



Australian Government

MARH012 Manage the navigation of a vessel 500 gross tonnage or more

Release: 1

MARH012 Manage the navigation of a vessel 500 gross tonnage or more

Modification History

Release 1. This is the first release of this unit of competency in the MAR Maritime Training Package Release 3.0.

Application

This unit involves the skills and knowledge required to manage the planning of a voyage and the navigation of a vessel of 500 gross tonnage or more.

This unit applies to maritime workers working in the maritime industry as a Master Unlimited.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

H – Navigation

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 **Oversee development of passage plan**

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1 Requirements of passage are established
- 1.2 Reasons for planned route are supported by facts and statistical data obtained from relevant sources and publications
- 1.3 Positions, courses, distances and time calculations are checked for correctness within accepted accuracy standards for navigational equipment

- 1.4 Potential navigational hazards are accurately identified
- 2 Develop and implement watchkeeping arrangements and procedures**
- 2.1 Watchkeeping arrangements and procedures are developed according to bridge resource management principles, and organisational and regulatory requirements
- 2.2 Bridge resource management principles are appropriately applied in establishing watchkeeping arrangements and procedures and in developing an effective bridge working system
- 2.3 Communications strategies are developed to link watchkeeping procedures with all aspects of vessel operations
- 2.4 Fatigue management strategies are developed according to organisational and regulatory requirements
- 2.5 Corrective action procedures are developed and monitored
- 2.6 Procedures for reporting, recording and responding to emergencies and non-compliance are established
- 3 Monitor bridge team in implementing passage plan**
- 3.1 Work schedule for bridge team is detailed according to bridge resource management principles
- 3.2 Risk control measures are evaluated against passage plan
- 3.3 Navigation requirements are communicated to bridge team
- 3.4 Individuals are fully briefed and responsibilities are coordinated
- 3.5 Navigation tasks are carried out according to passage plan
- 3.6 Ongoing checks and position determination are conducted according to organisational procedures
- 3.7 Non-routine problems related to navigation of vessel are solved
- 3.8 Navigational data is signed off according to organisational procedures

- 3.9 Work schedule for bridge team is detailed according to bridge resource management principles
- 4 Interpret and evaluate information from electronic navigational system**
- 4.1 Data from radar plotting sheet is interpreted and analysed to anticipate potential collisions
- 4.2 Data produced by other electronic navigational aids is interpreted and used to assist navigational command decisions, taking into account known limitations and errors associated with each type of aid
- 4.3 Information obtained through a single vessel or multiple vessel analysis of radar plots or other electronic navigational data is used to make command decisions on action needed to avoid collisions
- 4.4 Radar data is used to obtain position fix for vessel using electronic bearing lines and variable range markers
- 5 Navigate in complex situations**
- 5.1 Measurements and observations of sea and weather conditions are used to determine vessel speed and direction in complex situations
- 5.2 Information from bridge equipment is interpreted to identify navigational hazards and to fix vessel position
- 5.3 Nautical publications on tides and currents are used to calculate tidal conditions
- 5.3 Alterations to vessel course or speed are made to meet prevailing circumstances and changing conditions
- 5.4 Navigational manoeuvres are conducted within safe operational limits of vessel
- 5.5 Details of passage are recorded in vessel log according to regulations
- 5.6 Variations to planned route are documented prior to archiving, on completion of voyage
- 6 Manage emergencies**
- 6.1 Bridge team is taken charge of when called to bridge in response to an emergency
- 6.2 Safety management system (SMS) procedures are implemented when taking over bridge watch from officer of the watch
- 6.3 Appropriate action is taken to initiate search and rescue

- procedures on receipt of distress signal
- 6.4 Advice is provided to watchkeeper regarding response to emergency situations
- 7 Maintain navigational equipment**
- 7.1 Navigational charts, nautical publications and related documentation are stored and maintained according to organisational procedures
- 7.2 Inventory of navigational charts, nautical publications and related documentation is established and kept according to organisational procedures
- 7.3 Navigational charts, nautical publications and related documentation are ordered and updated from relevant sources to ensure available data needed for voyage planning is current
- 7.4 Performance checks and tests of navigation position fixing instruments and systems are carried out according to organisational procedures and manufacturer instructions
- 8 Prepare reports and documentation relevant to passage**
- 8.1 Passage information is recorded and reported in required format, style, structure and timeframe
- 8.2 All information is recorded and reported according to legislative requirements
- 8.3 Technology is used to store and retrieve information

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.

Sources and publications include one or more of the following:

- Australian Maritime Safety Authority (AMSA) Marine Orders
- annual and weekly notices to mariners
- nautical almanac
- navigational chart availability
- radio signals, light lists, sailing directions, tide tables and chart catalogues
- ship reporting systems and requirements
- ship's routing information
- SMS procedures

Watchkeeping arrangements include:

- clear instruction to watchkeeping officers in the Standing Orders from the Master
- establishing a proper lookout separate from the helmsman
- fatigue management strategies
- hours of work schedule established to ensure correct rest periods are maintained
- watch handover procedures

Emergencies include:

- engine failure
- failure of navigational equipment
- potential close quarter situations

Position determination includes one or more of the following:

- azimuth mirrors
- chronometer
- doppler and electronic logs
- echo sounders
- electronic chart system (ECS) and electronic chart display and information system (ECDIS) systems
- integrated navigation systems
- magnetic and gyro compasses and repeaters
- paper navigational charts
- radar and other electronic navigation devices
- sextant

Non-routine problems include one or more of the following:

- equipment failure
- lack of appropriate resources
- potential collision and emergency situations
- weather conditions precluding the establishment of vessel position

Complex situations include one or more of the following:

- adverse weather
- areas of extensive tidal effects
- ice
- restricted visibility

- restricted waters
- traffic separation schemes
- vessel traffic service (VTS) areas
- when summonsed to the bridge by the duty officer

Unit Mapping Information

This unit replaces and is equivalent to MARH6002A Manage the navigation of a vessel 500 gross tonnage or more.

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 MARH012 Manage the navigation of a vessel 500 gross tonnage or more

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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, performance criteria and range of conditions on at least one occasion and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements and work practices
- assessing accuracy of fix properly
- calculating positions, courses, distances and time correctly, within accepted accuracy standards for navigational equipment
- calculating tidal conditions to determine under keel clearances and air drafts
- choosing the most appropriate primary method for fixing vessel position given the prevailing circumstances and conditions
- conducting performance checks of navigation position fixing instruments and systems
- determining and allowing for errors of magnetic and gyro-compass
- determining position in all conditions by celestial observations and terrestrial observations, and using modern navigational aids within accepted accuracy levels
- ensuring currency of relevant legislative and regulatory knowledge
- ensuring currency of relevant reference material
- enumerating the equipment, charts and nautical publications required for the voyage and appropriate to the safe conduct of the voyage
- establishing and maintaining watchkeeping arrangements in compliance with international regulations and guidelines so as to ensure the safety of navigation, protection of the marine environment, and the safety of the vessel and persons on board
- identifying all potential navigational hazards accurately
- planning and navigating a voyage for all conditions including restricted waters, meteorological conditions, ice, restricted visibility, traffic separation schemes, vessel traffic service (VTS) areas and areas of extensive tidal effects
- recognising faulty equipment and readings, and taking appropriate action
- recognising problems that may be experienced when planning and navigating a passage, and taking appropriate action
- reporting according to General Principles for Ship Reporting Systems and VTS procedures
- supporting reasons for planned route using facts and statistical data obtained from relevant sources and publications

- undertaking routeing according to the General Provisions on Ships' Routeing
- using chart catalogues, charts, nautical publications and vessel particulars to plan and navigate a passage.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- Australian Maritime Safety Authority (AMSA) Watchkeeping Standards (including the Manila Amendments)
- content, application and intent of bridge resource management principles to be observed in keeping a navigational watch
- content, application and intent of the International Regulations for Preventing Collisions at Sea, 1972, as amended
- General Principles for Ship Reporting Systems
- General Provisions on Ships' Routeing
- method and frequency of checks for errors of magnetic and gyro-compasses to ensure accuracy of information
- methods for fixing position of a vessel
- modern electronic navigational aids, their operating principles, limitations, sources of error, detection of misrepresentation of information and methods of correction to obtain accurate position fixing
- operation and care of the main types of gyro-compass
- principles of magnetic and gyro-compasses
- problems experienced when fixing vessel position and appropriate action and solutions
- procedures for filing and maintaining navigational charts, nautical publications and related documentation in serviceable condition
- procedures for swinging a vessel to determine deviation
- relevant AMSA Marine Orders
- requirements for effective passage planning including contingency planning
- systems under control of the master gyro
- vessel reporting systems and their use in planning and conducting a voyage
- voyage planning and navigation for all conditions by acceptable methods of plotting ocean tracks
- VTS procedures
- WHS/OHS requirements and work practices.

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations, current at the time of assessment.

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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.

Assessment must occur in workplace operational situations or where this is not available, in simulated workplace operational situations or an industry-approved marine operations site that replicate workplace conditions.

Resources for assessment include access to:

- navigational charts, nautical publications, AMSA Marine Orders and related documentation including workplace procedures, regulations, codes of practice and operation manuals
- tools, equipment, materials and personal protective equipment currently used in industry.

Performance should be demonstrated consistently over time and in a suitable range of contexts.

Links

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