



Australian Government

MARK010 Manoeuvre and handle a ship in all conditions

Release: 1

MARK010 Manoeuvre and handle a ship in all conditions

Modification History

Release 1. This is the first release of this unit of competency in the MAR Maritime Training Package.

Application

This unit involves the skills and knowledge required to issue orders to manoeuvre and handle and command navigation of a vessel.

This unit applies to people working in the maritime industry in the capacity of:

- Master of a commercial vessel less than 500 gross tonnage (GT)
- Master of a commercial vessel Unlimited
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Licensing/Regulatory Information

Legislative and regulatory requirements are applicable to this unit.

- This unit is one of the requirements to obtain Australian Maritime Safety Authority (AMSA) certification as Master of a commercial vessel less than 500 gross tonnage (GT) or Master Unlimited and to meet regulatory requirements this unit must be delivered consistent with Marine Orders and with the relevant sections of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).
- Those regulatory requirements include STCW International Maritime Organization (IMO) model course competencies and areas of knowledge, understanding and proficiency, together with the estimated total hours required for lectures and practical exercises. Teaching staff should note that timings are suggestions only and should be adapted to suit individual groups of trainees depending on their experience, ability, equipment and staff available for training.

Pre-requisite Unit

Not applicable.

Competency Field

K – Manoeuvring Vessels

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

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|---|--|
| 1 Provide commands to bridge and engine room to effect manoeuvres | 1.1 Situational awareness is maintained to determine progress of vessel |
| | 1.2 Situation is assessed to determine manoeuvres required |
| | 1.3 Appropriate orders are issued to ensure vessel is manoeuvred safely in all conditions |
| 2 Order adjustments to vessel course and speed to maintain safe navigation | 2.1 Effects of the operational environment on vessel performance are evaluated at regular intervals |
| | 2.2 Implications of the changed operational environment on vessel handling are assessed |
| | 2.3 Appropriate alterations are made and orders issued in response to assessment of the operational environment |
| 3 Command vessel during emergencies | 3.1 Nature of emergency is established and initial action taken |
| | 3.2 Risks to the vessel and the safety of persons onboard are assessed |
| | 3.3 Appropriate manoeuvres are made to maintain vessel and personnel safety |
| 4 Work with pilot to ensure safe passage to berth or anchorage | 4.1 Vessel is manoeuvred to ensure safe transfer of pilot |
| | 4.2 Pilot is provided access to vessel resources |
| | 4.3 Pilot is provided with information on vessel handling characteristics |
| | 4.4 Proposed berthing/anchoring plan is discussed with pilot |
| | 4.5 Pilot activities are monitored to ensure safe operation of |

vessel according to agreed berthing/anchoring plan

Foundation Skills

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

Range of Conditions

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

Unit Mapping Information

This unit replaces and is equivalent to MARK006 Manoeuvre a vessel 500 gross tonnage or more.

Links

Companion Volume implementation guide can be found in VetNet -

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

Assessment Requirements for MARK010 Manoeuvre and handle a ship in all conditions

Modification History

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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:

- applying constant-rate-of-turn techniques
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements and work practices
- basing all decisions concerning berthing and anchoring on a proper assessment of vessel manoeuvring and engine characteristics and the forces to be expected while berthed alongside or lying at anchor
- berthing and unberthing under various conditions of wind, tide and current with and without tugs
- determining the manoeuvring and propulsion characteristics of common types of vessels, with special references to stopping distances and turning circles at various draughts and speeds
- handling vessels in rivers, estuaries and restricted waters having due regard to the effects of current, wind and restricted water on helm response
- issuing helm and engine orders
- maintaining situation awareness
- making a full assessment of possible effects of shallow and restricted waters, ice, banks, tidal conditions, passing vessels and own vessel bow and stern wave while under way so that the vessel can be safely manoeuvred under various conditions of loading and weather
- managing and handling vessels in heavy weather, including assisting a vessel or aircraft in distress, towing operations, keeping unmanageable vessel out of trough of the sea, lessening drift and using oil
- manoeuvring in shallow water, including the reduction in under-keel clearance caused by squat, rolling and pitching
- using propulsion and manoeuvring systems
- using remote controls of propulsion plant and auxiliary machinery.

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:

- alterations, including:

- alterations of course
- reduction in speed
- effects of current, wind and restricted water on helm response
- features of a vessel that relate to its handling characteristics
- importance of navigating at reduced speed to avoid damage caused by own vessel bow wave and stern wave
- manoeuvres, including:
 - application of constant-rate-of-turn techniques
 - berthing and unberthing under various conditions of wind, tide and current with and without tugs
 - choice of anchorage: anchoring with one or two anchors in limited anchorages and factors involved in determining the length of anchor cable to be used
 - determining the manoeuvring and propulsion characteristics of common types of vessels, with special references to stopping distances and turning circles at various draughts and speeds
 - dragging anchor and clearing fouled anchors
 - dry-docking, both with and without damage
 - handling vessel in rivers, estuaries and restricted waters with due regard to the effects of current, wind and restricted water on helm response
 - importance of navigating at reduced speed to avoid damage caused by own vessel bow wave and stern wave
 - interaction between passing vessel and own vessel and nearby banks
 - managing and handling vessels in heavy weather, including assisting a vessel or aircraft in distress, towing operations, means of keeping unmanageable vessel out of trough of the sea, lessening drift and use of oil
 - manoeuvres when approaching pilot stations and embarking and disembarking pilots with due regard to weather, tide, head reach and stopping distances
 - manoeuvring in shallow water, including the reduction in under-keel clearance caused by squat, rolling and pitching
 - methods of taking on board survivors from rescue boats and survival craft
 - practical measures to be taken when navigating in or near ice or in conditions of ice accumulated on board
 - precautions in manoeuvring to launch rescue boats or survival craft in bad weather
 - procedures for and anchoring in deep and shallow water
 - turning a vessel on a reciprocal track to rescue a person overboard
 - using propulsion and manoeuvring systems, including various types of rudder
 - vessel and tug interaction
- manoeuvres when towing or under tow
- manoeuvring and propulsion characteristics of common types of vessels
- means of keeping an unmanageable vessel out of trough of the sea, lessening drift and use of oil
- nature of emergencies, including:

- beaching
- cargo shift
- collision
- damage to the vessel
- disabled or partially disabled vessel
- fire
- grounding
- loss of steering gear, including rudder
- person overboard
- operational environment, including:
 - bank effect
 - conditions of loading
 - marine park areas
 - passing vessels
 - shallow and restricted waters
- orders, including:
 - communications with shore
 - embarking or disembarking a pilot
 - engine
 - helm
 - preparation for being towed or towing another vessel
 - preparation for taking tug lines
 - running mooring lines
- procedures for entering and leaving traffic separation zones
- reduction in under-keel clearance caused by squat, rolling and pitching
- situational awareness, including:
 - berthing and unberthing with tugs
 - choice of anchorage
 - dry-docking
 - effects of current, wind and restricted waters on helm response
 - head reach
 - in or near ice or ice accumulation on board
 - launching lifeboats or survival craft
 - load conditions
 - own vessel bow wave and stern wave
 - pilot boarding grounds
 - requirements of the manoeuvre
 - rivers, estuaries and restricted waters
 - safe water
 - shallow water

- stopping distances and turning circles
- taking onboard survivors from lifeboats or survival craft
- tide
- traffic operation schemes
- weather conditions
- use of propulsion and manoeuvring systems
- use of, and manoeuvring in or near, traffic separation schemes (TSS) and in vessel traffic service (VTS) areas
- vessel and tug interaction
- vessel handling characteristics, including:
 - effects of single or twin screw
 - effects when moving astern
 - stopping ability
 - use of controllable pitch propeller (CPP)
- vessel resources, including:
 - bow and stern thrusters
 - communications equipment
 - engine control systems
 - helm and rate of turn indicators
 - personnel
- WHS/OHS requirements and work practices.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

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.

Practical assessment must occur in a workplace, or realistic simulated workplace, under the normal range of workplace conditions.

Simulations and scenarios may be used where situations cannot be provided in the workplace or may occur only rarely, in particular for situations relating to emergency procedures and adverse weather conditions where assessment would be unsafe, impractical or may lead to environmental damage.

Resources for assessment include access to:

- relevant documentation, including workplace procedures, regulations, codes of practice and operation manuals
- tools, equipment and relevant personal protective equipment (PPE) currently used in

industry.

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