



Australian Government

UETDRRT014 Test and verify rail traction installations

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 Release 2.0.

Application

This unit involves the skills and knowledge required to test and verify rail traction installations in the electricity supply industry (ESI).

It includes inspecting, testing and verifying rail traction installations are safe and comply with design and maintenance standards. It also includes working safely, reporting defects and non-compliances in accordance with workplace requirements.

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 requirement 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

UETDRRT001 Install overhead rail traction configurations

UETDRRT002 Install overhead traction components and equipment

UETDRRT003 Install rail traction bonds

UETDRRT004 Install traction overhead wiring systems

UETDRRT008 Maintain overhead rail traction configurations

UETDRRT009 Maintain overhead traction components and equipment

UETDRRT010 Maintain rail traction bonds

UETDRRT011 Maintain traction overhead wiring systems

UETDRRT012 Operate rail road height access plant near rail traction systems

Competency Field

Rail Traction

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to inspect, test and verify rail traction installations

PERFORMANCE CRITERIA

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

- 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 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** Specialist test and measurement equipment for testing and verification of rail traction installations are obtained and confirmed in working order in accordance with

		workplace requirements
	1.8	Worksite, road or rail management plan is prepared in accordance with workplace requirements
2 Carry out inspection, test and verification of rail traction installations	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	Rail traction installations, conductors, hardware and components are inspected, secured and connected in accordance with design standards and workplace requirements
	2.7	Rail traction installations are tested to verify fit for service
	2.8	Rail traction bonding for the installation is inspected and compliance verified in accordance with design standards and workplace requirements
	2.9	Incidents or unplanned events are responded to in accordance with workplace requirements
3 Report inspection and test results	3.1	Incidents or unplanned events are reported in accordance with workplace requirements
	3.2	Worksite is rehabilitated, cleaned and made safe in accordance with workplace requirements
	3.3	Non-compliance defects are identified, corrected and/or reported in accordance with workplace requirements
	3.4	Recommendations for rectifying defects are made in accordance with workplace requirements

- 3.5 Plant, tools and equipment are cleaned, checked and returned to storage in accordance with workplace requirements
- 3.7 Work permits are completed and rail traction installation is fit for service in accordance with workplace requirements
- 3.8 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 UETDRRT99 Test and verify rail traction installations.

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 UETDRRT014 Test and verify rail traction installations

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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:

- 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)
- inspecting rail traction installations for compliance to design standards using at least one (1) of the following types of inspection equipment:
 - infra-red camera
 - camera
 - binoculars
 - drone
 - laser measuring equipment
 - portable pantograph
 - laser gauge
- testing and verifying against design standards to rectify non-compliances on at least three (3) of the following components and hardware:
 - insulators
 - clamps
 - conductor spacers/knuckles
 - structural components
 - auto tensioning devices
 - switches
- testing and verifying against design standards to rectify non-compliances on at least one (1) of the following types of rail traction conductors:
 - copper
 - aluminium
 - steel
 - aluminium/steel reinforced

- rigid rail
- testing and verifying the rail traction bonding against design standards
- working safely aloft using at least one (1) of the following types of mobile plant and height equipment:
 - elevated work platform (EWP)
 - portable platform
 - ladder
- using the following types of testing and earth/bond equipment:
 - volt metre alternating current (a.c.) or direct current (d.c.)
 - earthing conductors/short circuiting conductor
 - insulation resistance tester
- recording test results in accordance with workplace requirements
- 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
- requirements for testing rail traction installation for maintenance and construction for safe operational use, including:
 - test results that show a rail traction installation is safe for connection to the supply
 - periodic inspection results and tests that show construction site wiring and equipment is safe to use
 - periodic inspection results and tests that show the rail traction installations electrical equipment are safe to use
- testing techniques, including:
 - rail traction system phasing, phase rotation, polarity and network standards
 - electrical rail traction network voltage levels as per network supply standards
 - potential rail traction network for neutral conductors
 - insulation resistance
 - earthing system/rail traction cables and components
- testing and verifying procedures for rail traction installations, including:
 - testing and recording defects

- verifying against design standards
- electrical compliance
- documentation of testing of quality assurance
- energised tests and commissioning, as required, to verify rail traction installations
- 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, equipment and PPE currently used in industry for testing and verifying rail traction installations
- applicable documentation, including workplace requirements, relevant design and maintenance standards, regulations, codes of practice and operation manuals.

Links

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