

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 managing the operations and maintenance on vessels limited by tonnage or near coastal operations can 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 managing the operations and maintenance on vessels limited by tonnage or near coastal operations
- 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.

Vessel may include:

- Vessel up to 500 GT operating in international waters
- Vessel up to 3000 GT operating in near coastal waters

Deterioration of vessel structure and fittings may include:

- Corrosion of hull fittings and equipment
- Decay of timber surfaces
- Osmosis and underwater blistering of painted and fibreglass finishes

Unit Sector(s)

Not applicable.

Competency Field

Administration and Human Resources