



Australian Government

UEERS0011 Install and maintain rail track circuit leads and bonds

Release: 1

UEERS0011 Install and maintain rail track circuit leads and bonds

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 install/maintain track circuit leads and bonds of rail signalling electrical power and control systems.

It includes following workplace procedures, job planning, running and positioning, connecting track leads and bonds, maintaining and testing track leads and bonds, and completing required documentation.

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.

PERFORMANCE CRITERIA

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

1 Prepare to install/maintain track circuit leads and bonds

- 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 job safety assessments and existing risk control measures implemented
- 1.4** Appropriate person/s is consulted to ensure work is coordinated effectively with others involved on the worksite
- 1.5** Installation/maintenance instructions are reviewed to obtain clear and concise work requirements
- 1.6** Site bonding layout plan is reviewed to clarify bonding requirements
- 1.7** Material to install/maintain track circuit leads and bonds is obtained in accordance with workplace procedures and checked against job specifications
- 1.8** Tools, equipment and testing devices to install/maintain track circuit leads and bonds are obtained in accordance with workplace procedures and checked for correct operation and safety
- 1.9** Preparatory work is checked to ensure no unnecessary damage has occurred and complies with job specifications

2 Install/maintain track circuit leads and bonds

- 2.1** WHS/OHS risk control measures and workplace procedures for carrying out work are followed
- 2.2** Specified leads of bonds are run and positioned appropriately to the formation conditions and to minimise potential damage from track maintenance machines
- 2.3** Installation/maintenance of track circuit leads and bonds are appropriately sequenced in accordance with job schedule
- 2.4** Positions of boxes and cable pits are checked to ensure compliance with specifications and appropriate follow-up action is initiated, as required

- 2.5 Components and rail surfaces are prepared to ensure secure and sound connections in accordance with job specifications
 - 2.6 Leads or bonds are connected using specified fastening techniques ensuring technical compliance is achieved
 - 2.7 Established methods for dealing with unplanned situations are discussed with appropriate person/s and documented in accordance with workplace procedures
 - 2.8 Unplanned situations are dealt with safely in a manner that minimises risk to personnel and equipment and with the approval of an authorised person
 - 2.9 Track circuit leads and bonds are installed and connected efficiently without waste of materials or damage to apparatus, the surrounding environment or services using sustainable energy practices
 - 2.10 Bonds, leads and rail connections are inspected for damage or deterioration and appropriate corrective action is initiated in accordance with workplace procedures
 - 2.11 Appropriate tests are completed to identify components requiring repair or replacement in accordance with workplace procedures and job specifications
 - 2.12 Repair or replacement of components is carried out with due regard to train movements and safety of person/s involved
 - 2.13 Temporary bonding is installed, as required, and electrical readings on bonds/lead connections and insulated rail joints are taken to ensure compliance with specifications and site bonding layout plan
 - 2.14 Track-related equipment is inspected for faults or damage and all faults are documented and appropriate follow-up action is initiated in accordance with workplace procedures
- 3 Complete installation/maintenance of track circuit leads and bonds**
- 3.1 WHS/OHS risk control, work completion measures and workplace procedures are followed
 - 3.2 Worksite is cleaned and made safe in accordance with

workplace procedures

- 3.3** Work completion is documented, relevant reports produced 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.

Unit Mapping Information

This unit replaces and is equivalent to UEENEEN103A Install and maintain rail track circuit leads and bonds.

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 UEERS0011 Install and maintain rail track circuit leads and bonds

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 bonding techniques correctly
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements
- applying safe working practices, rules and relevant industry standards, codes of practice and regulations
- completing installation/maintenance of track circuit leads and bonds
- completing relevant technical reports, records and documentation
- dealing with unplanned events in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- ensuring bonds and leads testing and test results comply with technical requirements
- following relevant codes of practice, WHS/OHS and environmental procedures and requirements
- installing/maintaining track circuit leads and bonds correctly
- interpreting relevant diagrams and track insulation plans
- interpreting specifications correctly
- preparing to install/maintain track circuit leads and bonds
- selecting and using tools correctly.

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:

- abnormal train operating conditions
- basic rail operations
- braking distance
- emergency train and signal system operation
- environmental and heritage awareness, including the purpose for regulation
- gradients/terrain

- methods for recording and maintaining work records and documentation
- relevant rail terminology, including signalling nomenclature, signalling symbols and terms relevant to each state or territory
- relationship to the signalling arrangement plan/scheme
- relevant enterprise work activities records
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications
- relevant purpose of rail signalling, including:
 - conflicting movement between rail vehicles
 - driver interprets the information to safely control a train
 - emergency train and signal system operation
 - safe distances between rail vehicles
- safe movement of rail vehicles and trains, including
 - degraded signalling system performance
 - role of rail signalling system in enabling safe and efficient movement of trains
 - standard operating conditions as per operating timetable/schedule
 - signalling system provides driver information
 - signalling system restricts the signaller and driver following an operation error
- relevant scheduled and unscheduled infrastructure maintenance requirements
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures
- train dynamics including types of rail vehicles
- rail track circuit leads and bonds installation and maintenance
- typical issues/faults affecting rail electrotechnology services and systems
- sighting distance.

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.

Links

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