



Australian Government

MARH037 Plan and navigate a passage for a vessel up to 100 metres

Release: 1

MARH037 Plan and navigate a passage for a vessel up to 100 metres

Modification History

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

Application

This unit involves the skills and knowledge required to plan and safely conduct a passage on a vessel up to 100 metres, including obtaining and interpreting weather information and position fixing.

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

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

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

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

1 Plan passage

- 1.1** Navigational charts, nautical publications and related documentation are accessed and checked for currency
- 1.2** Documentation is used to identify navigational hazards relevant to proposed voyage
- 1.3** Route for voyage is determined and critical points along proposed route of voyage are identified and plotted
- 1.4** Potential navigational contingencies and problems along planned route are identified and appropriate strategies for dealing with them are developed and recorded
- 1.5** Weather forecasts are obtained and interpreted, and weather and sea condition hazards relevant to proposed voyage are identified prior to departure
- 1.6** Route is modified as required to take into account weather and sea condition hazards
- 1.7** Planned route for voyage and strategies for dealing with critical situations and contingencies along route are recorded

2 Conduct a pre-departure check

- 2.1** Propulsion steering equipment and alarms are tested for serviceability and vessel hull is checked for seaworthiness
- 2.2** Wheelhouse equipment and alarms are checked to ensure they are in proper working condition and set for passage
- 2.3** Wheelhouse equipment is checked for errors and allowances are made in planning passage
- 2.4** Fuel is checked to ensure that there is adequate fuel, including a reserve, on board for the intended passage
- 2.5** Safety equipment is checked for compliance with relevant legislation
- 2.6** Communication equipment is checked to ensure it is in proper working condition
- 2.7** Anchoring and mooring equipment is checked to ensure

it is in proper working condition

2.8 Vessel and equipment are secured for sea

2.9 Latest weather information is obtained and interpreted, and proposed route is modified as required to take into account weather and sea condition hazards

3 Conduct passage

3.1 Local authorities are advised of departure and passage plan

3.2 Mode of steering is selected appropriate for prevailing weather, sea and traffic conditions, and intended manoeuvres

3.3 Weather forecasts and observations of sea and weather conditions are used to determine vessel speed and direction

3.4 Information from wheelhouse equipment is interpreted to identify navigational hazards and fix vessel position

3.5 Alterations to vessel course or speed are made to meet prevailing circumstances and changing conditions

3.6 Navigational manoeuvres are conducted within safe operational limits of vessel

3.7 Details of passage are recorded in vessel log according to regulations

4 Fix vessel position

4.1 Primary position fixing method is selected according to navigational principles and prevailing conditions

4.2 Position is fixed using selected method and information derived from relevant wheelhouse equipment

4.3 Position is recorded according to regulations

4.4 Fixes are taken at time intervals appropriate for prevailing navigational conditions

4.5 Performance checks of position fixing instruments and wheelhouse equipment are carried out according to organisational procedures and manufacturer instructions

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 MARH016 Plan and navigate a passage for a vessel up to 80 metres.

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 MARH037 Plan and navigate a passage for a vessel up to 100 metres

Modification History

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

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:

- applying hazard avoidance techniques in passage planning
- applying variation and deviation to compass courses
- completing required records relevant to planning and navigating a passage
- conducting a pre-departure check, including:
 - anchoring and mooring equipment
 - communications equipment:
 - very high frequency (VHF) and high frequency (HF) radios
 - ensuring vessel and equipment are secured for sea
 - fuel
 - propulsion equipment and alarms
 - safety equipment:
 - distress flares or pyrotechnics
 - electronic position indicating radio beacon (EPIRB)
 - firefighting equipment
 - lifejackets
 - life rafts and hydrostatic release systems
 - steering equipment and alarms
 - vessel hull
 - wheelhouse equipment and alarms, including:
 - alarm devices including bilge, depth, off-course, radar range and watch alarms
 - automatic identification system (AIS)
 - automatic pilot
 - echo sounder
 - electronic charts
 - global navigation satellite system (GNSS) receiver
 - magnetic compasses
 - plotters

- radar
 - speed and distance log
- determining times and heights of:
 - high and low water from Australian tide tables for any port and the relevance of chart datum
 - tides at standard and secondary ports for any state of tide
- developing a passage plan taking into account:
 - anticipated weather conditions
 - courses to steer
 - depths of water throughout passage
 - estimated time of arrival (ETA) at destination
 - knowledge of navigation markers during passage
 - tidal information
- developing effective planning documents
- estimating position using dead reckoning
- fixing a vessel's position using:
 - electronic navigational systems
 - radar ranges or bearings
 - running fix
 - simultaneous bearings and transits of coastal features
- interpreting and applying tidal stream data
- laying off a safe course on a chart
- maintaining situational awareness
- observing and interpreting weather and sea state conditions
- producing accurate and reliable documentation
- reading and interpreting:
 - charts and other published information relevant to planning and navigating a passage
 - instrument and equipment readings relevant to planning and navigating a passage
- reading aneroid barometer and interpreting information obtained
- recognising and correctly responding to cross-track error resulting from effects of tide and wind
- recognising faulty navigation equipment and taking appropriate actions according to operating instructions
- recognising problems that may be experienced when planning and navigating a passage
- selecting and switching between modes of steering
- selecting and using relevant equipment required for planning and navigating a passage
- using meteorological information available
- using parallel indexing to maintain a required distance of a point of land.

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:

- Australian tide tables and sailing directions
- basic meteorological terms
- effects of current and of leeway on course and speed of vessel (without calculations) and recognising the presence of either or both factors
- factors to be considered when conducting a passage, including:
 - buoyage
 - navigational hazards
 - overall passage plan requirements
 - prevailing weather and sea conditions
 - proximity and course of other vessels
- Great Barrier Reef and Torres Strait Vessel Traffic Service (REEFVTS) and Great Barrier Reef and Torres Strait Ship Reporting System (REEFREP)
- information given on a chart or plan, particularly buoyage, hazards to navigation, depth and nature of bottom, lights, tides and tidal streams
- interpreting set and drift of current from information available on chart
- measuring distance on a chart
- method of finding variation from chart
- modes of steering, including:
 - automatic pilot
 - emergency steering – manual, or electric or hydraulic
- Modernised Australian Ship Tracking and Reporting System (MASTREP)
- navigational charts, title block, Zone of Confidence diagrams and datums, nautical publications and related documentation, including:
 - electronic chart display and information systems (ECDISs)
 - electronic charting systems (ECS)
 - electronic navigation & electronic charts
 - Notice to Mariners
 - paper charts
 - temporary warning notices
 - tide tables
 - weather reports and warnings
- navigational hazards, including:
 - restricted visibility
 - shoals and reefs
 - traffic
 - unlit beacons
- obtaining bearings on small vessels

- ocean currents
- procedures to determine compass accuracy by methods appropriate to the standards of watchkeeping when beyond sight of land
- recognition of coastal features
- relating coastal features to a chart
- relationship between:
 - compass, magnetic, true and gyro courses and bearings
 - latitude and longitude
 - relative bearings
- selection of suitable:
 - anchorage or shelter
 - points for bearings
 - primary position fixing method
- sound signals, such as:
 - appropriate signals for alteration of course to port or starboard
 - danger warnings
 - moving astern
- sources of weather forecasts and interpretation of that information in simple terms
- traffic separation schemes
- use and application of ship routing services
- use and limitations on use of electronic position fixing equipment found on small vessels
- use of a deviation card without mathematical interpolation
- using a single position line
- using modern electronic navigational aids to determine vessel position
- using rhumb line navigation
- using soundings in determining position
- using terrestrial observations to determine vessel position individually or in combination with other methods
- weather, including:
 - air masses and cold and warm fronts
 - cloud classifications
 - conditions affecting Australian coast liable to endanger vessel
 - cyclones, storms and gales
 - effects on predicted tidal information
 - heat exchange process
 - pressure systems
 - sea state
 - synoptic chart analysis
- work health and safety (WHS)/occupational health and safety (OHS) requirements and safe 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, operational manuals, navigational charts, nautical publications and related documentation, including:
 - MASTREP and Australian Reporting Guide
 - Notice to Mariners
 - paper charts
 - REEFVTS User Guide
 - tide tables
 - weather reports
- a commercial vessel ≥ 7.5 m in length
- equipment, machinery, materials and relevant personal protective equipment (PPE) currently used in industry.

Links

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