



Australian Government

MEM18088 Maintain and repair commercial air conditioning systems and components

Release: 1

MEM18088 Maintain and repair commercial air conditioning systems and components

Modification History

Release 1. Supersedes and is equivalent to MEM18088B Maintain and repair commercial air conditioning systems and components

Application

This unit of competency defines the skills and knowledge required to maintain and repair commercial air conditioning systems and components.

It applies to commercial air conditioning systems and components, including heating systems, direct expansion refrigeration systems, and/or simple air distribution systems; typically used for comfort air conditioning and also applies to retrofitting existing commercial air conditioning systems with alternative refrigerants and reconditioning components.

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

MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12002	Perform electrical/electronic measurement
MEM12023	Perform engineering measurements
MEM12024	Perform computations
MEM13015	Work safely and effectively in manufacturing and engineering
MEM14006	Plan work activities
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

Maintenance and diagnostics

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	Undertake preventive maintenance checks/adjustments	2.1	Check the temperature, quality, properties and flow of air delivered by the air conditioning system for conformance to specification
		2.2	Check the noise/vibration levels of the air conditioning system components for conformance to specification
		2.3	Perform preventative maintenance tasks according to manufacturers' specifications using refrigeration and air conditioning principles and techniques
3	Undertake fault-finding	3.1	Identify system components
		3.2	Interpret the characteristics and operation of each component
		3.3	Inspect and test the operational function of each component and assess correct operation against specification

Elements describe the essential outcomes.

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

4	Repair/replace faulty components	4.1	Localise faulty components and confirm malfunction
		4.2	Remove the refrigerant from the system safely and contain in accordance with procedures and regulatory requirements, where appropriate
		4.3	Dismantle faulty components and repair to manufacturers' specifications, as required
		4.4	Select replacement parts from manufacturers' catalogues
5	Return to service commercial air conditioning systems and components	5.1	Reassemble components and test for correct operation and assess against specification
		5.2	Charge the system with correct refrigerant safely and in accordance with procedures and regulatory requirements
		5.3	Verify correct operation of the equipment
		5.4	Complete maintenance records/service reports according to SOPs and legislative requirements

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.

Test equipment includes one (1) or more of the

- service manifolds
- measuring instruments/equipment for checking:

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following:

- air temperatures
- air flows
- air quality
- air properties
- noise and vibration levels
- multimeter
- ampmeter
- insulation resistance tester

**Preventative
maintenance tasks
include one (1) or more
of the following:**

- check/adjust fan belts
- check/clean filters
- check/clean heat exchangers (evaporator and condenser)
- overhaul of major system components
- cleaning of major system components
- testing operation of all safety devices

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM18088B Maintain and repair commercial air conditioning systems and components

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 MEM18088 Maintain and repair commercial air conditioning systems and components

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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, on at least (2) systems, and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting charts, lists, catalogues, specifications, drawings and relevant legislation with respect to maintaining and repairing commercial air conditioning systems and components
- selecting and using equipment to test and check temperature, flow and quality of conditioned air for conformance against specifications, legislation and regulations
- carrying out preventative maintenance according to manufacturers' specifications using refrigeration/air conditioning techniques/practices
- checking system components for correct operation using appropriate tools, techniques and test equipment and assessing component performance/operation against specifications
- identifying and localising faulty components and confirming malfunction by inspection/testing, making required adjustments to achieve specifications
- removing the refrigerant from the system and containing in accordance with procedures and regulatory requirements
- removing/dismantling and reassembling faulty components and selecting replace parts from manufacturers' catalogues to meet the required specifications
- undertaking calculations and numerical operations associated with maintaining and repairing commercial air conditioning systems and components
- charging the system and verifying correct operation of the equipment to meet specifications
- completing all maintenance records/reports 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)
- measuring instruments/equipment and specifications for checking air temperatures, air flows, air quality and air properties

- procedures for performing preventative maintenance on air conditioning systems and sequence of implementation
- techniques and procedures for inspecting, testing and assessing system components and operational compliance to meet specifications
- procedures for safely removing the refrigerant from the system and charging the system and all legislative and regulatory requirements
- tools, equipment, techniques and procedures for dismantling and repairing faulty components, reassembling and testing components
- air properties controlled by the air conditioning system
- measuring instruments/equipment and specifications required for checking component noise and vibration levels
- specifications and process for identifying system components
- operational characteristics of the system components
- appropriate process for localising and confirming faulty components
- selecting and using equipment for testing electrical compliance of equipment
- procedures for completing maintenance records/service reports and reporting non-conformances.

Assessment Conditions

- Assessors must:
 - have vocational competency in maintaining and repairing commercial air conditioning systems and components 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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