



Australian Government

MEM10009 Install refrigeration and air conditioning plant and equipment

Release: 1

MEM10009 Install refrigeration and air conditioning plant and equipment

Modification History

Release 1. Supersedes and is equivalent to MEM10009B Install refrigeration and air conditioning plant and equipment

Application

This unit of competency defines the skills and knowledge required to install refrigeration/air conditioning systems in commercial, industrial, marine and transport applications in accordance with all relevant Commonwealth, state or territory legislation and regulatory requirements.

Work is undertaken using new or existing internal or external locations and sites and footings, foundations, beds and frameworks are completed prior to installation.

This unit should not be selected with unit MEM10006 Install machine/plant.

Where extensive fitting and alignment are required then see the following units:

- MEM18006 Perform precision fitting of engineering components
- MEM18009 Perform precision levelling and alignment of machines and engineering components

Where modifications involve electrical disconnection and reconnection see unit MEM18049 Disconnect/reconnect fixed wired equipment up to 1000 volts a.c./1500 volts d.c.

A Refrigerant Handling Licence must be held by any person who carries out work in relation to refrigeration and air conditioning equipment.

Band: A

Unit Weight: 4

Pre-requisite Unit

MEM05006	Perform brazing and/or silver soldering
MEM09002	Interpret technical drawing
MEM10010	Install pipework and pipework assemblies
MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements
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
MEM18055	Dismantle, replace and assemble engineering components
MEM18086	Test, recover, evacuate and charge refrigeration systems

Competency Field

Installation and commissioning

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, drawings, job sheets or work instructions
2	Inspect and prepare installation site	2.1	Check site for correct location, dimension and levels using appropriate measuring equipment and standard refrigeration/air conditioning practices
		2.2	Report non-compliance with specification to appropriate authority
		2.3	Undertake alteration/correction with approval of appropriate authority
		2.4	Prepare all surfaces, materials and components for use

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
3	Install refrigeration/air conditioning plant and equipment	3.1	Carry out all work safely and in accordance with site procedures and to relevant standards
		3.2	Organise refrigeration/air conditioning plant and equipment/components for correct sequential installation
		3.3	Install refrigeration/air conditioning plant and equipment/components in conformance with manufacturers' and site specifications
		3.4	Undertake routine modifications/alterations of the refrigeration/air conditioning plant and equipment according to procedures, as required
		3.5	Ensure refrigeration/air conditioning plant and equipment are levelled, aligned, coupled and connected in accordance with specifications
		3.6	Ensure the refrigeration system is charged with refrigerant and lubricant in accordance with procedures
		3.7	Clean the site and clear all debris and leave in a safe state
4	Start up refrigeration/ air conditioning plant and equipment and check operation	4.1	Develop start-up procedure for the refrigeration/air conditioning plant and equipment
		4.2	Ensure the refrigeration/air conditioning plant and equipment are operated and assessed for conformance to specification
		4.3	Identify non-conformances and system faults and take appropriate action/adjustments to specification
		4.4	Complete all reports and documentation to required specifications

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.

Measuring equipment includes one (1) or more of the following:

- lasers
- dumpy levels

Relevant standards include one (1) or more of the following:

- Australian Standards
- building codes
- air conditioning/refrigeration standards
- local authority standards
- environmental standards
- greenhouse emission regulations

Refrigeration/air conditioning plant and equipment/components include one or more of the following:

- compressors
- evaporators
- condensers
- valves
- controllers
- fans
- solenoids
- sensors
- thermostats
- switches
- recorders

Routine modifications/alterations include one (1) or more of the following:

- fitting of spacers
- relocation of brackets
- alignment of holes

Appropriate action includes the following:

- in accordance with urgency requirements to address equipment failure and/or personnel danger

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM10009B Install refrigeration and air conditioning plant and equipment

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 MEM10009 Install refrigeration and air conditioning plant and equipment

Modification History

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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, drawings, regulatory and legislative requirements for installing refrigeration and air conditioning plant and equipment
- preparing the installation site and ensuring all surfaces are level using appropriate measuring equipment
- installing refrigeration/air conditioning plant and equipment and components to relevant standards
- charging the refrigeration system with refrigerant and lubricant in accordance with procedures
- developing a start-up procedure for installed refrigeration/air conditioning plant checking for conformance with specifications
- identifying any system faults and non-conformance and taking appropriate remedial action in accordance with urgency requirements to address equipment failure and/or personnel danger
- completing all reports and documentation in accordance with SOPs.

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)
- procedures for non-compliances
- procedures for checking the refrigeration/air conditioning plant and associated equipment
- procedures for making alterations, corrections or adjustments to the refrigeration/air conditioning plant and associated equipment
- correct sequential installation of all components
- procedures for checking refrigeration systems for leaks
- methods of fixing/fastening and locating/holding the components
- procedures for checking refrigeration/air conditioning plant and associated equipment prior to start-up

- procedures for adjusting the refrigeration/air conditioning plant and associated equipment to specification
- codes and regulations relevant to the refrigeration/air conditioning industry, including environmental, ozone and greenhouse substance legislation.

Assessment Conditions

- Assessors must:
 - have vocational competency in installing refrigeration and air conditioning plant and equipment 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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