



Australian Government

Assessment Requirements for MARL055 Demonstrate basic knowledge of marine auxiliary machinery and equipment

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 and sketching diagrams to interpret and explain testing requirements related to the operation of marine auxiliary machines
- assessing own work outcomes and maintaining knowledge of current codes, standards, regulations and industry practices
- calculating to show air can be treated as an ideal gas
- identifying and interpreting numerical and graphical information related to starting up and shutting down marine auxiliary machines on commercial vessels
- identifying and suggesting ways of rectifying faults and malfunctions in marine auxiliary machines on commercial vessels
- identifying methods, procedures and materials needed for operating, maintaining and repairing marine auxiliary machines on commercial vessels
- imparting knowledge and ideas through verbal, written and visual means
- providing accurate and reliable information
- providing appropriate level of detail in responses
- reading and interpreting written information related to the operation, performance and maintenance of marine auxiliary machines, including machinery specifications, machinery design drawings, machine drawings, operational manuals, specifications and electrical and control circuit diagrams.

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:

- accessories, including:
 - accessory gear
 - lube oil coolers
 - lube oil drive
 - lube oil filter
 - starting device

- basic principles of marine auxiliary machines, including:
 - applying main power of engines for propulsion and manoeuvring
 - keeping ship dry and trimmed
 - mooring ship and handling cargo
 - providing for safety
 - supplying domestic needs, such as freshwater
 - supplying needs of main engines and boilers
 - supplying ship with electric power and lighting
- compressors, including:
 - breathing apparatus compressor
 - lubricated reciprocating air compressors
 - non-lubricated reciprocating air compressors
 - oil-free air compressors
 - rotary screw compressors
- deck machinery, including:
 - accommodation ladders
 - anchor winch
 - cranes
 - davits
 - mooring winch
- features of bilge, cargo and ballast pumping systems, including:
 - safety fittings
 - sensing devices
 - types of valves
- fuels and basic principles of fuel systems
- nature and causes of typical start-up and shutdown malfunctions of main and auxiliary machinery and associated systems, and available methods for their detection and rectification
- operational characteristics and performance specifications for different types of auxiliary machinery and associated systems usually found on a commercial vessel, including:
 - air compressors
 - evaporators
 - heat exchangers
 - pumps
 - steering gears
- principles and procedures of machinery lubrication
- procedures for carrying out start-up and shutdown of main and auxiliary machinery and associated systems to ensure compliance with company and survey requirements and regulations
- purpose and content of safety data sheets (SDS)/material safety data sheets (MSDS)
- safety, environmental and hazard control precautions and procedures relevant to start-up and shutdown of marine auxiliary machinery and associated systems

- steering gear, including:
 - hunting gear
 - telemotor
- types of chemicals, including:
 - cleaning fluids
 - fuel additives
 - solvents
- types of heat exchangers, including:
 - plate
 - shell and tube
- types of steering gear, including:
 - electrical
 - ram
 - rotary vane
 - oscillating steering
- types of auxiliary machinery and components, including:
 - boiler
 - compressors
 - diesel generator
 - evaporators
 - pumps
 - purifiers and fuel oil treatment
 - refrigerating installation
 - thermal fluid heating systems
- types of pumps, including:
 - axial flow
 - centrifugal
 - gear
 - reciprocating
 - screw
 - vane
- work health and safety (WHS)/occupational health and safety (OHS) legislation and policies.

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.

Links

Companion Volume implementation guide can be found in VetNet -

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