



Australian Government

UEERS0017 Repair rail signalling power and control cables

Release: 1

UEERS0017 Repair rail signalling power and control cables

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to repair of signalling power cables and multi-core signalling control cables up to 50 cores.

It includes following workplace procedures, selecting and using appropriate cable joining methods, testing continuity and insulation resistance of repaired cable cores, and reporting repair activities.

Persons achieving competence in this unit will need to fulfil the applicable state/territory legislated rail safety requirements and to comply with relevant codes of practice, rules and/or guidelines.

No other licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

UEERS0001 Assemble and wire internal electrical rail signalling equipment

Competency Field

Rail Signalling

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to repair rail signalling cables

PERFORMANCE CRITERIA

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

1.1 Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures

for work area are identified, obtained and applied

- 1.2** Hazards are identified, risks assessed, and control measures and workplace procedures implemented
- 1.3** Safety hazards that have not previously been identified are noted on the job safety assessments and existing risk control measures implemented
- 1.4** Access times and safe work methods are confirmed to comply with customer requirements and relevant rail safety legislation
- 1.5** Appropriate person/s is consulted to ensure work is coordinated effectively with others on the worksite
- 1.6** Extent and nature of the fault or damage to the rail signalling cable is confirmed with appropriate person/s in accordance with workplace procedures
- 1.7** Cable joining kit is obtained in accordance with workplace procedures and components checked with manufacturer specifications
- 1.8** Cable diagrams necessary to effect repairs are obtained, read and interpreted
- 1.9** Tools and cable testing devices for cable repair are obtained in accordance with workplace procedures and checked for correct operation and safety

2 Repair damaged rail signalling cables

- 2.1** Work area is made safe, damaged rail signalling cable is isolated for repair and WHS/OHS risk control measures and workplace procedures for carrying out the repair/s are followed
- 2.2** Corresponding ends of broken cable core are identified by core marking and confirmed by continuity test in accordance with workplace procedures
- 2.3** Cable joining kit is used to repair damaged cable following manufacturer specifications and workplace procedures
- 2.4** Repair to damaged cable is tested for cable core continuity insulation between cable cores and cores to earth in accordance with workplace procedures
- 2.5** Cause of failed cable test is located and rectified in

		accordance with workplace procedures
	2.6	Existing work methods for dealing with unplanned situations are dealt with safely in a manner that minimises risk to personnel and equipment and with the approval of an authorised person/s
	2.7	Cable repair is completed without waste of materials or damage to apparatus, the surrounding environment or services using sustainable energy practices
3 Complete rail signalling cable repairs	3.1	WHS/OHS work completion risk control measures and workplace procedures are followed
	3.2	Work area is cleaned and made safe in accordance with workplace procedures
	3.3	Cable repair work, test results and relevant reports are documented and appropriate person/s notified 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 UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Performing signalling cable repairs must include the following:

- repairing at least one signalling power cable relevant to a particular rail transport operator
- repairing at least one signalling multi-core control cable, six cores or greater, relevant to a particular rail transport operator
- repairing signalling cables using at least one approved jointing kit

Unit Mapping Information

This unit replaces and is equivalent to UEENEEN121A Repair rail signalling power and control cables.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

Assessment Requirements for UEERS0017 Repair rail signalling power and control cables

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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, performance criteria and range of conditions on at least two separate occasions and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including using risk control measures
- applying sustainable energy principles and practices
- completing rail signalling cable repairs
- completing relevant technical reports, records and documentation
- dealing with unplanned events in a manner that minimises risk to personnel and equipment
- identifying corresponding ends of broken cable cores accurately
- interpreting cable diagrams
- locating and rectifying causes of failed cable test
- preparing to repair rail signalling cables
- repairing damaged rail signalling cables effectively and in accordance with workplace procedures
- selecting approved cable joining kit, cable repair tools and testing devices
- using testing devices and tools correctly and safely.

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:

- conductor continuity and core insulation and earth testing procedures and acceptable results, including:
 - testing to confirm de-energised cores
 - continuity of repaired cores, earth resistance of repaired cores and insulation between repaired cores
 - industry standard acceptable cable test results
 - recording of test results
- methods of joining broken cable core conductors and reinstating insulation, including:

- using hand tools to remove insulation and apply crimp lugs
- selecting inline joiner lugs
- selecting appropriate jointing materials and kits
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures
- special termination tools and their use, including:
 - insulation removal tools
 - inline crimping tools
 - conducting tool tests
 - checking calibration date
 - recording tests
- types of cable used for rail signalling including signalling power and multi-core control cables
- types of cable joining kits used to repair damaged signal cables, including heat shrink and waterproof jointing (epoxy mould)
- workplace procedures for identifying corresponding ends of broken cable cores, including cable isolation methods and testing de-energised cable cores.

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 simulated suitable 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, facilities, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

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