



Australian Government

MEM25011 Install marine systems

Release: 1

MEM25011 Install marine systems

Modification History

Release 1. Supersedes and is equivalent to MEM25011B Install marine systems

Application

This unit of competency defines the skills and knowledge required to install and test engine/plant and ancillary equipment relevant to propulsion, stability, steering and fuel systems for mechanically powered marine vessels and application can apply to drive systems, including inboard/outboard, water jet and side thrusting units (excluding outboard motor installation).

Site locations can include new or existing external and internal locations for foundations, footings, beds and frameworks completed prior to installation and commissioning and tasks can be undertaken in a workshop/site, moored or in a sea-trial situation.

Where technical drawings are required to be interpreted unit MEM09002 Interpret technical drawing should also be selected.

Where load shifting equipment is required to be used unit MEM11010 Operate mobile load shifting equipment should also be selected.

Where moveable and fixed load shifting equipment is required to be used unit MEM11022 Operate fixed/moveable load shifting equipment should also be selected.

Where installation only is required unit MEM25015 Assemble and install equipment and accessories/ancillaries should also be selected.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Band: A

Unit Weight: 8

Pre-requisite Unit

MEM11011	Undertake manual handling
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information
MEM18001	Use hand tools
MEM18002	Use power tools/hand held operations

Competency Field

Marine craft construction

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Determine job requirements	1.1	Follow standard operating procedures (SOPs)
		1.2	Comply with work health and safety (WHS) requirements at all times
		1.3	Use appropriate personal protective equipment (PPE) in accordance with SOPs
		1.4	Identify job requirements from specifications, job sheets or work instructions
2	Prepare installation site	2.1	Check site features using appropriate measuring equipment
		2.2	Report non-compliance with specification to appropriate authority
		2.3	Undertake modifications with approval of appropriate authority
		2.4	Prepare installation site and components
3	Install marine engines/plant	3.1	Carry out all work in accordance with site procedures and relevant Australian Standards
		3.2	Prepare engine/plant components and ancillary equipment for correct sequential installation
		3.3	Install engine/plant in accordance with manufacturer's site specifications
		3.4	Check engine/plant for conformance to specifications, and undertake modifications/adjustments according to procedures
		3.5	Install engine/plant in accordance with specifications

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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| | | 3.6 | Finalise site conditions in accordance with WHS requirements and SOPs |
| | | 3.7 | Complete documentation to required specifications |
| 4 | Test engine/plant systems and ancillary equipment | 4.1 | Identify work/test requirements for engine/plant and ancillary equipment |
| | | 4.2 | Test engine/plant and ancillary equipment for correct operation using instruments appropriate to the testing task |
| | | 4.3 | Assess and verify operational function |
| 5 | Collect data and localise fault conditions | 5.1 | Use drawings/diagrams and operational specifications to identify and localise fault conditions |
| | | 5.2 | Examine built-in fault indicators and error codes, and interpret and record results |
| | | 5.3 | Localise fault condition to major component level |
| 6 | Analyse and report test results | 6.1 | Analyse/verify test results against operational specifications and confirm localised faults |
| | | 6.2 | Report potential and actual faults according to SOPs |
| | | 6.3 | Plan corrective action and record/document action plan |

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Marine systems include the following:

- engines
- stabilisers
- steering systems
- fuel systems

Stabilisers are fin and/or tab types and include one (1) or more of the following:

- electric
- hydraulic
- mechanical

Steering system units include one (1) or more of the following:

- hydraulic
- cable
- wire-operated

Fuel systems include one (1) or more of the following:

- petrol
- diesel supply operations

Instruments include one (1) or more of the following:

- mechanical
- pneumatic/electro-pneumatic
- electronic (analog/digital)
- associated instruments that measure variables, including:
 - temperature
 - pressure
 - flow rate
 - levels
 - lights
 - density
 - any other operational variable

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM25011 Install marine systems

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting specifications, supporting documentation and Australian Standards to install marine systems
- checking and preparing site for correct location, dimensions and levels and preparing surfaces, materials and components for installation
- installing engine/plant components and ancillary equipment in accordance with procedures and manufacturer's specifications
- levelling, aligning, coupling and connecting engine/plant (excluding electrical connections) in accordance with procedures and manufacturer specifications
- testing engine/plant and ancillary equipment for correct operation using appropriate test equipment
- interpreting operational data of engine/plant and ancillary equipment, faults from built-in fault indicators and error codes and localising fault condition to major component level
- analysing test results against specifications for faults and planning remedial action and recording/documenting action plan.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- equipment used to check various site features and their use
- marine systems, specifications, applications and non-compliance procedures
- relevant codes and standards
- fixing/fastening methods components
- levelling, alignment, coupling and connection requirements
- relevant person(s) for making electrical connections
- cleaning and clearing requirements
- waste disposal obligations and regulations
- reporting and recording requirements
- operational requirements/specifications of engine/plant and ancillary equipment and testing procedures and principles

- normal operating characteristics of engine/plant and ancillary equipment
- faults and malfunctions and error indications in built-in devices
- methods of determining fault condition and procedures for reporting faults
- causes/faults in engine/plant and ancillary equipment
- procedures for recording/documenting corrective maintenance activity.

Assessment Conditions

- Assessors must:
 - have vocational competency in installing marine systems at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications
- 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.

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