



Australian Government

MARN003 Perform seamanship operations on board a vessel up to 24 metres

Release: 1

MARN003 Perform seamanship operations on board a vessel up to 24 metres

Modification History

Release 1. New unit of competency.

Application

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.

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

This unit has links to legislative and certification requirements.

Pre-requisite Unit

Not applicable.

Competency Field

N – Seamanship

Unit Sector

Not applicable.

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Use and maintain ropes and wires

- 1.1 Knots, hitches and bends using rope are correctly made and used in the course of operations on board a vessel
- 1.2 Ropes are spliced neatly and securely according to their correct application and rope ends are whipped where appropriate to maintain good condition
- 1.3 Breaking strain and safe working loads of rope and wire are determined and applied as load limits in the course of operations on board a vessel
- 1.4 Wear and damage to rope and wire are recognised
- 1.5 Rope and wire are maintained and stored according to

- organisational procedures
- 2 Operate lifting gear**
- 2.1 Lifting gear is checked and prepared for operation prior to use
 - 2.2 Defective lifting gear is isolated and reported according to organisational procedures
 - 2.3 Loads are correctly attached using appropriate slings and rigging gear according to organisational procedures and safety requirements
 - 2.4 Maximum and safe working load limits are determined and not exceeded
 - 2.5 Lifting gear is safely operated to carry out operations
- 3 Secure vessel at anchor**
- 3.1 Prior to letting go, anchor and equipment are prepared and crew is briefed
 - 3.2 Quantity of anchor cable run out or recovered is appropriate to depth of water, weather and sea conditions, and tidal range in area of operation
 - 3.3 Control of cable is maintained within safe operating limits during anchoring operations
 - 3.4 Degree to which anchor and equipment are secured on completion of anchoring operations is appropriate to forecast conditions
 - 3.5 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 stage and nature of the operation
 - 4.4 Tension on shore-power leads and other umbilicals is 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 Vessel is secured to degree which 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 required stress and stability criteria are met
- 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
- 8 Lash and secure stores, cargo and access ways**
 - 8.1 Lashing equipment is inspected, maintained and correctly stored after use according to organisational procedures
 - 8.2 Cargo is stowed according to recognised principles and organisational procedures relating to transport and handling of dangerous goods
 - 8.3 Cargo is lashed and secured according to recognised principles and organisational procedures

- 8.4 Equipment and items on deck and in galley spaces are secured according to organisational procedures
- 8.5 Personnel access ways are rigged and secured according to organisational procedures
- 8.6 Accommodation spaces and personnel facilities on board vessel are checked and correctly secured for sea according to organisational procedures
- 9 Supervise refuelling operations**
 - 9.1 All personal protective equipment is accessed and used
 - 9.2 Amount of fuel required is calculated
 - 9.3 Instructions are provided to ensure safety boundary for refuelling process is established
 - 9.4 Spill prevention systems are correctly deployed
 - 9.5 Instructions are provided to ensure refuelling operations are performed safely
 - 9.6 Notification of intention to refuel is made to authorities and other nearby operations

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Knots, hitches and bends

- bowline

must include:

- 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 includes one or more of the following:

- 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 includes one or more of the following:

- anchor buoy
- anchor securing arrangements
- anchor windlass
- sea anchor
- single anchor
- twin anchor
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Coverage includes one or more of the following:

- accommodation spaces
- bow doors (barges)
- engine room
- galley
- storage spaces including freezer rooms
- wheelhouse

Secured includes one or more of the following:

- accommodation and storage spaces
- air pipes
- anchors
- doors
- galley, stores and equipment

- hatches
- large objects likely to move in a sea way
- materials on deck and below
- openings
- skylights
- tanks

- Irregularities must include:
- 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 include one of the following:
- using portable ladders to access heights up to 1.8 metres
 - working at heights more than 1.8 metres

Unit Mapping Information

This is a new unit. This unit is equivalent to MARN3001A Perform seamanship operations on board a vessel up to 24 metres.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>

Assessment Requirements for MARN003 Perform seamanship operations on board a vessel up to 24 metres

Modification History

Release 1. New unit of competency.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- anchoring vessel according to depth and prevailing winds
- checking seaworthiness of vessel
- completing basic stability calculations
- correctly coiling and stowing ropes
- correctly slinging loads ready for lifting
- correctly interpreting vessel stability data
- inspecting and maintaining harnesses, safety lines and other equipment for working aloft
- maintaining watertight integrity of vessel
- performing an eye splice and a short splice
- performing appropriate whippings on ropes and line
- preparing and throwing a heavy line
- recognising damaged or worn ropes, wires and chains
- recognising routine problems during lifting and rigging operations
- refuelling vessel with due regard to regulations and organisational procedures
- safely handling ropes and wires
- safely operating winches and windlasses
- safely working aloft or over the side
- securing vessel at its berth according to operational requirements and prevailing conditions
- selecting and using appropriate rigging and lifting gear
- tying figure-eight knot, reef knot, bowline and cod-end knot
- tying half hitch, clove hitch, round turn and two half hitches, rolling hitch and timber hitch
- using knots, hitches and securing arrangements.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- anchoring principles and methods for different conditions
- basic structural parts of a small vessel

- being aware of own ability and limits to rectify irregularities
- 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 over the side
- principles and limitations of lifting equipment and components
- principles of safe handling and transport of dangerous cargo
- procedures for checking and operating lifting equipment
- providing the required amount of detail in reports
- 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.

Assessment Conditions

Assessors must satisfy National Vocational Education and Training Regulator (NVR)/Australian Quality Training Framework (AQTF) assessor requirements.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- tools, equipment, machinery, materials and personal protective equipment currently used in industry
- applicable documentation such as legislation, regulations, codes of practice, workplace procedures and operational manuals
- range of relevant exercises, case studies and/or simulations.

Links

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