



**Australian Government**

**MEM18091 Maintain and repair  
multistage, cascade and/or ultra-cold  
industrial refrigeration systems**

**Release: 1**

# **MEM18091 Maintain and repair multistage, cascade and/or ultra-cold industrial refrigeration systems**

## **Modification History**

Release 1. Supersedes and is equivalent to MEM18091B Maintain and repair multi stage, cascade and/or ultra-cold industrial refrigeration systems

## **Application**

This unit of competency defines the skills and knowledge required to maintain and repair multistage, cascade and ultra-cold industrial refrigeration systems.

It applies to retrofitting existing multi-stage, cascade and/or ultra-cold industrial refrigeration systems; reconditioning components; returning to service and testing systems; 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: B

Unit Weight: 4

## **Pre-requisite Unit**

MEM09002	Interpret technical drawing
MEM10002	Terminate and connect electrical wiring
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
MEM18049	Disconnect/reconnect fixed wired equipment up to 1000 volts

a.c./1500 volts d.c.

MEM18055 Dismantle, replace and assemble engineering components

MEM18086 Test, recover, evacuate and charge refrigeration systems

**Plus, one or more of the following including prerequisites:**

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

MEM18088 Maintain and repair commercial air conditioning systems and components

MEM18090 Maintain and repair industrial refrigeration systems and components

## 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.

- |  |   |
|--|---|
| <b>1 Determine job requirements</b>                          | 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              |
| <b>2 Undertake preventive maintenance checks/adjustments</b> | 2.1 Check the temperature, pressure and properties of the system for conformance to specification         |
|  | 2.2 Check the noise/vibration levels of the system for conformance to specification                       |
|  | 2.3 Perform preventative maintenance tasks according to manufacturers' specifications using refrigeration |

Elements describe the essential outcomes.

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

- |   |  |  |
|---|--|--|
| 3 | <b>Undertake fault-finding</b>   | 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                         |
| 4 | <b>Repair/replace faulty components</b>  | 4.1 Localise faulty components and confirm malfunction   |
|   |  | 4.2 Remove the refrigerant safely from the system 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 | <b>Return to service multistage, cascade and/or ultra-cold refrigeration systems</b> | 5.1 Reassemble components and test for correct operation and assess against specification  |
|   |  | 5.2 Charge the system safely with correct refrigerant and in accordance with procedures and regulatory requirements, where appropriate     |
|   |  | 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 following:**

- measuring instruments/equipment for checking:
  - temperatures
  - pressures
  - 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 MEM18091B Maintain and repair multi stage, cascade and/or ultra-cold industrial refrigeration systems

## Links

Companion Volume implementation guides are found in VETNet -

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