



Australian Government

UETTD RRT27 Install overhead traction components and equipment

Release: 1

UETTDRT27 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.

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 associated hardware whilst undertaking safe working practices on or about the running line/track, isolating systems and circuits, identifying and implementing road/rail management plans and issuing/accepting electrical permits.

It also includes inspecting and checking to confirm equipment, components and associated hardware have been correctly installed in accordance with design and are in a safe condition to test prior to putting into service, undertaking pre-commissioning tests to ensure integrity of traction system prior to putting back into 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 apply under state and territory legislative and regulatory licensing requirements which must be confirmed prior to commencing this unit.

Pre-requisite Unit

Common Unit Group

UEENEEE101A Apply Occupational Health and Safety regulations, codes and practices in the workplace

UEENEEE102A Fabricate, assemble and dismantle utilities industry components

UEENEEE104A Solve problems in d.c. circuits

UEENEEE105A Fix and secure electrotechnology equipment

UEENEEE107A Use drawings, diagrams, schedules, standards, codes and specifications

UEENEEG101A Solve problems in electromagnetic devices and related circuits

UEENEEG102A Solve problems in low voltage a.c. circuits

UETTDREL11 Apply sustainable energy and environmental procedures

UETTDREL12 Operate plant and equipment near live electrical conductors and apparatus

UETTDREL16 Working safely near live electrical apparatus

UETTDRI52 Install and maintain poles, structures and associated hardware

UETTDRI54 Install and maintain poles, structures and overhead conductors and cables

Competency Field

Rail Traction

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for installation of overhead traction equipment/components

PERFORMANCE CRITERIA

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

- 1.1** Work schedules, construction plans, drawings, workplace procedures and material lists are received and confirmed
- 1.2** Job requirements and workplace procedures are identified and communicated with relevant personnel
- 1.3** Work health and safety (WHS)/occupational health and safety (OHS), environmental and workplace procedures for the installation of overhead traction equipment/components are obtained and confirmed for the purposes of the work to be performed
- 1.4** Work is prioritised and sequenced for completion within acceptable timeframes following consultation with relevant personnel and in accordance with workplace procedures
- 1.5** Hazards are identified, WHS/OHS risks assessed and control measures identified in accordance with workplace procedures
- 1.6** Relevant work permits are obtained to access rail corridor, understood and signed in accordance with workplace procedures

- 1.7 Equipment, tools and personal protective equipment (PPE) required for work are identified, obtained and confirmed in working order
 - 1.8 Worksite is prepared to minimise risk, damage to property, commerce and individuals in accordance with track protection officer and/or network control officer and workplace procedures
 - 1.9 Road/rail management plan is identified and implemented in accordance with workplace procedures
 - 1.10 Environmental constraints applicable to work are identified and control measures applied
- 2 **Perform installation of overhead traction equipment/components**
 - 2.1 WHS/OHS, sustainable energy and environmental principles and practices are monitored and followed to reduce incidents in accordance with workplace procedures
 - 2.2 Requirements for lifting and/or climbing and/or working at heights and the use of power tools/equipment are followed in accordance with workplace procedures
 - 2.3 Systems and circuits are checked, isolated and proved safe to work on in accordance with workplace procedures
 - 2.4 Installation of overhead traction equipment/components are completed in agreed timeframes, to quality standards and with minimum of waste in accordance with job requirements and workplace procedures
 - 2.5 Electrical components/equipment and associated hardware are positioned, secured and terminated/connected in accordance with job requirements and workplace procedures
 - 2.6 Unplanned events are responded to in accordance with workplace procedures
 - 2.7 Quality checks of work are undertaken in accordance with workplace procedures
- 3 **Complete installation of overhead traction equipment/components**
 - 3.1 Completed work is checked against work schedule, construction plans and drawings for compliance and anomalies are reported in accordance with workplace procedures

- 3.2 Worksite is rehabilitated, cleaned up and made safe in accordance with workplace procedures
- 3.3 Tools, equipment and surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with workplace procedures
- 3.4 Relevant work permits are signed off and overhead traction equipment/components are commissioned in accordance with workplace procedures
- 3.5 Work records, reports and/or documentation are completed 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 Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UETTDRT27A Install overhead traction components and equipment.

Links

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

Assessment Requirements for UETTDRT27 Install overhead traction components and equipment

Modification History

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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 work health and safety (WHS)/occupational health and safety (OHS) requirements, including the use of risk control measures
- applying sustainable energy principles and practices
- using at least two (2) of the following types of equipment:
 - fuse switches
 - dropout fuses
 - section insulators
 - switches/isolators
 - links
 - fuses
 - surge diverters
 - transformers
- using at least five (5) of the following types of components:
 - cantilever hardware
 - head span
 - neutral sections
 - pull offs
 - registration fittings
 - steady span
 - tension regulators
 - cross spans
 - tramway support network
 - pendulum
- using at least two (2) of the following types of fittings:
 - preformed fittings
 - compression fittings
 - wedge fittings

- bolted splices
- using at least three (3) of the following types of connecting components:
 - feeders
 - dissimilar conductors
 - lugs
 - bolted clamp
 - drapes/potential jumper
 - droppers
- obtaining equipment, tools and personal protective equipment (PPE) required for installing overhead traction components and equipment that includes at least two (2) of the following types of tools and equipment:
 - voltage detectors
 - micrometer/gauge
 - tension wrench
 - dynamometer
 - specialised tools
- dealing with unplanned events on at least one (1) occasion.

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:

- types and purpose of overhead traction equipment, including:
 - switches/isolators, fuse switches, links, section insulators, and fuses
- types and purpose of overhead components, including:
 - cantilever hardware, droppers, bay components, portal hardware, head span hardware, section insulators, neutral sections, registration fittings, steady span, tension regulators and cross spans
- types of conductors used for overheads wiring, such as hard-drawn; cadmium copper (CAD); and tin-bearing copper, aluminium, steel and other alloyed conductors
- types of traction wire support structures that may consist of portals, cantilevers, drop pieces, head spans, cross spans and pull-offs
- types and purpose of ancillary equipment including:
 - surge arresters, booster and auxiliary transformers
- methods for installing conductors, such as:
 - preformed fittings
 - compression fittings
 - wedged fittings
 - bolted splices
 - lugs
 - bolted clamps

- methods for installing components, such as:
 - feeders
 - droppers
 - dissimilar conductors
 - jumpers
 - surge arresters
- use of plant and equipment for installation work, such as:
 - 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.

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:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, facilities, equipment and PPE currently used in industry for installing overhead traction components and equipment
- applicable documentation, including workplace procedures, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

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