



**Australian Government**

# **UEERA0045 Find and rectify faults in three phase motors and associated controls**

**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 find and repair faults in motors and associated controls connected to three phase, 415 volts (V) supply, in refrigeration and air conditioning systems.

It includes working safely, using fault-finding procedures, conducting repairs to motor and associated control components, and completing 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 systems.

To undertake this unit, the learner must have a current 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 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, 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 refrigeration, air conditioning and 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 find and rectify faults in three phase motors and associated controls**

#### **2 Find and repair faults in three phase motors and associated controls**

### PERFORMANCE CRITERIA

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

- |            |   |
|------------|---|
| <b>1.1</b> | WHS/OHS hazards, risk control methods, relevant industry standards, codes of practice and legislation are obtained and applied in accordance with workplace procedures    |
| <b>1.2</b> | Work details are determined from documentation and/or supervisor to establish scope of work to be completed in accordance with workplace procedures                       |
| <b>1.3</b> | Supervisor is consulted to ensure work is coordinated with others in accordance with workplace procedures   |
| <b>1.4</b> | Tools, equipment and testing devices to locate faults are obtained and checked for operational safety in accordance with workplace procedures                             |
| <b>2.1</b> | Need to test and measure live work is determined in accordance with workplace procedures and WHS/OHS requirements   |
| <b>2.2</b> | Equipment is checked and isolated in accordance with workplace procedures, regulatory requirements and WHS/OHS requirements   |
| <b>2.3</b> | Fault finding, using measured and calculated values of circuit and/or motor parameters, is undertaken in accordance with workplace procedures and regulatory requirements |
| <b>2.4</b> | Repair work is carried out in accordance with manufacturer specifications and workplace procedures  |

- 2.5 Repair work is tested in accordance with workplace procedures
  - 2.6 Apparatus is reassembled, tested and prepared for return to service in accordance with workplace procedures and regulatory requirements
  - 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 and repair 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 Complete and report on fault-finding and repair of three phase motors and associated controls**
- 3.1 WHS/OHS work completion risk control measures and procedures are applied in accordance with workplace procedures
  - 3.2 Worksite and equipment are cleaned and made safe in accordance with workplace procedures
  - 3.3 Supervisor is notified of completion of work 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.

Fault finding and rectification of three phase motors and associated controls must include at least the following:

- two different refrigeration and/or air conditioning systems

Fault finding and rectification of three phase motors and associated controls must include at

- control circuit component failure
- incorrect phase connections

least of two of the following faults:

- motor bearing failure
- open-circuit winding
- short circuit, including insulation failure to frame
- shunted short, including insulation failure within winding

## Unit Mapping Information

No equivalent unit.

## Links

Companion Volume implementation guides are found in VETNet - -

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