



Australian Government

Department of Education, Employment and Workplace Relations

TDMMC107B MANOEUVRE AND HANDLE A VESSEL OF 500 GROSS TONNAGE OR MORE UNDER ALL CONDITIONS

Release: 1

TDMMC107B MANOEUVRE AND HANDLE A VESSEL OF 500 GROSS TONNAGE OR MORE UNDER ALL CONDITIONS

Modification History

Not applicable.

Unit Descriptor

UNIT DESCRIPTOR:

This unit involves the skills and knowledge required to manoeuvre a commercial vessel of 500 gross tonnage or more under all possible weather and operational conditions, including berthing, mooring and anchoring operations and manoeuvring during an emergency.

Application of the Unit

Application of the unit	The unit has application in qualifications for Master (Unlimited) on a vessel operating in international waters, i.e. Advanced Diploma of Transport & Distribution (Maritime Operations - Master Unlimited).
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Licensing/Regulatory Information

Licensing/legislative requirements	The unit is consistent with the relevant sections of STCW 95, the International Ship and Port Facility Security (ISPS) Code and Marine Orders under the Australian Navigation Act 1912, describing requirements for a Master on a vessel of 500 gross tonnage or more operating in international waters.
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Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance Criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the Evidence Guide.</i>
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
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1 Manoeuvring the vessel for required operations in normal conditions	- a Manoeuvres are made to safely progress the operation and keep the vessel in safe water - b Vessel's heading is maintained within acceptable limits with respect to the requirements of the manoeuvre, weather, tide, headreach and stopping distances - c Alterations of heading or power are smooth and controlled - d Communication is clear, concise and acknowledged according to established practice - e Suitable mode of steering is selected for the manoeuvre with respect to the area, wind and sea conditions - f Constant rate of turn techniques are used to achieve constant radius turns during manoeuvres - g Vessel propulsion is controlled as required to progress the operation and complement helm movements

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ELEMENT	PERFORMANCE CRITERIA
1 Manoeuvre the vessel for required operations in normal conditions (continued)	- h Safe operating limits of vessel propulsion and steering systems are not exceeded in normal manoeuvres - i Adequate resources are organised prior to and during operations
2 Manoeuvre vessel with the assistance of tugs	- a Manoeuvres with the assistance of tugs are carried out to control vessel's speed, attitude and direction when required - b Precautions are taken during manoeuvres to minimise interaction effects and other hazards when working with tugs during manoeuvres - c Communication with tugs is maintained throughout manoeuvres
3 Handle vessel when under way	- a The effects on vessel performance of shallow and restricted waters, ice, banks, tidal conditions and passing vessel's and own vessel's bow and stern waves are regularly evaluated and the implications for vessel handling assessed - b Appropriate alterations to vessel heading and power are made in response to assessments of the vessel's operational environment
4 Manoeuvre vessel during adverse weather conditions	- a Impending adverse weather and/or ice conditions are identified and the implications for vessel operations are evaluated - b Preparations are made and required precautions are taken to minimise risk and damage to vessel and personnel and time loss on passage

ELEMENT	PERFORMANCE CRITERIA
	- c Manoeuvres are adjusted to allow for weather and sea conditions to safely progress the operation and keep the vessel in safe water - d Vessel's heading is maintained within acceptable limits with respect to the requirements of the manoeuvre and the prevailing weather and sea conditions - e Special handling techniques required under heavy weather conditions are used when necessary
5 Manoeuvre the vessel during emergencies	a Manoeuvres are made to safely progress the operations during the emergency and to keep the vessel in safe water

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ELEMENT	PERFORMANCE CRITERIA
5 Manoeuvre the vessel during emergencies (continued)	- b Vessel's heading is maintained within acceptable limits with respect to the requirements of the manoeuvre, the nature of the emergency and the existing sea and weather conditions - c Risks to the vessel and the safety of persons on board are assessed during the emergency and appropriate risk minimisation strategies are developed and applied - d Alterations of heading or power are smooth and controlled at all times and are appropriate to the emergency situation - e Communication during the emergency is clear, concise and acknowledged at all times

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Required Skills and Knowledge

REQUIRED KNOWLEDGE

This describes the knowledge required for this unit.

- 1 Relevant sections of IMO STCW 95 Convention and Codes and AMSA Marine Orders
- 2 Relevant OH&S legislation, codes of practice, policies and procedures
- 3 IMO SOLAS Convention
- 4 Methods for controlling vessel speed and direction
- 5 Procedures for picking up and dropping off a pilot
- 6 Procedures for working with tugs and tractors
- 7 Techniques used for anchoring a vessel
- 8 Procedures for preparing for manoeuvring a vessel in adverse weather conditions
- 9 Constant rate of turn techniques
- 10 Effects on vessel handling of wind, currents and bottom topography
- 11 Typical manoeuvring and engine characteristics for vessels of 500 gross tonnage or more, including stopping distances and turning circles at various draughts, speeds and loading
- 12 Procedures for the use of manoeuvring data sheets
- 13 Manoeuvring procedures in and near traffic separation schemes and vessel traffic service areas
- 14 Typical manoeuvring problems for vessels of 500 gross tonnage or more and appropriate action and solutions

REQUIRED KNOWLEDGE

- 15 Maritime communication techniques, including issuing of helm and engine orders and tug communications

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REQUIRED SKILLS

This describes the basic skills required for this unit.

- 1 Communicate effectively with others during vessel manoeuvres
- 2 Issue helm and engine orders
- 3 Read and interpret vessel manufacturer's instructions on vessel operation
- 4 Read and interpret vessel marine regulations, rules and standard operating procedures concerning vessel operations under all conditions
- 5 Collect, manage and interpret information required for the safe navigation of the vessel
- 6 Plan the timing and sequence of vessel operations to be appropriate to the prevailing circumstances, sea and weather conditions and any navigational hazards
- 7 Work collaboratively with other shipboard personnel and passengers during vessel operations
- 8 Make appropriate determinations and calculations required during the course of vessel operations (e.g. fuel, distance, speed, time, course, etc.)
- 9 Determine the type and extent of any emergency and determine the appropriate survival action to be taken
- 10 Determine appropriate procedures to allow for interaction effects with passing vessels
- 11 Recognise the effects of various operational situations such as squat, shallow water and narrow channel on vessel's handling and determine appropriate manoeuvring action required
- 12 Operate the vessel in accordance with standard operating procedures and manufacturer's instructions

REQUIRED SKILLS

13 Turn the vessel in various operational situations

Evidence Guide

Evidence Guide

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The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

1 Critical aspects of evidence required to demonstrate competency in this unit	Assessment must confirm appropriate knowledge and skills to: - a Manoeuvre the vessel: 1 safely in both normal and emergency situations 2 in normal and adverse weather conditions 3 with the assistance of tugs 4 in berthing and unberthing operations 5 when anchoring or mooring - b Exercise required safety and hazard control procedures when manoeuvring the vessel - c Identify typical manoeuvring problems and take appropriate action - d Communicate effectively with others during manoeuvring operations
2 Evidence required for demonstration of consistent performance	- a Performance is demonstrated consistently over a period of time and in a suitable range of contexts - b Consistently applies underpinning knowledge and skills when:

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| | <ol style="list-style-type: none"> 1 completing manoeuvring operations 2 identifying and evaluating manoeuvring problems and determining appropriate courses of action 3 identifying and implementing improvements to manoeuvring procedures 4 applying safety precautions relevant to manoeuvring operations 5 assessing operational capability of vessel and manoeuvring plant and equipment |
| c | <p>Shows evidence of application of relevant workplace procedures, including:</p> <ol style="list-style-type: none"> 1 relevant sections applicable maritime regulations 2 ISM Code and associated vessel's safety management system and procedures 3 OH&S regulations and hazard prevention policies and procedures 4 job procedures and work instructions |

Evidence Guide (continued)

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2 Evidence required for demonstration of consistent performance (continued)

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| | <ol style="list-style-type: none"> 5 relevant manufacturer's guidelines relating to the use of machinery, including instructions on equipment capability and limitations |
| d | <p>Action is taken promptly to report and/or rectify accidents and incidents in accordance with statutory requirements and company procedures</p> |
| e | <p>Work is completed systematically with required attention to detail</p> |
| f | <p>Recognises and adapts appropriately to cultural differences in the workplace, including modes of behaviour and interactions among crew and others</p> |

3 Context of assessment	- a Assessment of competency must comply with the assessment requirements of the relevant maritime regulations - b Assessment of this unit must be undertaken within relevant marine authority approved and audited arrangements by a registered training organisation: 1 As a minimum, assessment of knowledge must be conducted through appropriate written/oral examinations, and 2 Appropriate practical assessment must occur: - i at the registered training organisation; and/or - ii on an appropriate working or training vessel
4 Specific resource required for assessment	Access is required to opportunities to: - a operate a vessel simulator, meeting the requirements of Section A I/12 of the IMO STCW 95 Code, over an appropriate range of simulated manoeuvring situations, weather and loading conditions; and/or - b manoeuvre a commercial vessel of 500 gross tonnage or more in an appropriate range of situations, weather and loading conditions

Range Statement

Range Statement

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The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

VARIABLE	SCOPE
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1. GENERAL CONTEXT

a. Work must be carried out:	1 in compliance with relevant sections of applicable maritime regulations
b. Work is performed:	1 relatively independently under broad operational requirements, with accountability and responsibility for self and others in achieving the prescribed outcomes
c. Work involves:	1 the application of a significant range of fundamental nautical principles and complex manoeuvring techniques across a wide and often unpredictable variety of operational contexts. Contribution to the development of a broad plan, budget or strategy for vessel operations is required and accountability and responsibility for self and others in achieving the outcomes is involved
d. Work requires:	1 significant judgement in planning, technical and leadership functions related to manoeuvring operations and procedures for vessels of 500 gross tonnage or more

2. WORKSITE ENVIRONMENT

The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

a Vessel may include:	1 any Australian or international commercial vessel of 500 gross tonnage or more
b Manoeuvres may be carried out:	1 by day or night in both normal and emergency situations 2 under normal and adverse conditions of weather and loading 3 during berthing and unberthing operations 4 while anchoring or mooring
c Manoeuvres may include:	1 berthing and unberthing 2 mooring or anchoring 3 approaching pilot stations and embarking and disembarking pilots

Range Statement (continued)

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VARIABLE	SCOPE
c Manoeuvres may include: (continued)	4 handling vessel in shallow water, rivers, estuaries and restricted waters 5 navigating in or near ice or in conditions of ice accumulation on board 6 navigating in and near traffic separation schemes and vessel traffic service areas 7 interactions with tugs 8 use of propulsion and manoeuvring systems 9 dragging an anchor and clearing a foul anchor

VARIABLE	SCOPE
	10 dry docking both with and without damage
d Emergencies may include:	1 loss of rudder 2 loss of propeller 3 when hove to 4 fire or flooding on board a vessel.
e Special handling techniques required in heavy weather may include:	1 assisting a vessel or aircraft in distress 2 towing operations 3 launching rescue boats and survival craft 4 taking on board survivors from rescue boats and survival craft 5 keeping an unmanageable vessel out of the trough of the sea 6 lessening drift
f Documentation and records may include:	1 ISM Code safety management system plans, procedures, checklists and instructions 2 operational orders and company procedures 3 navigational charts 4 IMO STCW Convention and Code 5 AMSA Marine Orders 6 IMO SOLAS Convention 7 vessel's log 8 vessel manufacturer's instructions and recommended procedures 9 notices and instructions of relevant maritime authorities

Range Statement (continued)

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VARIABLE	SCOPE
f Documentation and records may include: (continued)	10 pilot instructions where relevant 11 relevant Australian and international standards
g Applicable legislation, regulations and codes may include:	1 relevant sections of IMO STCW Convention and Code 2 relevant sections of AMSA Marine Orders 3 IMO SOLAS Convention 4 International Regulations for Preventing Collisions at Sea 5 relevant international, Commonwealth, State and Territory OH&S legislation

Unit Sector(s)

Not applicable.

Field

Field MC Manoeuvring Vessel

Relationship to other units

Relationship to other units	The unit may be assessed in conjunction with other units that relate to the functions of the occupation(s) concerned.
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