



Australian Government

MARK5001A Perform basic vessel manoeuvres

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 perform basic manoeuvres on a vessel in normal operating conditions and in emergencies under the direction of the Master.

Application of the Unit

This unit applies to maritime workers working in the maritime industry as a Watchkeeper Deck; as a Master, Chief Mate or Watchkeeper Deck on ships of less than 500 gross tonnage (GT) in any operating area; or as Master or Chief Mate of vessels less than 3000 GT operating in near coastal waters.

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 Manoeuvre vessel in normal operations | 1.1 | Vessel heading is maintained within acceptable limits to meet the requirements of the <i>operating situation</i> |
| | 1.2 | Alterations of heading and power are smooth and controlled |
| | 1.3 | <i>Suitable mode of steering</i> is selected for the manoeuvre to meet the requirements of the operating situation |
| | 1.4 | Constant rate of turn techniques are used to achieve constant radius turns during manoeuvres |
| | 1.5 | Safe operating limits of vessel propulsion, steering and power systems are not exceeded in normal manoeuvres |
| | 1.6 | <i>Orders</i> of the Master are followed to assist in <i>anchoring and berthing operations</i> |
| 2 Make adjustments to vessel course and speed to maintain safe navigation | 2.1 | Effects of <i>operational environment</i> on vessel performance are evaluated at regular intervals |
| | 2.2 | Implications of the changed operational environment on vessel handling are assessed |
| | 2.3 | Appropriate <i>alterations</i> to vessel heading and power are made in response to the assessment of the operational environment |
| 3 Manoeuvre vessel during adverse weather | 3.1 | Impending <i>adverse weather conditions</i> are identified and implications for vessel operations are evaluated |
| | 3.2 | <i>Preparations</i> are made to minimise risk and damage to vessel and personnel |
| | 3.3 | Communications are made with engine room to ensure main engines are readied for manoeuvring |
| | 3.4 | Master is advised of developments in sea and weather conditions |
| | 3.5 | Vessel heading and power is maintained in response to adverse weather and sea conditions |
| 4 Manoeuvre vessel in emergencies under Master's instructions | 4.1 | <i>Nature of emergency</i> is established and initial action is taken |
| | 4.2 | Risk to the vessel and the safety of persons on board is assessed and Master is informed |
| | 4.3 | Appropriate manoeuvres under Master's instructions are made during the emergency to maintain the safety of the vessel |

- 4.4 Propulsion equipment is used and monitored to assist in completing actions safely
- 4.5 Safe operating limits of propulsion and steering equipment are not exceeded

Required Skills and Knowledge

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

Required Skills:

- Handle a disabled or partially disabled vessel
- Implement anchoring and berthing procedures
- Issue helm and engine orders
- Maintain situational awareness
- Manoeuvre a vessel:
 - in bad weather
 - in heavy swell
 - through coming to and leaving a mooring
- Manoeuvre for the rescue of person overboard
- Manoeuvre in shallow water
- Recognise emergency situations

Required Knowledge:

- Effects of deadweight, draught, trim, speed and under-keel clearance on turning circles and stopping distances
- Effects of wind and current on vessel handling
- Effects on vessel handling of wind, currents and bottom topography
- Features of a vessel that relate to its handling characteristics
- Manoeuvring and engine characteristics for various vessels more than 500 gross tonnage
- Manoeuvring problems for vessels more than 500 gross tonnage and appropriate action and solutions
- Manoeuvring procedures in and near traffic separation schemes and vessel traffic service areas
- Methods for controlling vessel speed and direction
- Procedures for the rescue of person overboard
- Procedures for turning a vessel in various situations
- Proper procedures for anchoring and mooring
- Safe operating limits of propulsion and power systems, and steering equipment
- Squat, shallow-water and similar effects on vessel handling
- 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:

- following all orders carefully
- 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 performing basic manoeuvres on an appropriate vessel or simulator 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 performing basic manoeuvres on an appropriate vessel or simulator
- 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.

- Operating situation must include:
- Headreach
 - Requirements of the manoeuvre
 - Safe water
 - Stopping distances
 - Tide
 - Weather
- Suitable mode of steering must include:
- Automatic pilot
 - Emergency steering
 - Manual steering
- Orders may include:
- Communication with tugs and pilot vessel
 - Communications with Vessel Traffic Services
 - Engine
 - Helm
 - Internal communication with engine room and berthing stations
- Anchoring and berthing operations may include:
- Manoeuvring in:
 - shallow waters
 - estuaries
 - rivers
 - restricted waters
- Operational environment may include:
- Heavy traffic areas
 - Ice
 - Marine park areas
 - Shallow and restricted waters
 - Traffic separation zones
- Alterations must include:
- Adjustment of speed to assist collision avoidance
 - Allowance for current and wind
 - Appropriate speed in reduced visibility
 - Speed adjustment for heavy weather conditions
- Adverse weather conditions may include:
- Fog and restricted visibility
 - Wind and sea conditions that may impact on the safety of the vessel
- Preparations may include:
- Advice to Master
 - Allocation of extra lookouts
 - Reduction in speed
 - Resources to engage manual steering

- Nature of emergency may include:
- Beaching
 - Collision
 - Damage to the vessel
 - Disabled or partially disabled vessel
 - Fire
 - Grounding
 - Loss of steering gear
 - Person overboard

Unit Sector(s)

Not applicable.

Competency Field

Manoeuvring Vessels