



Australian Government

UEERA0092 Solve problems in low voltage refrigeration and air conditioning circuits

Release: 1

UEERA0092 Solve problems in low voltage refrigeration and air conditioning circuits

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 solve problems in low voltage (LV) refrigeration and air conditioning circuits, determine the correct operation of LV alternating current (a.c.) circuits, and provide solutions to refrigeration and air conditioning work functions.

Competency in this unit requires the ability to work safely; use voltage, current and resistance measuring devices; and provide solutions derived from measurements and calculations to predictable problems in single and multiple path circuits.

Individuals will typically work independently or as part of a refrigeration installation and repair team.

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) a.c. or 120 V 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

Elements describe the essential outcomes.

1 Prepare to work on LV refrigeration and air conditioning circuits

2 Solve problems in LV refrigeration and air conditioning circuits

3 Complete work and document activities

PERFORMANCE CRITERIA

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

1.1 WHS/OHS hazards, risk control methods, relevant standards, codes and legislation are obtained and applied

1.2 Work details are determined from documentation and/or supervisor to establish scope of work to be completed

1.3 Supervisor is consulted to ensure work is coordinated with others

1.4 Tools, equipment and testing devices required to locate faults are obtained in accordance with workplace procedures and checked for operational safety

2.1 Need to test or measure live electrical work is determined in accordance with workplace procedures and WHS/OHS requirements

2.2 Equipment is checked and isolated as required in accordance with workplace procedures and WHS/OHS requirements

2.3 Measured and calculated values are used to resolve circuit problems, as they apply to single and multiple path electrical circuits in accordance with workplace procedures

2.4 Repair work is carried out in accordance with equipment or manufacturer requirements and workplace procedures

2.5 Unexpected situations are resolved in accordance with workplace procedures, safety guidelines and with the approval of an authorised person/supervisor

2.6 Fault-finding and repair activities are resolved without damage to apparatus, circuits, the surrounding environment and/or services using relevant sustainable energy practices in accordance with workplace procedures

3.1 Worksite and equipment are cleaned and made safe in accordance with workplace procedures

- 3.2** Supervisor is notified of completion of work and relevant documentation 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.

Solving problems in LV refrigeration and air conditioning circuits must include at least the following:

- single source series and a.c. circuits
- single source parallel and a.c. circuits

Unit Mapping Information

This unit replaces and is equivalent to UEENEEJ194A Solve problems in low voltage refrigeration and air conditioning circuits.

Links

Companion Volume implementation guides are found in VETNet - -

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

Assessment Requirements for UEERA0092 Solve problems in low voltage refrigeration and air conditioning circuits

Modification History

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

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least two separate occasions and include:

- altering an existing circuit to comply with specified function and operating parameters
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including hazards and control measures
- completing work and documentation
- developing a circuit to comply with a specified function and operating parameters
- preparing to work on low voltage (LV) refrigeration and air conditioning circuits
- solving problems in single and multiple alternating current (a.c) circuits
- using meters/testers to check for continuity, insulation resistance and obtain resistance, voltage, current and capacitance values.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- circuit protection and isolation
- devices used for circuit protection and circuit isolation, including fuses, circuit breakers, residual current devices (RCDs) and over/under voltage
- factors affecting resistance
- impedance
- parallel circuits and calculating equivalent circuit resistance and current
- power
- relevant standards, codes of practice and regulations
- single phase a.c.
- three phase a.c.
- types of magnetic devices, including relays, contractors, solenoids, transformers and motors
- types of meters/testers suitable for measuring capacitance
- types of meters/testers suitable for measuring current flow

- types of meters/testers suitable for measuring insulation resistance
- types of meters/testers suitable for measuring resistance values and circuit conductivity
- types of meters/testers suitable for measuring voltage
- types, uses and safety considerations of capacitors used in the refrigeration and air conditioning industry
- types, uses, and construction of transformers.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

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.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation, including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - -

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