



Australian Government

MARK6001A Manoeuvre a vessel 500 gross tonnage or more

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 issue orders to manoeuvre and handle a vessel in all conditions based on the proper assessment of vessel manoeuvring and engine characteristics.

Application of the Unit

This unit applies to people working in the maritime industry as a Master Unlimited.

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

- | | |
|---|--|
| 1 Provide commands to bridge and | 1.1 <i>Situational awareness</i> is maintained to determine progress of vessel |
| | 1.2 Situation is assessed to determine <i>manoeuvres</i> required |

- engine room to effect manoeuvres** 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 are issued in response to assessment of the operational environment
- 3 Command vessel during emergencies** 3.1 *Nature of emergency* is established and initial action is taken
- 3.2 Risks to the vessel and the safety of persons on board are assessed
- 3.3 Appropriate manoeuvres are made to maintain vessel safety
- 4 Work with pilot to ensure safe passage to berth or anchorage** 4.1 Vessel is manoeuvred to ensure safe embarkation 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

Required Skills and Knowledge

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

Required Skills:

- Apply constant-rate-of-turn techniques
- Berth and unberth under various conditions of wind, tide and current with and without tugs
- Clear fouled anchors
- Determine the manoeuvring and propulsion characteristics of common types of vessels, with special references to stopping distances and turning circles at various draughts and speeds
- Drag anchor
- Handle vessels in rivers, estuaries and restricted waters having due regard to the effects of current, wind and restricted water on helm response
- Issue helm and engine orders
- Manage and handle 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
- Manoeuvre in shallow water including the reduction in under-keel clearance caused by squat, rolling and pitching
- Use remote controls of propulsion plant and auxiliary machinery
- Use propulsion and manoeuvring systems

Required Knowledge:

- Anchoring with one or two anchors in limited anchorages and factors involved in determining the length of anchor cable to be used
- Choice of anchorage
- Clearing fouled anchors
- Effects of current, wind and restricted water on helm response
- Entering a dry-dock under normal conditions and with hull damage
- 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
- Interaction between passing vessel and own vessel and nearby banks
- Manoeuvres when approaching pilot stations and embarking and disembarking pilots, with due regard to weather, tide, headreach and stopping distances
- 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

- Methods of taking on board survivors from rescue boats or 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 entering and leaving traffic separation zones
- Reduction in under-keel clearance caused by squat, rolling and pitching
- Use of, and manoeuvring in or near, traffic operation schemes and in vessel traffic service (VTS) areas
- Use of propulsion and manoeuvring systems
- Vessel and tug interaction
- 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:

- 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
- while under way, 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 so that the vessel can be safely manoeuvred under various conditions of loading and weather.

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 manoeuvring a vessel of 500 gross tonnage or more may 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 manoeuvring a vessel of 500 gross tonnage or more
- 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.

- Situational awareness must include:
- Berthing and unberthing with tugs
 - Choice of anchorage
 - Dry-docking
 - Effects of current, wind and restricted waters on helm response
 - Headreach
 - In or near ice or ice accumulation on board
 - Interaction between passing vessels and between own vessel and nearby banks
 - Launching life boats 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 on board survivors from life boats or survival craft
 - Tide
 - Traffic operation schemes
 - Vessel and tug interaction
 - Vessel traffic service (VTS) areas
 - Weather conditions
- Manoeuvres must include:
- 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, 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, headreach 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
 - Turning a vessel on a reciprocal track to rescue a person overboard
 - Using, and manoeuvring in or near, traffic operation schemes and in VTS areas
 - Using propulsion and manoeuvring systems
 - Vessel and tug interaction
- Orders may include:
- Communications with shore
 - Embarking or disembarking a pilot
 - Engine
 - Helm
 - Preparation for being towed or towing another vessel
 - Preparation for taking tugs lines
 - Running mooring lines
- Operational environment may include:
- Banks
 - Conditions of loading
 - Ice
 - Marine park areas
 - Own vessel bow and stern wave
 - Passing vessels
 - Shallow and restricted waters
 - Tidal conditions
 - Traffic separation zones
 - Weather
- Alterations may include:
- Alterations of course
 - Reduction in speed

- Nature of emergency may include:
- Beaching
 - Cargo shift
 - Collision
 - Damage to the vessel
 - Disabled or partially disabled vessel
 - Fire
 - Grounding
 - Loss of steering gear including rudder
 - Person overboard
- Vessel resources may include:
- Bow and stern thrusters
 - Communications equipment
 - Engine control systems
 - Helm and rate of turn indicators
 - Personnel
 - Propulsion systems
- Vessel handling characteristics may include:
- Effects of single or twin screw
 - Effects when moving astern
 - Rate of turn
 - Stopping ability
 - Use of controllable pitch propeller

Unit Sector(s)

Not applicable.

Competency Field

Manoeuvring Vessels