



Australian Government

MARH3004A Use wheelhouse equipment for safe navigation

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 maintain safe navigation of a commercial vessel through the use of radar and other equipment used for the navigation of a vessel.

Application of the Unit

This unit applies to those working in the capacity of Master on a range of vessels up to 80 metres.

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 Set up wheelhouse navigation equipment | <p>1.1 <i>Wheelhouse navigation equipment</i> is initialised and displays are set up and maintained</p> <p>1.2 Operational performance and accuracy of wheelhouse equipment is confirmed and appropriate action is taken when performance is out of limits</p> <p>1.3 <i>Misrepresentation of information</i> is detected and corrected or allowed for</p> |
| 2 Use radar to navigate safely | <p>2.1 Radar is operated according to manufacturer instructions to produce data on position of vessel, other vessels and fixed objects</p> <p>2.2 Radar plot is constructed on a radar plotting sheet or automatic plotting devices are initialised</p> <p>2.3 Systematic radar observations of vessels in the vicinity are made where there is a risk of collision</p> <p>2.4 Radar data is used to obtain a position fix for vessel using electronic bearing lines and variable range markers</p> <p>2.5 Radar bearings are corrected for vessel heading and compass error as appropriate</p> <p>2.6 Radar plotting data is analysed to anticipate potential collisions</p> <p>2.7 Analysis is used to make informed command decisions on action needed to avoid collisions</p> |
| 3 Use wheelhouse navigation equipment | <p>3.1 Wheelhouse navigation equipment is safely and efficiently used to conduct navigation of the vessel</p> <p>3.2 Position of vessel is monitored during voyage to ensure planned passage is followed</p> <p>3.3 Movement of vessels in the vicinity is monitored to ensure collision situations do not occur</p> <p>3.4 Wheelhouse navigation equipment is maintained according to manufacturer requirements and organisational procedures</p> |
| 4 Maintain navigational records | <p>4.1 <i>Navigational data</i> produced by wheelhouse navigation equipment that should be retained to conform with organisational procedures and regulatory requirements is identified</p> <p>4.2 Navigational data is stored electronically or in hard copy as required by organisational procedures and regulatory requirements</p> |

4.3 Security and access requirements for data are adhered to according to organisational procedures

Required Skills and Knowledge

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

Required Skills:

- Interpret radar displays and indications
- Operate marine radar systems and equipment on a vessel
- Operate other electronic navigational instruments and equipment on a vessel
- Read and interpret service manuals and instructions for radar and other electronic navigational aids
- Recognise faulty radar equipment and take appropriate action
- Recognise problems when using radar and other electronic navigational aids to maintain safe navigation and take appropriate action

Required Knowledge:

- 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 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

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:

- operating marine radar systems and equipment on an automatic radar plotting aids (ARPA) system
- attention to appropriate level of detail in recordkeeping.

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 using wheelhouse equipment may be conducted
- approved radar simulator where ARPA training can 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 using wheelhouse equipment
- 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.

- Wheelhouse navigation equipment may include:
- AIS
 - Alarm devices including off-course and watch alarms
 - Automatic pilot
 - Azimuth mirrors
 - Bottom logs
 - Coverage areas
 - DGPS
 - Echo sounder
 - Electronic charts
 - GPS
 - Hyperbolic systems
 - Magnetic and gyro compasses
 - Plotters
 - Radar
 - Satellite technology
- Misrepresentation of information may include
- 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 may include:
- Navigation safety warning
 - Recording courses steered
 - Weather and oceanographic reports

Unit Sector(s)

Not applicable.

Competency Field

Navigation