



Australian Government

MARH005 Use wheelhouse equipment for safe navigation

Release: 2

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Modification History

Release 1. New unit of competency.

Release 2. Additional information re procedures to determine compass accuracy included in Knowledge Evidence.

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 on a range of vessels up to 80 metres.

This unit has links to legislative and certification requirements.

Pre-requisite Unit

Not applicable.

Competency Field

H – Navigation

Unit Sector

Not applicable.

Elements and Performance Criteria

Elements describe the essential outcomes.

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 action is taken when performance is out of limits

1.3 Misrepresentation of information is detected and corrected or allowed for

2 Use radar to

2.1 Radar is operated according to manufacturer instructions to produce data on position and speed of vessel, other vessels and

navigate safely

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 action 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
- 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

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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

Range of Conditions

Specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

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

Wheelhouse navigation equipment includes one or more of the following:

- AIS
- alarm devices including off-course and watch alarms
- automatic pilot
- azimuth mirrors
- bottom logs
- coverage areas
- differential global positioning system (DGPS)
- echo sounder
- electronic charts
- global positioning system (GPS)
- hyperbolic systems
- magnetic and gyro compasses
- plotters
- radar
- satellite technology

Misrepresentation of information includes one or more of the following

- compass errors
- false echoes
- GPS and DGPS errors
- incorrect setting up of electronic chart system (ECS) or electronic chart display and information system (ECDIS)
- incorrect setting up of GPS
- incorrect radar settings for heading marker and range marker
- sea returns

Navigational data includes one or more

- navigation safety warning

of the following:

- recording courses steered
- weather and oceanographic reports

Unit Mapping Information

This unit is equivalent to MARH3004A 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 MARH005 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:

- interpreting radar displays and indications
- operating marine radar systems and equipment on a vessel
- operating marine radar systems and equipment on an automatic radar plotting aid (ARPA) system
- operating other electronic navigational instruments and equipment on a vessel
- reading and interpreting service manuals and instructions for radar and other electronic navigational aids
- recognising faulty radar equipment and taking appropriate action
- recognising problems when using radar and other electronic navigational aids to maintain safe navigation and taking appropriate action
- recognising radar display of search and rescue transponders (SART) and racon signals.
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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
- limitations and potential errors associated with each type of electronic navigational aid
- methods for the interpretation and analysis of navigational data produced by radar and other electronic navigational instruments
- procedures for the initialisation and operation of radar and other electronic navigational instruments
- procedures to determine compass accuracy by azimuth, amplitude or other method appropriate to the standards of watchkeeping practice when beyond sight of land
- procedures for the use of data generated by radar and other electronic navigational instruments

- relevant sections of state and territory regulations, National Standard for Commercial Vessels (NSCV) and Uniform Shipping Laws (USL) Code dealing with navigational equipment and the responsibilities of a Master or Deck Officer
- techniques for the use of radar and other electronic navigational instruments
- terminology and principles of operation of radar and other electronic navigation aids typically used on vessels
- work health and safety (WHS)/occupational health and safety (OHS) requirements and work practices.
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Assessment Conditions

Assessors must satisfy National Vocational Education and Training Regulator (NVR)/Australian Quality Training Framework (AQTF) assessor requirements.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

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.

Resources for assessment must include access to:

- tools, equipment, machinery, materials and personal protective equipment currently used in industry
- applicable documentation such as legislation, regulations, codes of practice, workplace procedures and operational manuals
- range of relevant exercises, case studies and/or simulations.
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