



Australian Government

UEEEL0044 Diagnose and rectify faults in complex lift systems

Release: 2

UEEEL0044 Diagnose and rectify faults in complex lift systems

Modification History

Release 2. Minor Change. Typographic error in prerequisites corrected.

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 in a lift system.

It includes diagnosing and rectifying faults in complex lift system and equipment, and completing reporting and rectification activities.

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, a relevant contract of training, such as an Australian Apprenticeship, may be 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

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0020 Fix and secure electrotechnology equipment

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEEEL0003 Arrange circuits, control and protection for general electrical installations

UEEEL0020 Solve problems in low voltage a.c. circuits

UEEEL0023 Terminate cables, cords and accessories for low voltage circuits

UEEEL0045 Diagnose and rectify faults in traction lift systems

UEEIC0020 Fault find and repair analogue circuits and components in electronic control systems

UEEIC0018 Diagnose and rectify faults in digital controls systems

UEEEL0019 Solve problems in direct current (d.c.) machines

UEEEL0021 Solve problems in electromagnetic devices

UEEEL0014 Isolate, test and troubleshoot low voltage electrical circuits

UEEEL0008 Evaluate and modify low voltage heating equipment and controls

UEEEL0009 Evaluate and modify low voltage lighting circuits, equipment, and controls

UEEEL0010 Evaluate and modify low voltage socket outlets circuits

UEEEL0024 Test and connect alternating current (a.c.) rotating machines

UEEEL0025 Test and connect transformers

and

UEECD0043 Solve problems in direct current circuits

or

UEECD0046 Solve problems in single path circuits

UEECD0044 Solve problems in multiple path circuits

Competency Field

Electrical

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to diagnose a lift system fault

PERFORMANCE CRITERIA

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

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|------------|---|
| 1.1 | WHS/OHS workplace procedures for a given work area are identified and applied |
| 1.2 | Scope of work to be undertaken is determined from maintenance procedures, fault/breakdown reports and/or discussions with appropriate person/s |
| 1.3 | Advice is sought from the work supervisor to ensure the work is coordinated effectively with relevant others |
| 1.4 | Tools, equipment and testing devices needed to carry out the work are obtained in accordance with workplace procedures and checked for correct operation and safety |

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|--|---|
| 2 Diagnose and rectify lift system faults | <div style="margin-left: 20px;"><p>2.1 WHS/OHS risk control measures and workplace procedures for carrying out work activities are followed</p><p>2.2 Circuits/machines/plant are isolated in accordance with relevant industry standards and workplace procedures</p><p>2.3 Safety hazards resulting from the fault and/or breakdown are documented and risk control measures implemented in consultation with appropriate person/s</p><p>2.4 Diagnostics are applied to apparatus, equipment and systems to identify fault/s</p><p>2.5 Suspected fault scenarios are tested as cause/s of system fault</p><p>2.6 Cause of the fault is identified and appropriate person/s engaged to rectify the fault</p><p>2.7 Faults in the lift components of the system are rectified in accordance with apparatus and system industry operational standards</p><p>2.8 Apparatus, equipment and system/s are verified and tested to meet required industry standards</p><p>2.9 Unplanned situations are responded to in accordance with workplace procedures in a manner that minimises risk to personnel and equipment</p><p>2.10 Diagnosis and rectification activities are carried out efficiently without waste of materials or damage to apparatus, the environment or services using sustainable energy practices</p></div> |
| 3 Complete work and report fault diagnosis and rectification activities | <div style="margin-left: 20px;"><p>3.1 Reusable, faulty or worn components are tagged and despatched for repair in accordance with workplace procedures</p><p>3.2 Rectification of faults is documented in accordance with workplace procedures</p><p>3.3 Rectification of faults is reported and appropriate person/s notified in accordance with workplace procedures</p></div> |

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.

Unit Mapping Information

This unit replaces and is equivalent to UEENEEG168A Diagnose and rectify faults in complex lift systems.

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 UEEEL0044 Diagnose and rectify faults in complex lift systems

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- releasing passengers from a lift which has become immobilised
- diagnosing and repairing faults in lift circuits and associated components for at least three types of lift circuits/components, including:
 - governors
 - brakes
 - safety gear
 - safety devices
 - lift machines
 - door components
 - controllers
- replacing and/or adjusting lift equipment in at least three types of lift equipment as described below:
 - electro-hydraulic lift
 - electric traction lift
 - passenger lift
 - goods lift
- dealing with unplanned events
- applying relevant industry standards
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including using risk control measures
- diagnosing and rectifying faults, including:
 - inspecting, testing and measuring live electrical work
 - obtaining and checking tools, equipment, resources and testing devices
 - using diagnostic methods
- following workplace procedures and instructions
- reporting fault diagnosis and rectification activities, including:
 - completing documentation.

Knowledge Evidence

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

- lift components and systems - electrical/electronic, including:
 - traction lifts encompassing:
 - lift control circuits (relay logic only): floor selector circuitry
 - machine room control (selector) and well control (transducer) circuitry - direction slowing and stopping, re-levelling, door operator, acceleration, button, indicator/lantern, lights and emergency lights, travelling cables, key switch circuits, fans, main supply and power circuits
 - safety circuits encompassing:
 - type, operation and actuation
 - landing door locks, car door locks, emergency stop, pit switch, car trap-door switch, fire service, car top switch, tappet switch, governor switch, and safety gear switch, reverse phase relay, phase failure relay and limit switches
 - maintenance, replacement and adjustment encompassing:
 - electrical and electronic lift components - travelling cables, tachometers, selectors, encoders and transducers
 - safety devices: overloads, circuit breakers, limit switches, terminal stopping, door protection, governors and safety gear/switches
 - electrical layout/drawings and special requirements encompassing:
 - lift code and AS/NZS 3000 Electrical installations (known as the Australian/New Zealand Wiring Rules) requirements
 - specific lift symbols
 - conduits
 - trailing cable
 - troughing
 - colour coding and labelling
 - segregation low voltage (LV)/extra-low voltage (ELV)
 - telephone and communication cabling
 - regulatory requirements and door lock wiring
 - safety drive adjustment encompassing:
 - emergency stop button
 - speed governor
 - reverse phase protection
 - broken chain/step switch
 - broken main drive switch
 - drive access switch
 - start pressure switch and landing guards/barriers

- lift components – electronic encompassing:
 - encoders
 - transducers
 - electronic boards
 - selectors
 - rectifiers
 - capacitors
 - resistors
 - processor board
 - input/output (I/O) board
- drives - types, construction and operation encompassing:
 - traction
 - gearless types:
 - speed/load characteristics, efficiency, application, brakes and electric prime mover (motor types and control)
 - geared types:
 - speed/load characteristics, efficiency, application, brakes and electric prime mover (motor types and control)
 - other types of lifts (drum, rack and pinion, chain and screw)
- fault finding encompassing:
 - visual inspection
 - performance checks and application of fault-finding principles
- relevant diagnostic methods
- relevant fault scenarios
- relevant industry standards
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications and operating instructions for tools and equipment
- relevant rectification activities and procedures
- relevant tools, equipment and testing devices
- relevant WHS/OHS legislated requirements
- relevant workplace documentation, including fault reports, test results, authorisations, permits, parts/components, despatch and store records
- relevant workplace policies, procedures and instructions.

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 suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated suitable 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 simulations
- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals.

Links

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