



Australian Government

UEERA0010 Commission complex heating, ventilation and air conditioning (HVAC) 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 set up, adjust and commission complex heating, ventilation and air conditioning (HVAC) and refrigeration systems for optimum performance.

It includes working safely, testing and analysing system parameters, adjusting equipment and controls, following procedures and documenting final operating parameters and settings.

To undertake this unit, the learner must have a Trainee Refrigerant Handling Licence as it includes work on refrigeration and air conditioning equipment that carries the risk of a fluorocarbon refrigerant being emitted.

The skills and knowledge described in this unit require a national Refrigerant Handling Licence as it includes work on refrigeration and air conditioning equipment that carries the risk of a fluorocarbon refrigerant being emitted while decanting the refrigerant or manufacturing, installing, commissioning, servicing, maintaining or decommissioning refrigeration and air conditioning equipment.

The skills and knowledge described in this unit require a licence or permit to practice in the workplace where work is carried out on electrical installations which are designed to operate at voltages greater than 50 volt (V) alternating current (a.c.) or 120 V direct current (d.c.).

Competency development activities in this unit are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, skills and knowledge described in this unit require a relevant contract of training, such as an Australian Apprenticeship.

Additional and/or other conditions may apply in some jurisdictions subject to regulations related to refrigeration, air conditioning or electrical work. Practice in the workplace and during training is also subject to work health and safety (WHS)/occupational health and safety (OHS) regulations.

Permits may also be required for some work environments, such as confined spaces, working aloft, near live electrical apparatus and site rehabilitation.

Pre-requisite Unit

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

UEERA0094 Verify functionality and compliance of refrigeration and air conditioning installations

UEERA0081 Select refrigerant piping, accessories and associated controls

UEERA0032 Diagnose and rectify faults in complex air conditioning/refrigeration systems

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 commission

PERFORMANCE CRITERIA

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

1.1 WHS/OHS procedures are obtained and implemented in

complex HVAC systems		accordance with workplace procedures
	1.2	WHS/OHS risk control measures and procedures for work are followed
	1.3	Safety hazards not previously identified are risk assessed and documented and risk control measures implemented
	1.4	Appropriate person/s is consulted to ensure the work is coordinated effectively with others involved on the worksite
	1.5	System operating parameters are identified by reviewing system specifications and component technical data
	1.6	Tools, equipment and testing devices required for the work are obtained and checked for correct operation and safety in accordance with workplace procedures
	1.7	Preparatory work is checked to ensure damage has not occurred and is compliant with requirements
	1.8	Need to test or measure live work is determined in accordance with workplace procedures and WHS/OHS requirements
	1.9	Circuits are checked as being isolated in accordance with WHS/OHS requirements and workplace procedures
2 Commission complex HVAC systems	2.1	WHS/OHS risk control measures and workplace procedures for carrying out the work are followed
	2.2	Testing/measuring devices are connected and set up in accordance with requirements for a particular system
	2.3	Measurements and adjustments are made to equipment components and controls to provide optimum system performance in accordance with system specifications and regulatory requirements
	2.4	Decisions for dealing with unexpected situations are made from discussions with appropriate person/s, job specifications and requirements
	2.5	Unplanned situations are responded to in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
	2.6	Commissioning is carried out efficiently without waste

		of materials or damage to apparatus, the surrounding environment or services applying sustainable energy principles
3	Complete and report commissioning activities	3.1 WHS/OHS risk control work completion measures and procedures are followed
		3.2 Worksite is cleaned and made safe in accordance with workplace procedures
		3.3 Adjustment settings and results of commissioning work are documented and appropriate person/s notified 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.

Commissioning complex HVAC systems must include at least at least the following:

- two different types of complex HVAC systems incorporating multiple major components (i.e. compressors, condenser or evaporators), circuits or systems and associated components and controls

Unit Mapping Information

This unit replaces and is equivalent to UEENEEJ123A Commission complex (HVAC) heating, ventilation 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>