



Australian Government

Assessment Requirements for UEERA0044

Find and rectify faults in single 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.

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:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including hazards and control measures
- disconnecting and reconnecting electrical supply to motors and associated controls
- finding and rectifying faults in single phase motors, related motor starting components and motor protection devices in refrigeration and air conditioning systems
- implementing relevant standards, codes of practice and regulations
- reporting/documenting fault-finding and repair activities.

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 diagrams for single phase motors
- relevant risk mitigation processes while finding and rectifying faults in motors and associated controls, including potential hazards, risk control methods and safe working practices
- relevant standards, codes of practice, regulations and manufacturer specifications
- single phase motor speed control in refrigeration and air conditioning systems, including:
 - inverters - variable speed control (VSC)/variable frequency control (VFC)
 - number of poles
- types and applications of single phase motor starting relays and protection devices used in refrigeration and air conditioning systems, including:
 - current coil relays
 - positive temperature coefficient (PTC) or solid state
 - potential coil relays
 - soft starters
 - thermal disc (Klixon) overloads
- types and applications of single phase motors used in refrigeration and air conditioning

- systems, including:
 - capacitor start capacitor run (CSCR)
 - capacitor start induction run (CSIR)
 - electronic commutator (EC)
 - permanent split capacitor (PSC)
 - resistance start induction run (RSIR)
 - shaded pole
- typical faults in single phase motors and associated controls for refrigeration and air conditioning systems, including:
 - control circuit component failure
 - incorrect wiring connections
 - motor bearing failure
 - open-circuit winding
 - short circuit, including insulation failure to frame
 - shunted short, including insulation failure within winding.

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>