



Australian Government

MARN3001A Perform seamanship operations on board a vessel up to 24 metres

Release 1

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Modification History

Release 1

This is the first release of this unit.

Unit Descriptor

This unit involves the skills and knowledge required to apply practical seamanship skills and techniques as part of operations on board a vessel up to 24 metres.

Application of the Unit

This unit applies to a Master working in the maritime industry on vessels up to 24 metres.

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 Use and maintain ropes and wires | <ul style="list-style-type: none">1.1 <i>Knots, hitches and bends</i> using rope are correctly made and used in the course of operations on board a vessel1.2 Ropes are spliced neatly and securely according to their correct application and rope ends are whipped where appropriate to maintain good condition1.3 Breaking strain and safe working loads of rope and wire is determined and applied as load limits in the course of operations on board a vessel1.4 Wear and damage to rope and wire is recognised1.5 Rope and wire is maintained and stored according to organisational procedures |
| 2 Operate lifting gear | <ul style="list-style-type: none">2.1 <i>Lifting gear</i> is checked and prepared for operation prior to use2.2 Defective lifting gear is isolated and reported according to organisational procedures2.3 Loads are correctly attached using appropriate slings and rigging gear according to organisational procedures and safety requirements2.4 Maximum and safe working load limits are determined and not exceeded2.5 Lifting gear is safely operated to carry out operations |
| 3 Secure vessel at anchor | <ul style="list-style-type: none">3.1 Prior to letting go, <i>anchor and equipment</i> are prepared and crew is briefed3.2 Quantity of anchor cable run out or recovered is appropriate to depth of water, weather and sea conditions, and tidal range in area of operation3.3 Control of the cable is maintained within safe operating limits during anchoring operations3.4 Degree to which anchor and equipment is secured on completion of anchoring operations is appropriate to forecast conditions3.5 Anchoring area is kept free of loose ropes, wires and debris during all operations |

- 4 Secure vessel at a berth**
- 4.1 At all times, mooring lines and associated equipment are handled safely
 - 4.2 Throughout operations, mooring area is kept free of loose ropes, wires and debris
 - 4.3 Tension on ropes is maintained at an appropriate level for the stage and nature of the operation
 - 4.4 Tension on shore-power leads and other umbilicals are monitored
- 5 Check condition and seaworthiness of vessel**
- 5.1 **Coverage** and frequency of checks and inspections on vessel seaworthiness are undertaken according to organisational procedures
 - 5.2 Watertight integrity is checked and appropriate action is taken to prepare for prevailing and forecast weather and sea conditions according to vessel seaworthiness plans and regulatory requirements
 - 5.3 Degree to which vessel is **secured** is appropriate to prevailing and forecast conditions
 - 5.4 **Irregularities** are identified and appropriate action is taken to rectify the situation
 - 5.5 Irregularities beyond ability to rectify are reported in time to enable remedial action to be taken
 - 5.6 Reports of vessel condition are completed according to organisational procedures
- 6 Check stability of vessel**
- 6.1 **Information** from vessel stability data book is used to determine loading limits and displacement from draft
 - 6.2 **Stability conditions** for proposed nature of voyage and operations are confirmed and meet required stress and stability criteria
- 7 Perform tasks aloft and over vessel side**
- 7.1 Area and equipment for working aloft or over the side are prepared according to organisational procedures
 - 7.2 Required precautions are taken when working aloft or over the side
 - 7.3 Chairs, safety harnesses and appropriate safety equipment are used according to organisational procedures
 - 7.4 Portable ladders are used correctly to perform tasks
 - 7.5 **Tasks** are completed safely according to instructions
 - 7.6 Equipment is inspected, maintained and stored after use according to organisational procedures

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|--|---|
| 8 Lash and secure stores, cargo and access ways | <ul style="list-style-type: none">8.1 Lashing equipment is inspected, maintained and correctly stored after use according to organisational procedures8.2 Cargo is stowed according to recognised principles and organisational procedures relating to transport and handling of dangerous goods8.3 Cargo is lashed and secured according to recognised principles and organisational procedures8.4 Equipment and items on deck and in galley spaces are secured according to organisational procedures8.5 Personnel access ways are rigged and secured according to organisational procedures8.6 Accommodation spaces and personnel facilities on board vessel are checked and correctly secured for sea according to organisational procedures |
| 9 Supervise refuelling operations | <ul style="list-style-type: none">9.1 All personal protective equipment is accessed and used9.2 Amount of fuel required is calculated9.3 Instructions are provided to ensure safety boundary for refuelling process is established9.4 Spill prevention systems are correctly deployed9.5 Instructions are provided to ensure refuelling operations are performed safely9.6 Notification of intention to refuel is made to authorities and other nearby operations |

Required Skills and Knowledge

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

Required Skills:

- Anchor vessel according to depth and prevailing winds
- Check seaworthiness of vessel
- Complete basic stability calculations
- Correctly coil and stow ropes
- Correctly sling loads ready for lifting
- Correctly interpret vessels stability data
- Ensure watertight integrity of vessel
- Inspect and maintain harnesses, safety lines and other equipment for working aloft
- Perform an eye splice and a short splice
- Perform appropriate whippings on ropes and line
- Prepare and throw a heavy line
- Recognise damaged or worn ropes, wires and chains
- Recognise routine problems during lifting and rigging operations
- Refuel vessel with due regard to regulations and organisational procedures
- Safely handle ropes and wires
- Safely operate winches and windlasses
- Safely work aloft or over the side
- Secure vessel at its berth according to operational requirements and prevailing conditions
- Select and use appropriate rigging and lifting gear
- Tie figure-eight knot, reef knot, bowline and cod-end knot
- Tie half hitch, clove hitch, round turn and two half hitches, rolling hitch and timber hitch
- Use knots, hitches and securing arrangements

Required Knowledge:

- Anchoring principles and methods for different conditions
- Basic structural parts of a small vessel
- Communication techniques when operating lifting gear
- Construction of vessel sufficient to understand which areas need to be made watertight
- Correct application of common knots and hitches
- Correct use and maintenance of equipment used for working aloft and over the side
- Dangers of working with ropes under tension
- Different types of anchors and where they can be most effectively used
- How to determine breaking strain and safe working load for ropes and equipment

- How to make vessel watertight
- Maintenance of different types of rope, wire and chain
- Methods of securing cargo including vehicles, stores and equipment on vessel before it puts to sea
- Pollution regulations
- Precautions to take when working aloft or overside
- Principles and limitations of lifting equipment and components
- Principles of safe handling and transport of dangerous cargo
- Procedures for checking and operating lifting equipment
- Regulations affecting watertight integrity
- Routine and emergency operation of anchors
- Use of sea anchors
- 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:

- being aware of own ability and limits to rectify irregularities
- providing the required amount of detail in reports.

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 performing seamanship skills aboard a vessel up to 24 metres 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 performing seamanship skills
- direct observation of the candidate applying relevant WHS/OHS requirements and work practices.

Guidance information for

Holistic assessment with other units relevant to the industry

assessment

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.

Knots, hitches and bends must include:

- Bowline
- Clove hitch
- Cod-end knot
- Figure-eight knot
- Half hitch
- Reef knot
- Rolling hitch
- Round turn and two half hitches
- Sheet bend
- Timber hitch

Lifting gear may include:

- Blocks (including chain blocks and power blocks)
- Cargo handling wires, ropes and chains
- Derricks and cranes
- Drum ends and capstans
- Eye bolts
- Hooks
- Ropes, slings and strops
- Shackles
- Swivels

Anchor and equipment may include:

- Anchor buoy
- Anchor securing arrangements
- Anchor windlass
- Sea anchor
- Single anchor
- Twin anchor

Coverage may include:

- Accommodation spaces
- Bow doors (barges)
- Engine room
- Galley
- Storage spaces including freezer rooms
- Wheelhouse

Secured may include:

- Accommodation and storage spaces
- Air pipes
- Anchors
- Doors
- Galley, stores and equipment
- Hatches

- Irregularities must include:
- Large objects likely to move in a sea way
 - Materials on deck and below
 - Openings
 - Skylights
 - Tanks
 - Affecting the safety and integrity of the:
 - vessel
 - crew and passengers
 - equipment
 - materials, such as cargo
- Information must include:
- Basic principles of stability
 - Impact of design and hull
 - Terms and definitions
- Stability conditions must include:
- Adding and removing weights
 - Additions or alterations to original configuration
 - Effects of slack tanks
 - Effects of water on deck
 - Hauling netting using power block
 - Roll period
 - Snagged trawl (hookup)
 - Stiff and tender vessel
 - Transferring weights using a crane or other lifting device
- Tasks may include:
- Using portable ladders to access heights up to 1.8 metres
 - Working at heights more than 1.8 metres

Unit Sector(s)

Not applicable.

Competency Field

Seamanship