



Australian Government

UETDRRT002 Install overhead traction components and equipment

Release: 1

UETDRRT002 Install overhead traction components and equipment

Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission, Distribution and Rail Sector Training Package Release 2.0.

Application

This unit involves the skills and knowledge required to install overhead traction components and equipment in the electricity supply industry (ESI).

It includes installing hardware whilst undertaking safe working practices on or about the running line/track, identifying and confirming road/rail management plans and electrical permits.

It also includes inspecting and checking to confirm equipment, components and hardware have been correctly installed in accordance with design, ensuring traction system is fit for service and updating installation data and relevant quality assurance documentation.

The application of the skills and knowledge described in this unit may require a licence/registration to practice in the workplace.

Other conditions may also apply under state and territory legislative and regulatory licensing requirements which must be confirmed prior to commencing this unit.

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

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

UEEEL0020 Solve problems in low voltage a.c. circuits

UEEEL0021 Solve problems in magnetic and electromagnetic devices

UETDREL001 Apply environmental requirements

UETDREL004 Operate plant and equipment in the vicinity of live electrical apparatus

UETDREL005 Work safely in the vicinity of live electrical apparatus

UETDRIS007 Install and maintain distribution overhead conductors and cables

UETDRIS012 Install and maintain poles, structures and hardware

Competency Field

Rail Traction

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

1 Prepare for installation of overhead traction equipment or components

- 1.1** Legislation, regulations, standards, codes of practice and organisational workplace requirements for the work to be performed are referred to and confirmed
- 1.2** Required design standards and construction plans are obtained
- 1.3** Plant, tools, equipment, components and personal protective equipment (PPE) required for work are determined, obtained and confirmed in working order
- 1.4** Hazards are identified, risks assessed and control measures identified and applied
- 1.5** Work is prioritised and sequenced for completion in accordance with workplace requirements
- 1.6** Work permits are organised in accordance with workplace requirements
- 1.7** Worksite, road or rail management plan is prepared in accordance with workplace requirements
- 1.8** Environmental constraints applicable to the work are identified and control measures applied

2 Perform installation of overhead traction equipment or components

- 2.1** Legislation, regulations, standards, codes of practice and organisational workplace requirements for the work to be performed are applied and monitored
- 2.2** Lifting, working at heights and the use of plant, tools, equipment and PPE are carried out in accordance with

workplace requirements

- 2.3 Hazard control measures are monitored in accordance with workplace requirements
- 2.4 Work permits are instructed and issued and where appropriate signed in accordance with workplace requirements
- 2.5 Worksite, road or rail management plan is established in accordance with workplace requirements
- 2.6 Electrical components or equipment and associated hardware are positioned, secured and terminated or connected in accordance with job and workplace requirements
- 2.7 Overhead traction equipment or components are installed within agreed timeframes, to design standards in accordance with job and workplace requirements
- 2.8 Incidents or unplanned events are responded to in accordance with workplace requirements
- 2.9 Quality checks of work are undertaken, and anomalies recorded and adjusted in accordance with workplace requirements

3 Complete work and documentation

- 3.1 Completed work is checked against design standards, construction plans and drawings for compliance and anomalies reported in accordance with workplace requirements
- 3.2 Incidents or unplanned events are reported in accordance with workplace requirements
- 3.3 Worksite is rehabilitated, cleaned and made safe in accordance with workplace requirements
- 3.4 Plant, tools and equipment are cleaned, checked, and returned to storage in accordance with workplace requirements
- 3.5 Surplus materials are returned to storage or disposed of in accordance with workplace requirements
- 3.6 Work permits are completed and overhead traction equipment or components are fit for service in accordance with workplace requirements

- 3.7** Work records, reports and documentation are completed in accordance with workplace requirements

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 UET Transmission, Distribution and Rail Sector Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UETDRRT27 Install overhead traction components and equipment.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=229bace1-b7bc-4653-9300-dffb13ecfad7>

Assessment Requirements for UETDRRT002 Install overhead traction components and equipment

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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 two separate occasions and include:

- applying relevant legislation, regulations, standards, codes of practice and organisational workplace requirements, including:
 - work health and safety (WHS)/occupational health and safety (OHS)
- identifying hazards, assessing risks, identifying, applying and monitoring control measures
- obtaining, inspecting and using relevant personal protective equipment (PPE)
- installing at least two (2) of the following types of equipment:
 - fuse switches
 - dropout fuses
 - section insulators
 - neutral sections
 - switches/isolators
 - links
 - fuses
 - surge diverters
 - transformers
- installing at least five (5) of the following types of components:
 - cantilever hardware
 - insulators
 - head span
 - pull-offs
 - push-offs
 - registration fittings
 - steady span
 - tension regulators
 - cross spans
 - tramway support network
 - pendulum

- rigid rail conductor
- installing at least two (2) of the following types of fittings:
 - preformed fittings
 - compression fittings
 - wedge fittings
 - bolted splices
 - fork collar sockets
 - conical splices
- installing at least three (3) of the following types of connecting components:
 - feeders (drops, cross track)
 - dissimilar conductors
 - lugs
 - bolted clamp
 - drapes/potential jumper
 - droppers
- using at least two (2) of the following required for installing overhead traction components and equipment:
 - voltage detectors
 - micrometer/gauge
 - tension wrench
 - dynamometer
 - specialised tools
- dealing with an unplanned event on at least one (1) occasion
- completing relevant work records, reports and 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:

- relevant legislation, regulations standards, codes of practice and organisational workplace requirements, including:
 - WHS/OHS
- hazard, risk assessment and risk control requirements, including potential hazards
- types and application of PPE
- safe use of plant, tools and equipment
- application, purpose and types of permits
- types and purpose of overhead traction equipment, including:
 - switches/isolators
 - fuse switches
 - dropout fuses

- links
- section insulators
- neutral sections
- surge diverters
- transformers
- fuses
- types and purpose of overhead components, including:
 - cantilever hardware
 - droppers
 - span or bay components
 - portal hardware
 - head span hardware
 - section insulators
 - neutral sections
 - registration fittings
 - steady span
 - tension regulators
 - cross spans
 - low clearance components
- types of conductors used for overhead wiring, including:
 - copper hard-drawn
 - copper cadmium
 - copper tin-bearing
 - aluminium
 - steel
 - other alloyed conductors
 - rigid rail conductor
- types of traction wire support structures, including:
 - portals
 - cantilevers
 - twin track cantilevers
 - drop vertical
 - head spans
 - cross spans
 - pull-offs
 - push-offs
- types and purpose of ancillary equipment, including:
 - surge arresters
 - booster

- auxiliary transformers
- methods for installing conductors, including:
 - preformed fittings
 - compression fittings
 - wedged fittings
 - bolted splices
 - lugs
 - bolted clamps
 - fork collar sockets
 - conical splices
- methods for installing components, including:
 - feeders (drops, cross track)
 - droppers
 - dissimilar conductors
 - jumpers
 - surge arresters
- use of plant and equipment for installation work, including:
 - elevated work platforms (EWP)
 - ladders
 - works trains
 - rail-mounted overhead wiring equipment/vehicles
 - road/rail height access machinery/vehicles
 - voltage detectors
 - micrometer/gauges
 - tension wrenches
 - dynamometers
 - other specialised tools
- events constituting an unplanned event or incident
- procedures for responding to an unplanned event or incident.

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 conditions involving realistic and authentic activities that replicate operational 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:

- relevant and appropriate materials, tools, facilities, plant, equipment and PPE currently used in industry for installing overhead traction components and equipment
- applicable documentation, including workplace requirements, relevant design standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

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