



Australian Government

MEM10013 Install split air conditioning systems and associated pipework

Release: 1

MEM10013 Install split air conditioning systems and associated pipework

Modification History

Release 1. Supersedes and is equivalent to MEM10013A Install split air conditioning systems and associated pipework

Application

This unit of competency defines the skills and knowledge required to install split air conditioning systems and associated pipework up to 18 kW cooling capacity.

This unit refers to plug in applications only. Where the installation and connection to mains supply of fixed wiring is necessary then this work must be undertaken by a suitably licensed person.

Where commissioning and decommissioning of split air conditioning systems is required see unit MEM18084 Commission and decommission split air conditioning systems.

Some jurisdictions may require the holder of this unit to be licensed or certified and users should check with the relevant authorities.

Band: A

Unit Weight: 6

Pre-requisite Unit

MEM05006	Perform brazing and/or silver soldering
MEM09002	Interpret technical drawing
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

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	Locate split air conditioning components	2.1	Determine the location of unit components, piping and drains in consultation with customer and other site considerations
		2.2	Ensure industry and local authority requirements, standards and codes and manufacturer requirements are identified, including the appropriate capacity rating of the equipment and any impacts on the installation are identified
3	Inspect and prepare installation sites	3.1	Carry out all work safely to Australian Standards, state and local codes and regulations
		3.2	Prepare the installation site to industry codes of practice and manufacturer installation instructions, as appropriate
		3.3	Carry out the work without damage to the system, components and the surrounding environment or services
4	Prepare split system equipment and materials for installation	4.1	Identify and note safety hazards and ensure established risk control measures are implemented
		4.2	Consult appropriate personnel to ensure the work is coordinated effectively with others involved on the

Elements describe the essential outcomes.

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

worksite

- 4.3 Check all components, piping and fittings for conformance to manufacturer specification, job requirements and applicable standards
- 4.4 Determine the layout of the pipework from job specifications and diagrams
- 4.5 Obtain materials needed to carry out the work in accordance with established procedures and check against job requirements
- 4.6 Obtain tools, equipment and testing devices needed to conduct the work in accordance with established procedures and check for correct operation and safety
- 4.7 Check preparatory work to ensure no damage has occurred and that it complies with work requirements

5 **Prepare and install refrigerant pipework**

- 5.1 Use tools and equipment in accordance with manufacturers' instructions
- 5.2 Ensure pipework is prepared and joined to required specification with minimal wastage and damage/contamination to environment
- 5.3 Join pipework and fittings using appropriate pipe joining methods
- 5.4 Ensure pipes are run separately and insulated according to manufacturer instructions and to relevant standards codes and regulations
- 5.5 Check pipework and joins for compliance and integrity using appropriate testing methods

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.

- | | |
|--|--|
| Unit components include the following: | <ul style="list-style-type: none">• outdoor unit, indoor unit, fittings and fixtures |
| Site considerations include the following: | <ul style="list-style-type: none">• inside wall, drains, pipe runs, exposure, access, air circulation, environment and power supply |
| Prepare installation site includes one (1) or more of the following: | <ul style="list-style-type: none">• clearing and levelling• foundations• wall fixtures• roof mounting |
| Prepared and joined includes the following: | <ul style="list-style-type: none">• cutting to length, flaring, swaging and bending |
| Pipe joining methods include one (1) or more of the following: | <ul style="list-style-type: none">• silver brazing• soldering |
| Equipment and testing devices include one (1) or more of the following: | <ul style="list-style-type: none">• refrigeration gauge manifold• Schraeder access valves• quick connect couplings• thermometer/thermocouple temperature measuring devices• analogue and digital vacuum measuring gauges• digital scales• refrigerant recovery unit• vacuum pump• electronic leak detectors• refrigerant containers/cylinders |
| Industry best practice includes the following: | <ul style="list-style-type: none">• pipe preparation and joining techniques and industry best practice for pipe brazing |
| Commonwealth, state and | <ul style="list-style-type: none">• The Ozone Protection and Synthetic Greenhouse Gas |

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.

territory legislation, regulations, standards, codes of practice, and industry guidelines include the following:

Legislation Amendment Bill 2003

- air conditioning residential best practice guidelines (AIRAH)
- state/territory and local building regulations
- codes of practice for domestic refrigeration and air conditioning (HB40)

Appropriate testing methods include the following:

- dimensional checks and leak tests

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM10013A Install split air conditioning systems and associated pipework

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 MEM10013 Install split air conditioning systems and associated pipework

Modification History

Release 1. Supersedes and is equivalent to MEM10013A Install split air conditioning systems and associated pipework

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, customer requirements, regulatory and legislative requirements for installing plug in split air conditioning systems and associated pipework up to 18 kW cooling capacity
- preparing the installation site for installing unit components to manufacturer requirements, standards, codes and regulations
- using tools and equipment to prepare and join pipework to specifications
- ensuring pipes are run separately and insulated to specifications and relevant standards, codes and regulations
- checking the installed system for compliance and integrity using appropriate testing methods and test equipment.

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)
- basic vapour compression cycle operating principles
- basic reverse cycle operating principles
- layouts, siting and set-ups of split air conditioning systems
- typical work environment, demands and considerations
- effective communication with appropriate persons and typical problems, contingencies and solutions
- components, accessories and fixtures for split air conditioning systems
- considerations for siting units and components and techniques and processes for site preparation
- fixing methods, tools and equipment for system components and pipework
- applicable legislative requirements, standards, codes and licensing requirements for installing system components, interconnecting wiring and connection to power supply

- applicable procedures for storage, handling and treatment of ozone depleting and synthetic greenhouse gas refrigerant
- sustainable energy practices for the efficient use of materials and for minimising damage/contamination to environment
- tools and equipment used for fabricating pipework
- pipe preparation and joining techniques including cutting, flaring, swaging and bending
- brazing/silver soldering techniques, equipment and consumables
- dry nitrogen being used during all brazing/silver soldering work
- procedures and equipment for checking pipework integrity and compliance to specification
- procedures for reporting non-conformances
- required documentation and procedures to complete and process.

Assessment Conditions

- Assessors must:
 - have vocational competency in installing split air conditioning systems and associated pipework 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.

Links

Companion Volume implementation guides are found in VETNet -

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