



Australian Government

UEERA0038 Establish the thermodynamic parameters of refrigeration and air conditioning systems

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to establish the thermodynamic parameters of refrigeration and air conditioning system.

It includes determining thermodynamic parameters of refrigeration and air conditioning system using measurement and calculation methods and documenting results.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

UEERA0002 Analyse the psychrometric performance of HVAC/R systems

UEERA0003 Analyse the thermodynamic performance of HVAC/R systems

or

UEERA0094 Verify functionality and compliance of refrigeration and air conditioning installations

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0020 Fix and secure electrotechnology equipment

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEECD0016 Document and apply measures to control WHS risks associated with electrotechnology work

UEERA0059 Prepare and connect refrigerant tubing and fittings

UEERA0036 Establish the basic operating conditions of vapour compression systems

UEERA0035 Establish the basic operating conditions of air conditioning systems

UEERA0050 Install refrigerant pipe work, flow controls and accessories

UEERA0081 Select refrigerant piping, accessories and associated controls

UEERA0031 Diagnose and rectify faults in air conditioning and refrigeration control systems

UEERA0092 Solve problems in low voltage refrigeration and air conditioning circuits

UEERL0005 Locate and rectify faults in low voltage (LV) electrical equipment using set

procedures

UEERL0004 Disconnect - reconnect electrical equipment connected to low voltage (LV) installation wiring

UEERL0001 Attach cords and plugs to electrical equipment for connection to a single phase 230 Volt supply

UEERL0002 Attach cords, cables and plugs to electrical equipment for connection to 1000 V a.c. or 1500 V d.c.

Competency Field

Refrigeration and air-conditioning

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to determine thermodynamic parameters of refrigeration and air conditioning system

PERFORMANCE CRITERIA

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

- 1.1** Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures for a given work area are identified and applied
- 1.2** WHS/OHS risk control measures and workplace procedures are followed in preparation for refrigeration and air conditioning system work
- 1.3** Refrigeration and air conditioning system operating conditions are obtained from documentation or work supervisor to determine the scope of work to be undertaken
- 1.4** Advice is sought from the work supervisor to ensure refrigeration and air conditioning system work is coordinated effectively with others
- 1.5** Tools, equipment and testing devices needed to determine the refrigeration and air conditioning system operating conditions are obtained and checked for

		correct operation and safety
2	Determine thermodynamic parameters of refrigeration and air conditioning system	
	2.1	WHS/OHS risk control measures and workplace procedures for carrying out refrigeration and air conditioning system work are followed
	2.2	Measurement of thermodynamic system operating parameters is conducted in accordance with WHS/OHS requirements and workplace safety procedures
	2.3	System is checked and isolated in accordance with WHS/OHS requirements and workplace procedures
	2.4	Actual and specified range of thermodynamic parameters are determined from measured and calculated values as they apply to refrigeration or air conditioning system in accordance to workplace procedures
	2.5	Unexpected situations are discussed with appropriate person/s, responded to in accordance with workplace procedures and documented in a manner that minimises risk to personnel and equipment
	2.6	Thermodynamic parameters are determined without damage to apparatus, circuits, the surrounding environment or services using sustainable energy practices
3	Document thermodynamic parameters	
	3.1	WHS/OHS work completion risk control measures and workplace procedures are followed
	3.2	Worksite and equipment are cleaned and made safe in accordance with workplace procedures
	3.3	Thermodynamic parameters are documented, including identification of any parameter that is not within the specified range for the refrigeration and air conditioning system
	3.4	Work supervisor is notified of work completion in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of

competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Determining thermodynamic parameters of refrigeration and air conditioning systems must include at least the following:

- using measurement and calculation methods of a refrigeration or air conditioning system, including:
 - temperature
 - pressure
 - relative humidity
 - enthalpy

Unit Mapping Information

This unit replaces and is equivalent to UEENEEJ127A Establish the thermodynamic parameters of refrigeration and air conditioning systems.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>