



Australian Government

**Assessment Requirements for MARL013
Demonstrate basic knowledge of marine
steam turbines and main boilers**

Release: 1

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Modification History

Release 1. New unit of competency.

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:

- accessing diagnostic information related to marine steam turbines
- applying relevant work health and safety/occupational health and safety (WHS/OHS) requirements and work practices
- assessing own work outcomes and maintaining knowledge of current codes, standards, regulations and industry practices
- identifying and applying relevant solutions to problems that can occur when operating steam propulsion plant and associated systems on a steam vessel
- identifying and interpreting diagnostic information, and performing mathematical calculations related to operating, repairing and maintaining marine steam turbines
- identifying methods, procedures and materials needed for operating, maintaining and repairing marine steam turbines
- providing accurate and reliable information
- providing appropriate level of detail in responses
- reading and interpreting manuals, technical specifications, safety data sheets/material safety data sheets and manufacturer guides related to operating, maintaining and repairing marine steam turbines.

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:

- basic principles of operation of main steam propulsion and auxiliary systems on a steam vessel, including:
 - methods of turbine control, including safety devices
 - symptoms, causes, effects, and actions to be taken with defects of auxiliary steam turbines
 - construction and operation of main and auxiliary steam turbines
 - procedures for emergency operation of a steam turbine
- effective verbal, written and visual communication strategies
- established engineering practice and procedures for operating shipboard steam propulsion plant and associated systems in warm-through, manoeuvring, start up, normal running, emergency and shut down situations
- fundamental principles of steam propulsion systems and boilers
- hazards and problems that can occur when operating steam propulsion plant and associated systems, and appropriate preventative and remedial action
- methods of lubricating the principal components of a marine steam propulsion turbine and its associated gearing, and evaluating common faults, including common lubrication faults, symptoms, causes, and actions to be taken with such faults
- operational characteristics and performance specifications for different types of steam propulsion plant and associated systems on a steam vessel of unlimited propulsion power
- procedures for reading, interpretation of readings and indications of the performance of steam propulsion plant and associated systems
- typical operating precautions for steam propulsion plant and associated systems to ensure operational performance is in compliance with bridge orders, technical specifications, survey requirements and established safety and anti-pollution rules and regulations
- types, properties, tests, applications and treatment of fuels, lubricants, and solvents/chemicals used onboard a steam vessel, including a basic understanding of the working principles, construction, maintenance and safe operation of centrifuges, filters, and other treatment devices
- units of measurement
- WHS/OHS legislation and policies.

Assessment Conditions

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

Assessment must satisfy the National Vocational Education and Training Regulator (NVR)/Australian Quality Training Framework (AQTF) standards.

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 these are not available, in simulated workplace operational situations or an industry-approved marine operations site that replicates workplace conditions where basic knowledge of marine steam turbines and main boilers can be demonstrated.

Resources for assessment include access to:

- diagrams, specifications and other information required for performing basic calculations related to marine steam turbines
- relevant documentation including workplace procedures, regulations, codes of practice and operation manuals
- technical reference library with current publications on basic marine steam turbines
- tools, equipment and personal protective equipment currently used in industry.

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

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>