



Australian Government

Assessment Requirements for MARL054 Demonstrate basic knowledge of marine auxiliary boilers

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:

- accessing information related to marine auxiliary boilers
- adjusting excess air proportional relating to combustion processes and fuel atomisation process
- assessing own work outcomes and maintaining knowledge of current codes, standards, regulations and industry practices
- explaining basic operation of marine auxiliary boilers
- identifying and applying relevant solutions for addressing problems associated with marine auxiliary boilers
- identifying and interpreting diagnostic information and performing mathematical calculations related to operating, maintaining and repairing marine auxiliary boilers
- identifying methods, procedures and materials needed for operating, maintaining and repairing marine auxiliary boilers
- imparting knowledge and ideas through verbal, written and visual means
- monitoring exhausted gas
- providing accurate and reliable information
- providing appropriate level of detail in responses
- reading and interpreting manuals, technical specifications, safety data sheets (SDS)/material safety data sheets (MSDS) and manufacturer guides related to operating, maintaining and repairing marine auxiliary boilers.

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:

- basic principles of operation of boilers and steam systems
- combustion in boilers and related safety procedures, including importance of purging a boiler and other safety precautions taken when firing a boiler
- combustion processes, including carbon dioxide, oxygen, nitrogen, sulphur dioxide and water vapor
- common boiler defects and repair procedures

- construction and operation of boilers, including fire tube and water tube, including:
 - general construction details of a fire tube boiler
 - material used commonly for construction
- corrugated furnaces, including:
 - higher strength and flexibility in comparison to plain furnaces
- fittings mounted on boilers
- fuel atomisation process, including atomiser design, air register design and viscosity of fuel and burners
- fuel oil system for an auxiliary boiler
- hazards and defects, including:
 - chemical hazards
 - enclosed space
 - illumination of work area
 - machine guarding
 - manual handling
 - materials
 - rubbish and combustible
 - steam and fuel leaks
 - thermal hazards
 - trips
- hazards associated with running boiler plant
- operating principles relating to steam generation in fired and unfired boilers
- principles of boiler operation in normal and emergency situations
- procedures for maintaining water level in boilers
- purpose of alarms and shutdowns in marine boilers
- shells of cylindrical form, including:
 - higher strength and weight ratios
 - sited vertically or horizontally
- stays, including forms of solid bars, thick tubes or plate girders
- treatment, sampling and testing of boiler water
- types of auxiliary boilers and typical operating pressures and temperatures
- typical feed systems for marine boilers
- work health and safety (WHS)/occupational health and safety (OHS) legislation, policies and procedures.

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, workplace procedures and operational manuals
- tools, equipment, machinery, materials and relevant personal protective equipment (PPE) currently used in industry, including:
 - mountings and fittings on auxiliary boilers, including:
 - air release cock
 - auxiliary steam stop valve
 - blow down valve
 - feed check or control valve
 - main steam stop valve
 - pressure gauge connection
 - safety valves
 - sampling connection
 - scum valve
 - water level gauge
 - whistle stop valve.

Links

Companion Volume implementation guide can be found in VetNet -

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