



Australian Government

MARN5001A Maintain seaworthiness of a vessel

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 TDMMB4607A Apply information on vessel structure to maintenance and seaworthiness.

Unit Descriptor

This unit involves the skills and knowledge required to maintain the seaworthiness of a vessel.

Application of the Unit

This unit has application for a Watchkeeper Deck and Master < 500 GT.

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 Check weather tight and watertight integrity of vessel | <p>1.1 <i>Structural members of vessel</i> are investigated to establish weather tight and watertight requirements of vessel</p> <p>1.2 <i>Inspections of vessel</i> are planned according to regulatory and organisational requirements</p> <p>1.3 Checks are completed to confirm weather tight and watertight integrity of vessel at all times</p> <p>1.4 <i>Defects and damage</i> to vessel are identified and reported according to organisational procedures</p> |
| 2 Take action to meet environmental changes | <p>2.1 Anticipated sea and weather conditions are analysed to identify <i>situations that may jeopardise vessel weather tight and watertight integrity</i></p> <p>2.2 Effect of severe wind and rolling in associated sea conditions on vessel weather tight and watertight integrity is recognised</p> <p>2.3 Effect of water on deck on vessel weather tight and watertight integrity is ascertained</p> <p>2.4 <i>Appropriate action</i> is taken to maintain vessel weather tight and watertight integrity according to organisational procedures</p> |
| 3 Maintain records | <p>3.1 <i>Relevant documents and records</i> are completed and maintained as required according to regulatory and organisational requirements</p> <p>3.2 Relevant documents are sent to appropriate bodies and copies are filed according to regulatory and organisational requirements</p> <p>3.3 Documents are stored according to regulatory and organisational requirements</p> |

Required Skills and Knowledge

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

Required Skills:

- Complete required records
- Read and interpret vessel specifications and drawings
- Take actions to ensure and maintain the weather tight and watertight integrity of vessel

Required Knowledge:

- Application of appropriate safety, environment and hazard control procedures
- Characteristics of stress and the principal stresses acting on a vessel
- Corrosion control methods
- Damage control measures that may be required to maintain the integrity of the hull
- Fundamental actions to be taken in the event of partial loss of intact buoyancy
- Fundamentals of watertight integrity
- Maintenance procedures contained in the safety management system
- Principal materials used in the construction of a vessel
- Principal structured members and layout of a vessel and the proper names for various parts
- Principles and procedures to ensure the watertight integrity of vessel hull
- Procedures for checking and inspecting vessel seaworthiness
- Stability, trim and stress tables, diagrams and stress calculating equipment
- Work health and safety (WHS)/occupational health and safety (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
- awareness of one's surroundings and changes to these surroundings.

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 maintaining seaworthiness of a vessel can be conducted
- marine operations site where assessment of damage control measures may be demonstrated
- 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 maintaining seaworthiness of 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.

Structural members of vessel may include:

- Bulkheads including the collision bulkhead
- Frames
- Freeboard deck
- Hatch and tank openings
- Longitudinal and transverse girders
- Shell plating
- Tank tops
- Various types of keel arrangements
- Watertight and weather tight compartments

Inspections of vessel may include:

- Inspection of hull and fittings during dry-docking
- Inspections required after completion of maintenance work
- Inspections required after docking prior to refloating
- Inspections to be made after any situation which may have caused damage to the vessel
- Pre sailing inspections
- Routine inspections

Defects and damage may include:

- Corrosion to operating or structural parts of the vessel
- Damage to the vessel through cargo shift
- Hatch cover seals
- Structural damage through collision, grounding or fire
- Watertight door seals and closing arrangements

Situations that may jeopardise vessel weather tight and watertight integrity may include:

- Collision, grounding or fire
- Failure to conduct appropriate inspections
- Heavy weather damage

Appropriate actions may include:

- Avoiding adverse weather
- Checking the security of the vessel
- Closing openings
- Ensuring appropriate equipment is in readiness for damage control
- Ensuring free surface is minimised in ballast and fuel tanks
- Ensuring freeing ports allow water taken on deck to clear

Relevant documents and records may include:

- Ensuring passenger distribution does not exceed allowed limits
- Ensuring stores, cargo and equipment are properly stowed and lashed
- Establishing procedures for restoring or managing weather tight and watertight integrity during an emergency
- Maintaining the stability condition within approved limits
- Testing of tanks and other watertight areas
- Equipment manufacturer instructions
- Log books, including oil record and garbage log books as applicable
- Organisational operation orders under the ISM Code
- Plans and drawings
- Relevant maritime regulations and legislative requirements
- Stability data manual

Unit Sector(s)

Not applicable.

Competency Field

Seamanship