



Australian Government

Assessment Requirements for MARC018 Employ tools, equipment and materials in a shipboard context

Release: 2

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Modification History

Release 2. Duplication of information removed from Application.

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 and performance criteria on at least one occasion and include:

- assessing own work outcomes and maintaining knowledge of current codes, standards, regulations and industry practices
- communicating procedures associated with using hand and machine tools and equipment verbally and in writing
- identifying methods, procedures and materials needed for operating hand and power tools on vessels
- initiating timely action in response to defects or damage
- reading and interpreting written information related to operating tools and equipment used for maintenance operations on board vessels, including technical manuals and specifications
- safely using hand and machine tools.

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:

- characteristics, limitations and use of metals and non-metallic materials used in ship construction and repair
- hand and power tools and component:
 - types
 - operational characteristics and performance specifications
 - maintenance
- heat treatment:
 - material characteristics
 - applications, equipment and processes
 - emergency procedures
 - material preparation, quenching, preheating requirements
 - material condition during heat treating process
 - batch and/or piece loading of furnaces

- safe loading of furnaces
- hazards and control measures associated with heat treatment, including housekeeping
- use and application of personal protective equipment (PPE)
- safe work practices and procedures
- machine tools:
 - reasons for selecting chosen sequence of operations
 - methods of work holding
 - basic marking out techniques including datum points/lines
 - geometry of cutting tools for a range of materials and applications
 - benefits of using correctly sharpened cutting tools
 - machine operation
 - selection of feeds and speeds to suit a range of materials and operations within the scope of this unit
 - correct methods of mounting a variety of cutting tools
 - safety issues with regard to correct clamping, guards and shields
 - tolerances and limits of size
 - situations indicating need for machine adjustment, lubrication and cleaning
 - techniques, tools and equipment to measure materials and machined components
 - use and application of PPE
 - safe work practices and procedures
 - hazards and control measures associated with general machining
- materials used in ship construction and repair:
 - metallurgy principles
 - types of materials
 - limitations of materials
 - properties of materials
- national and international regulations, International Maritime Organization (IMO) Conventions and Codes, including Australian Maritime Safety Authority (AMSA) Marine Orders applicable to managing shipboard plant and equipment maintenance and repair operations on vessels
- own ability and limits to rectify irregularities and faults
- pipe work:
 - installation techniques
 - purging techniques, applications and precautions
 - capping/sealing pipe work and assembly methods
 - identifying location/layout of pipe work and assemblies, and application and characteristics of enclosure/hanging/supporting systems
 - pipe work, ancillary installation and joining procedures
 - leak testing applications and uses
- procedures for completing temporary and permanent repair and/or replacement procedures for plant and equipment on board vessels at sea, alongside and in dry dock

- properties and parameters of engineering materials
- safety data sheets (SDS)/material safety data sheets (MSDS)
- sealants, gaskets, bonding agents, adhesives and packing:
 - dangers of working with sealants and adhesives
 - operating principles of gaskets and their relationship to other components
 - types, characteristics, uses and limitations of sealants and adhesives
 - gasket installation procedures
 - sealant and adhesives application techniques
- soldering:
 - cleaning solutions and properties, and cleaning procedures
 - use and application of PPE for manual soldering/desoldering
 - methods of joint preparation
 - properties of fluxes and their uses
 - heat and damage protection procedures
 - procedures for preventing electrostatic discharge damage
 - soldered joint testing and inspection procedures
 - reworking procedures and precautions
- testing procedures for materials under load:
 - compressive load testing procedures
 - shear load testing procedures
 - tensile load testing procedures
- welding:
 - characteristics and properties of common metals and welding materials
 - effect of gas and electrical welding operations on metals
 - hazards and control measures associated with gas and electrical welding, including housekeeping
 - welding safety practices and procedures
 - effect of various treatments on a range of commonly used metals
 - use and application of PPE
- work health and safety (WHS)/occupational health and safety (OHS) legislation, policies and procedures.

Assessment Conditions

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

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

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.

Resources for assessment must include access to:

- tools, equipment, machinery, materials and personal protective equipment currently used in industry
- applicable documentation such as legislation, regulations, codes of practice, workplace procedures and operational manuals
- range of relevant exercises, case studies and/or simulations.

Links

Companion Volume implementation guides are found in VETNet -

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