



Australian Government

MEM18087 Service and repair domestic and light commercial refrigeration and air conditioning equipment

Release: 1

MEM18087 Service and repair domestic and light commercial refrigeration and air conditioning equipment

Modification History

Release 1. Supersedes and is equivalent to MEM18087B Service and repair domestic and light commercial refrigeration and air conditioning equipment

Application

This unit of competency defines the skills and knowledge required to service domestic and light commercial refrigeration and air conditioning equipment and components.

It applies to retrofitting existing domestic and light commercial refrigeration and air conditioning equipment with alternative refrigerants; reconditioning components; returning to service; testing equipment; and completing service reports for administrative action.

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: 6

Pre-requisite Unit

MEM05006	Perform brazing and/or silver soldering
MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12002	Perform electrical/electronic measurement
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

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	Carry out visual inspection and testing with appropriate test equipment according to refrigeration/air conditioning principles, procedures and safety requirements
		2.2	Perform preventative maintenance tasks according to manufacturers' specifications using refrigeration/air conditioning techniques/practices
3	Undertake fault-finding	3.1	Identify equipment 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
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/replace to

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manufacturers' specifications, as required

4.4 Select replacement parts from manufacturers' catalogues

5 **Return to service refrigeration/ air conditioning equipment**

5.1 Reassemble components and test for correct operation and assess against specification

5.2 Verify correct operation of the equipment

5.3 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 following:

- service manifolds
- pressure gauges
- vacuum gauges
- multimeter
- ampmeter
- insulation resistance tester
- vacuum pump

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

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- cleaning of major system components
- testing operation of all control and safety devices
- testing refrigeration charge
- testing operational current
- testing insulation resistance of relevant electrical components

Governing and guidance documentation includes the following:

- noise and environmental regulations
- applicable Commonwealth, state and territory regulations and legislation
- air conditioning residential best practice guidelines (AIRAH)
- AIRAH flammable refrigerant fact sheets and guide

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM18087B Service and repair domestic and light commercial refrigeration and air conditioning 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 MEM18087 Service and repair domestic and light commercial refrigeration and air conditioning equipment

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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 charts, lists, catalogues, specifications, drawings and relevant legislation and regulations with respect to servicing and repairing domestic and light commercial refrigeration and air conditioning equipment
- checking system components for correct operation using appropriate tools, techniques and test equipment and comparing system and assessing component performance/operation against specifications
- carrying out preventative maintenance of domestic and light commercial refrigeration and air conditioning according to manufacturers' specifications using refrigeration/air conditioning techniques/practices
- identifying and localising faulty components and confirming malfunction by inspection/testing, and 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 replacement parts from manufacturers' catalogues to meet the required specifications
- undertaking calculations and numerical operations associated with servicing and repairing domestic and light commercial refrigeration and air conditioning
- charging the system and verifying the 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)
- preventative maintenance requirements

- procedures for protecting worksite and equipment from ignition sources if refrigerant used is flammable
- variations in component identities
- operation and characteristics of range of components
- procedures for checking refrigeration/air conditioning components for correct operation
- tools, equipment and procedures for assembling components
- tools, equipment, techniques and procedures for adjusting refrigeration/air conditioning systems for correct operation and to specification
- procedures for obtaining authorisation of adjustments outside of operational specifications
- procedures for recovery, containment and storage
- effect of poor repair practices
- processes and resources to select replacement parts
- basic electrical principles, testing and fault identification
- codes and regulations relevant to the refrigeration/air conditioning industry, including environmental and ozone and greenhouse substance legislation.

Assessment Conditions

- Assessors must:
 - have vocational competency in servicing and repairing domestic and light commercial refrigeration and air conditioning 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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