



Australian Government

Assessment Requirements for UETTD RRT36 Maintain traction network wiring systems

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission, Distribution and Rail Sector 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 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
- maintaining associated conductor equipment including at least four (4) of the following:
 - support structure
 - span
 - section insulator
 - neutral section
 - midpoint anchor
 - support equipment
 - tension regulators
 - stay/guy wire
 - tramway support network
- maintaining conductor and support wires including at least two (2) of the following:
 - catenary
 - dropper
 - contact/trolley*
 - feeder
 - earth conductor
 - drape/potential jumper
 - (*must do)
- performing work from at least one (1) of the following:
 - elevated work platform (EWP)
 - ladder
 - mobile platform
- using tools and equipment including at least two (2) of the following:

- tensioning equipment*
- specialised tools
- ropes
- geometry profiling equipment
- (*must do)
- 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:

- standards, codes, legislation, supply authority regulations and/or enterprise requirements applicable to the electrical traction
- electrical traction voltage and current circuit paths encompassing:
 - transmission distribution voltages
 - traction supply system and voltages
 - return and stay current paths, including electrolysis
- relationship of sectioning, section insulator and overlaps/air gaps in a traction power system
- traction power system components encompassing:
 - function of transformer/rectifiers
 - configuration and purpose of traction overhead wiring systems
 - function of isolators/switches
 - function of the circuit breaker
 - reliability and security of traction supply
- traction power system electrical protection encompassing:
 - load protection
 - surge protection
 - fault protection
 - electrolytic protection
- impact of electromagnetic forces encompassing:
 - telephone interference
 - effects of television/radio interference
- insulation methods in a traction power system encompassing:
 - types of electrical insulation
 - insulation coordination
 - reason for electrical clearances
- bonding systems - structure bonds, traction bonds/bonding cables and impedance bonds
- ancillary conductors - feeder wires, current return path and other ancillary conductors
- relationship of current and potential drapers/jumpers to the traction power system
- methods to achieving smooth current collector transitions and interfaces

- dynamic and static forces encompassing:
 - types that effect traction systems
 - effects on effective registration
 - techniques to minimise the adverse effects
- overhead traction equipment encompassing:
 - types - switches/isolators, fuse switches, links, section insulators and fuses
 - purpose
- types of overhead traction components encompassing:
 - types - cantilever hardware, droppers, bay components, portal hardware, head span hardware, section insulators, neutral sections, registration fittings, steady span, tension regulators and cross spans
 - purposes
- types of conductors used for overhead wiring encompassing:
 - hard-drawn; computer-aided drafting (CAD); and tin-bearing copper, aluminium, steel and other alloyed conductors
- types of traction wire support structures encompassing:
 - portals, cantilevers, drop pieces, head spans, cross spans and pull-offs
- ancillary equipment encompassing:
 - types - surge arresters, booster and auxiliary transformers
 - purpose
- methods for replacing conductors encompassing:
 - preformed fittings
 - compression fittings
 - wedged fittings
 - bolted splices
 - lugs
 - bolted clamps
- methods for replacing components encompassing:
 - feeders
 - droppers
 - dissimilar conductors
 - jumpers
 - surge arresters
- use of plant and equipment for maintenance work encompassing:
 - 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, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

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>