Australian Government

Assessment Requirements for MARH022 Plan and conduct a passage and determine position

Release: 1

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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:

- accurately measuring and observing weather conditions
- accurately preparing calculations and measurements of navigational information
- adjusting steering controls for optimum performance
- calculating courses using plane, Mercator and great circle sailing (GCS) methods
- changing over from manual to automatic control and vice versa
- checking reliability of information obtained from primary method of position fixing at appropriate intervals
- correctly interpreting and applying meteorological information
- determining errors in magnetic and gyrocompasses, and correctly applying to courses and bearings
- determining errors of magnetic and gyrocompasses using celestial and terrestrial means, and allowing for such errors
- determining vessel position by use of:
  - aids to navigation, including lighthouses, beacons and buoys
  - dead reckoning (DR), taking into account winds, tides, currents and estimated speed
  - electronic navigational aids
  - landmarks
  - rising and dipping distances of lights and the use of horizontal angles
- determining vessel position within the limits of acceptable instrument/system errors
- estimating position using DR
- interpreting nautical charts and publications, including symbols and other chart information
- maintaining charts and publications by applying up-to-date corrections to both paper and electronic charts and publications
- operating echo-sounders and applying the information correctly
- producing accurate and reliable information
- reading the aneroid barometer and interpreting the information obtained
- selecting and applying primary position fixing method, including:
  - celestial observations
  - radar ranges or bearings

  - radio navigation aids
  - running fix
  - simultaneous bearings or transits of coastal features
  - soundings to determine position
  - terrestrial observations
- selecting mode of steering most suitable for prevailing weather, sea and traffic conditions and intended manoeuvres, including:
  - automatic pilot
  - electric systems
  - hydraulic systems
- using and interpreting information obtained from shipborne meteorological instruments
- using celestial bodies to determine vessel position
- using navigational charts, nautical publications and related documentation, including:
  - Nautical Almanac
  - nautical tables
  - Notices to Mariners
  - paper charts
  - radio navigational warnings
  - sailing directions
  - temporary warning notices
  - tide tables
  - vessel routeing information
  - weather reports and warnings.

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:

- celestial observations and calculations, including:
  - celestial sphere and equinoctial system of co-ordinates
  - compass error using azimuth and amplitude
  - daily motion and horizontal system of co-ordinates
  - hour angle
  - latitude by meridian altitude
  - pole star observations
  - sextant and altitude corrections
  - solar system
  - time and equation of time
- characteristics of the various weather systems, reporting procedures and recording systems
- charted information, including that in the title block, zones of confidence diagrams and

datums
- compass error from transit bearings or by bearings taken from a known position
- times and heights of high and low water from Australian or local tide tables for primary and secondary ports and the relevance of chart datum
- effects of current and leeway on the course and speed of the vessel (without calculations)
- finding the variation from the chart
- fixing vessel position by:
  - radar ranges and bearings
  - simultaneous bearings, transits of coastal features, and running fix
- hazards, including:
  - restricted visibility
  - shallow water
  - traffic
  - unlit beacons
- interpreting the set and drift of the current from information available on the chart
- maintaining information in a navigational log and voyage records
- measuring distance on a chart
- meteorological instruments and their use
- meteorological terms
- nautical charts and publications
- navigation systems, performance checks and tests to comply with manufacturers' recommendations and good navigation practice
- plane, Mercator and GCS concepts and calculations
- principles of magnetic and gyrocompasses and fluxgate compass
- relationship between compass, magnetic, true and gyro-courses and bearings
- relative bearings
- selection of suitable points for bearings
- sources of weather forecasts and the interpretation of that information
- steering control systems, including operating procedures
- theory of tides
- use and limitations on the use of electronic position fixing equipment, including:
  - augmented satellite systems
  - enhance loran-C system
  - global navigation satellite system (GNSS) and Galileo
  - global navigation system (GNS) and global positioning system (GPS)
  - loran-C system
- use of a deviation card
- using a single position line to assist in clearing dangers
- using modern electronic navigational aids to determine vessel position
- using meteorological information available, including:
  - atmospheric pressure

  - cloud precipitation
  - recording and reporting weather observations
  - structure of depressions
  - tropical revolving storms and other pressure systems
  - visibility
  - weather services for shipping
  - wind and other pressure systems over the ocean
- using soundings in determining position
- using terrestrial observations to determine vessel position individually or in combination with other methods
- 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, an Australian Maritime Safety Authority (AMSA)-approved simulator or 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, workplace procedures and operational manuals
- tools, equipment, machinery, materials and relevant personal protective equipment (PPE) currently used in industry.

Links

Companion Volume implementation guide can be found in VetNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2