



Australian Government

MARH017 Use wheelhouse equipment for safe navigation

Release: 2

MARH017 Use wheelhouse equipment for safe navigation

Modification History

Release 2. This is the second release of this unit of competency in the MAR Maritime Training Package.

- Minor statement changes in unit Application
- Minor format changes in Performance Evidence
- Minor ECS statement changes in Knowledge Evidence
- Minor statement changes in Assessment Conditions.

Release 1. New unit of competency. Licensing/regulatory information has been incorporated in accordance with Regulatory requirements. Assessment Requirements have been strengthened in accordance with Regulatory requirements.

Application

This unit involves the skills and knowledge required to maintain safe navigation of a commercial vessel through the use of radar and other equipment used for the navigation of a vessel.

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

- Master up to 24 metres Near Coastal
- Master up to 45 metres Near Coastal.

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 a Master up to 24m NC, Mate up to 100m NC and Master up to 45m NC as specified in Marine Order 505.

Seafarers seeking certification should check with AMSA.

Pre-requisite Unit

Not Applicable.

Competency Field

H – Navigation

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.

1 Set up wheelhouse navigation equipment

- 1.1 Wheelhouse navigation equipment is initialised and displays are set up and maintained
- 1.2 Operational performance and accuracy of wheelhouse equipment is confirmed and appropriate actions are taken when performance is out of limits
- 1.3 Misrepresentation of information is detected and corrected or allowed for

2 Use radar to navigate safely

- 2.1 Radar is operated according to manufacturer instructions to produce data on position and speed of vessel, other vessels and fixed objects
- 2.2 Radar plot is constructed on a radar plotting sheet or automatic plotting devices are initialised
- 2.3 Systematic radar observations of vessels in the vicinity are made where there is a risk of collision
- 2.4 Radar data is used to obtain a position fix for vessel using electronic bearing lines and variable range markers
- 2.5 Radar bearings are corrected for vessel heading and compass error as appropriate
- 2.6 Radar plotting data is analysed to anticipate potential collisions
- 2.7 Analysis is used to make informed command decisions on actions needed to avoid collisions

3 Use wheelhouse navigation equipment

- 3.1 Wheelhouse navigation equipment is safely and efficiently used to conduct navigation of the vessel
- 3.2 Position of vessel is monitored during voyage to ensure planned passage is followed

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| | 3.3 | Movement of vessels in the vicinity is monitored to ensure collision situations do not occur |
| | 3.4 | Wheelhouse navigation equipment is maintained according to manufacturer requirements and organisational procedures |
| 4 Maintain navigational records | 4.1 | Navigational data produced by wheelhouse navigation equipment that should be retained to conform with organisational procedures and regulatory requirements is identified |
| | 4.2 | Navigational data is stored electronically or in hard copy as required by organisational procedures and regulatory requirements |
| | 4.3 | Security and access requirements for data are adhered to according to organisational procedures |

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 MARH005 Use wheelhouse equipment for safe navigation.

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 MARH017 Use wheelhouse equipment for safe navigation

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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:

- constructing a radar plot
- interpreting radar displays
- reading and interpreting service manuals and instructions for radar and other electronic navigational aids
- recognising faulty radar equipment and taking appropriate actions
- recognising problems when using radar and other navigational aids, to maintain safe navigation, and taking appropriate actions:
 - incorrect radar settings for heading marker and range marker
 - incorrect set up of electronic chart system (ECS)
 - incorrect set up of global navigation satellite system (GNSS) receiver
 - rain clutter
 - sea clutter
- setting up and operating an automatic radar plotting aid (ARPA)
- setting up and operating marine radar equipment on a vessel
- setting up and operating or using other navigational instruments and equipment on a vessel
- using radar to determine actions to avoid a close-quarters situation or collision with another vessel in accordance with the International Regulations for the Prevention of Collision at Sea.

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:

- different types of navigational aids, including their features, key applications and operational characteristics, including:
 - alarm devices, including off-course and watch alarms
 - automatic identification system (AIS)
 - automatic pilot
 - azimuth mirrors or pelorus
 - coverage areas
 - echo sounders
 - electronic charting systems (ECS)
 - electronic navigation & electronic charts
 - GNSS receivers
 - magnetic and gyro compasses
 - radar
 - speed and distance indicators
- limitations and potential errors associated with each type of navigational aid
- methods for the interpretation and analysis of navigational data produced by radar and other navigational instruments
- navigation safety warnings
- procedures for the initialisation and operation of radar and other navigational instruments
- procedures for the use of data generated by radar and other navigational instruments
- process for identifying and storing navigation data
- radar plotting, including:
 - course and speed of other vessels
 - detecting course changes of other ships
 - effects of changes in own ships course and/or speed
 - target's closest point of approach and time of closest point of approach
- recognising problems when using radar and other navigational aids to maintain safe navigation, and taking appropriate actions, including:
 - false echoes
 - global positioning system (GPS) or differential global positioning system (DGPS) errors
- recognising radar display of search and rescue transponders (SART) and racon signals
- recording courses steered
- relevant sections of state and territory regulations and Marine Order 505 dealing with navigational equipment and the responsibilities of a Master or deck officer
- techniques for the use of radar and other navigational instruments
- terminology and principles of operation of radar and other navigation aids typically used on vessels
- using radar to assist in collision avoidance in accordance with International Regulations for the Prevention of Collision at Sea
- weather and oceanographic reports

- work health and safety (WHS)/occupational health and safety (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 must include access to:

- applicable documentation, such as legislation, regulations, codes of practice, safety management system (SMS), workplace procedures and operational manuals
- a commercial vessel greater than or equal to 7.5 m in length
- tools, equipment, machinery, materials and relevant personal protective equipment (PPE) currently used in industry.

Links

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