Australian Government

UEERA0031 Diagnose and rectify faults in air conditioning and refrigeration control 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 diagnose and rectify faults and replace faulty components in refrigeration and air conditioning control systems, interconnecting circuits and equipment operating at voltages up to 1000 volt (V) alternating current (a.c.).

Competency in this unit requires the ability to work safely, diagnose faults, apply fault-finding procedures, conduct repairs, replace components and complete required service documentation.

The skills and knowledge in this unit will be applied by refrigeration and air conditioning technicians during the commissioning and repair of refrigeration and air conditioning system.

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 may 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 V 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, a relevant contract of training, such as an Australian Apprenticeship, is required.

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

Pre-requisite Unit

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

Competency Field

Refrigeration and air-conditioning

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1 Prepare to diagnose and rectify faults	**1.1** WHS/OHS hazards, risk control methods, relevant standards, codes and legislation are obtained and applied in accordance with workplace procedures
	1.2 Details of the air conditioning or refrigeration system fault are obtained from documentation, client and/or from supervisor to establish scope of work to be completed
	1.3 Advice is sought from supervisor, as required, to ensure work is coordinated with others
	1.4 Sources of materials required for work are accessed in accordance with workplace procedures
	1.5 Tools, equipment and testing devices are obtained in accordance with workplace procedures and checked for operational safety
2 Diagnose faults	**2.1** Need to test or measure live electrical work on an operating system is determined in accordance with workplace procedures and WHS/OHS requirements
	2.2 Circuits/machines and/plant are checked as being isolated, where necessary, in accordance with workplace procedures and WHS/OHS requirements
	2.3 Fault finding, using measured and calculated values of system and component parameters, is undertaken methodically in accordance with workplace procedures
	2.4 Faults, beyond the scope of refrigeration and air conditioning system work, are identified and reported in

		accordance with workplace procedures
	2.5	Control system components are dismantled, where necessary, and parts safely stored to protect them against loss or damage in accordance with workplace procedures
	2.6	Faulty components are rechecked and fault status is confirmed
	2.7	Unexpected situations are resolved in accordance with workplace procedures, safety guidelines and with the approval of an authorised person/supervisor
	2.8	Fault-finding activities are completed without damage to apparatus, circuits, the surrounding environment and/or services using relevant sustainable energy practices in accordance with workplace procedures
3 Repair faults	**3.1**	Arrangements are made in accordance with workplace procedures for authorised person/s to rectify faults that are beyond the scope of refrigeration and air conditioning work
	3.2	Equipment is checked as being isolated, where necessary, in accordance with workplace procedures and WHS/OHS requirements
	3.3	Materials required are obtained in accordance with workplace procedures
	3.4	Repairs are completed without damage to other components or apparatus using sustainable energy principles in accordance with workplace procedures
	3.5	Effectiveness of repair work is tested in accordance with workplace procedures
	3.6	Air conditioning and refrigeration control system is reassembled, given a final test and prepared for return to service in accordance with workplace procedures
4 Complete and report fault-finding and rectification activities	**4.1**	Work area is cleaned and made safe in accordance with workplace procedures
	4.2	Report is completed 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.

Diagnosing and rectifying faults in air conditioning and refrigeration control systems must include at least the following:	• two refrigeration and/or air conditioning control system
	• four faults:
	  • open circuit
	  • short circuit
	  • incorrect connections
	  • insulation failure
	  • unsafe condition
	  • control apparatus/component failure
	  • related mechanical failure

Unit Mapping Information

This unit replaces and is equivalent to UEENEEJ170A Diagnose and rectify faults in air conditioning and refrigeration control systems.

Links

Companion Volume implementation guides are found in VETNet - - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6