



Australian Government

Assessment Requirements for UEEEL0045

Diagnose and rectify faults in traction lift systems

Release: 2

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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.

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 sustainable energy principles and practices
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including using risk control measures
- completing and reporting fault diagnosis and rectification activities
- dealing with unplanned events in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- diagnosing and rectifying faults in traction lift systems, including:
 - brakes
 - door components
 - governors
 - lift machines
 - safety devices
 - safety gear
- preparing to diagnose and rectify faults.

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:

- brake types, function, operation, inspection and adjustment, circuitry and manual release, including:
 - brake circuitry
 - electrical operations, including stall motor, solenoid and hydraulic
 - geared machine brakes
 - gearless machine brakes

- inspection and adjustment of mechanical and electrical brakes
- internal and external mechanical brakes
- manual release devices and safety procedures
- communication at site
- electro-hydraulic lifts circuitry, controls and components, including:
 - electrical circuitry
 - faulty components diagnosis
 - governor switch
 - hydraulic circuitry
 - hydraulic components
 - levelling switch
 - over travel limits
 - pump motor and starter
 - servicing
 - stop button
 - up, down limit switches
 - up, down solenoids
- electro-hydraulic lifts - mechanical operation – fluid power principles and components, operation, arrangements, lift code and other requirements and emergency passenger release, including:
 - bleeding lines
 - control of hydraulic pressure
 - directional flow including pressure gauge
 - filters
 - fluids
 - general operation
 - hydraulics
 - oil cooler
 - oil reservoir
 - Pascal's Law
 - pump
 - ram/cylinders, including single and multi-stage
 - safety considerations of fluids under pressure
 - seals
 - solenoid valves
 - types of arrangements, including side acting, direct and suspended
- electric lifts – mechanics, including:
 - governor operation testing and rope tension testing
 - governor types, including vertical shaft, overspeed devices and horizontal shaft
 - governors

- release procedures for each type of safety gear/governor combination
- safety gear types: A instantaneous, B flexible guide clamp, C wedge clamp and D oil buffer
- emergency release procedures - trapped passengers – WHS/OHS considerations and communication with passengers, including:
 - determining numbers and condition of passengers
 - direction of lift travel before stopping
 - emergency medical support
 - fault indication
 - hand winding
 - information related to impending movement and opening of doors
 - moving under power
 - passenger safety
 - reassurance as to safety of passengers
 - status of doors
 - warnings about standing near doors and using controls
- escalators and moving walks components, including:
 - balustrade lighting
 - controller
 - drive chain
 - handrail
 - handrail earthing
 - machine brakes
 - rollers and tension carriage
 - safety devices
 - step/pallet chains
 - steps/pallets/belts
 - track systems
 - truss
- geared types including rack and pinion and chain, including:
 - application
 - brakes
 - drum
 - efficiency
 - electric prime mover (motor types and control)
 - speed/load characteristics
- lift car, including:
 - access
 - buttons and indicators
 - communication devices

- door operator
- frame
- safety gear
- superstructure
- travelling cable
- lift components - electro-mechanical employing relay logic components, including:
 - acceleration circuits
 - button circuit
 - directional circuitry
 - door operator circuitry
 - fans
 - floor selector circuitry
 - indicator/lantern circuit
 - key switch circuits
 - mains supply
 - motor room control (selector)
 - power circuits
 - re-levelling circuitry
 - slowing and stopping circuitry
 - well control (transducer)
- lift components - electro-mechanical safety circuits, including:
 - car door locks
 - car top switch
 - car trap-door limit switch
 - circuit switches are all highlighted
 - emergency stop
 - fire service
 - landing door locks
 - pit switch
 - safety gear switch
 - tappet switch
 - terminal stopping
- lift components – electrical, including:
 - brushes
 - fuses
 - lamps
 - limit switches
 - motor/generator
 - relays: reverse phase and phase failure

- selectors
- tachos
- terminals
- transformers
- lift components - electronic, including:
 - capacitors
 - electronic boards
 - encoders
 - input/output (I/O) board
 - processor board
 - rectifiers
 - resistors
 - selectors
 - transducers
- lift control circuits using relay logic, including:
 - acceleration, button, indicator/lantern, key switch and power circuits
 - directional, door operator, floor selector, re-levelling and slowing and stopping circuitry
 - fans
 - mains supply
 - motor room control (selector)
 - well control (transducer)
- lift electrical layout and special requirements, including:
 - colour coding and labelling
 - communication cabling
 - conduits
 - segregation low voltage (LV)/extra-low voltage (ELV)
 - special lift symbols
 - travelling cable
 - troughing
- lift machine room, including:
 - access
 - controller
 - floor selector
 - governor
 - machine
- lift pit, including:
 - access
 - buffers
 - compensators

- safety equipment
- lift safety circuits, including:
 - car door locks
 - car top switch
 - car trap-door limit switch
 - circuit breakers
 - circuit switches
 - door protection
 - emergency stop
 - fire service
 - governor/switch
 - landing door locks
 - limit switches
 - overloads
 - phase failure relay
 - pit switch
 - reverse phase relay
 - safety gear switch
 - tappet switch
 - terminal stopping
- lift systems - drive types, construction and operation of passenger, goods and service lifts, including:
 - drive constructions
 - drive types
 - emergency procedures
 - goods
 - passenger
 - drive operations
 - service
 - single and team manual handling
- lift well equipment, including:
 - counterweights
 - guide rails
 - landing doors and locks
 - limit switches/operating devices
 - ropes
 - roping systems
- maintenance, replacement and adjustment of mechanical lift components, including:
 - air cords
 - bearings: roller, sleeve, guide shoes and slipper

- car doors
- door guides
- landing doors
- selectors
- tapes/chains
- traction, including:
 - application
 - brakes
 - efficiency
 - electric prime mover (motor types and control)
 - speed/load characteristics
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures
- sustainable energy principles and practices
- relevant technical industry standards, regulations, statutory requirements and codes for lifts systems.

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 suitable 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, equipment specifications, regulations, relevant industry standards, 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>