



Australian Government

TLIS2004 Install and maintain rail bonding systems

Release: 2

TLIS2004 Install and maintain rail bonding systems

Modification History

Release 2. This is the second release of this unit of competency in the TLI Transport and Logistics Training Package:

- Minor statement clarification to PC 4.2
- Minor statement changes in Assessment Conditions.

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Application

This unit involves the skills and knowledge required to install and maintain all types of temporary and permanent bonds and bonding cables in use in the Australian rail system in accordance with safeworking and regulatory requirements, and workplace procedures.

This includes planning the installation and maintenance, preparing the worksite, installing and maintaining the bonds and bonding cables, and conducting all required post-installation activities as a non-electrical rail safety worker.

Work is performed under some supervision, generally within a team environment.

Rail bonding systems involve the application of routine operational principles and procedures when fixing cable across a break or joint in one rail, or between two rails to provide a path for traction return current or track-circuits, as part of workplace activities across a variety of operational contexts within the Australian rail system.

People 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, rail industry standards and/or guidelines.

Operators of mechanised equipment must have undertaken training and, where appropriate, hold the relevant licence, permit or certificate and be recognised as competent for the class of machinery being used.

Pre-requisite Unit

Not applicable.

Competency Field

S – Construction and Installation

Unit Sector

Rail sector.

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 Plan the installation and maintenance of the relevant bonding systems

- 1.1** Work order, including drawings, plans and material lists, is received/accessed, analysed and confirmed as required by site inspection
- 1.2** Work is assessed and prioritised in accordance with works scheduled
- 1.3** Site relevant electrical permits are accessed and/or obtained as required
- 1.4** Hazards are identified, risks are assessed and control measures are implemented
- 1.5** Resources, including personnel, plant, equipment and tools are identified and scheduled
- 1.6** Liaison and communication issues with other personnel, authorities, clients and landowners are resolved

2 Prepare the worksite

- 2.1** Personnel participating in the task, including plant operators and contractors, are fully briefed
- 2.2** Site preparation is completed in accordance with works order
- 2.3** Specialist testing and earth equipment is inspected as required and replaced if defective
- 2.4** Road signs, barriers and warning devices are positioned as required
- 2.5** Safeworking practices are observed on or about the running track/line

3 Install and maintain bonding system cables

- 3.1** Systems and circuits are isolated as required, proved safe to work on in accordance with work plan and electrical permits are issued/accepted/relinquished as required

- | | | |
|----------|--|--|
| | 3.2 | Cable and surrounds, including rail and other surfaces, are prepared to appropriate specifications |
| | 3.3 | Bonds are attached in accordance with specifications |
| | 3.4 | Joint and termination procedures are carried out in accordance with authorised work procedures |
| | 3.5 | Continuity testing procedures are carried out as required |
| | 3.6 | System is commissioned following visual inspection and the completion of other testing |
| 4 | Conduct post-operational activities | |
| | 4.1 | Worksite is rehabilitated in accordance with workplace procedures |
| | 4.2 | Work is completed in accordance with work plan |
| | 4.3 | Notifications, records and documentation for updating system data are completed |

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 can be found in the TLI Transport and Logistics Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to TLIS2004A Install and maintain rail bonding systems.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

Assessment Requirements for TLIS2004 Install and maintain rail bonding systems

Modification History

Release 2. This is the second release of this unit of competency in the TLI Transport and Logistics Training Package:

- Minor statement clarification to PC 4.2
- Minor statement changes in Assessment Conditions.

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics 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 three separate occasions and include:

- applying relevant safeworking and workplace procedures
- communicating effectively with others
- completing relevant documentation
- guiding operators of plant and equipment and using appropriate signals when installing and maintaining cables
- identifying job hazards and taking required action to minimise, control or eliminate identified hazards
- implementing contingency plans
- interpreting and following operational instructions and prioritising work
- modifying activities depending on operational contingencies, risk situations and environments
- monitoring work activities in terms of planned schedule
- organising activities in accordance with workplace procedures and work plan
- reading and interpreting relevant technical data, drawings, work plans, instructions and manuals
- reporting and/or rectifying identified problems, faults or malfunctions, in accordance with workplace procedures
- selecting and using relevant equipment and tools
- working collaboratively with others
- working systematically with required attention to detail without injury to self or others, or damage to goods or equipment.

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:

- applicable state/territory legislated rail safety requirements, relevant codes of practice and/or guidelines
- characteristics, capabilities and uses of various types of cables
- circuits for signalling and communications systems awareness as a non-electrical rail safety worker
- current capacities, inductance and capacitance, protection systems and devices
- electrical hazard awareness including voltage and current transformation, voltage drop, cable and traction systems
- joint test and fault identification/location workplace procedures
- problems that may occur when installing and maintaining rail bonding systems and action that can be taken to report or resolve these problems
- rail industry standards for installing and maintaining rail bonding systems
- switching operation, isolation and access permit procedures
- testing and commissioning procedures, including testing and earth/rail connecting conductors
- traction earthing systems and bonding systems
- work health and safety (WHS)/occupational health and safety (OHS) and environmental procedures and regulations
- workplace documentation and records systems
- workplace procedures for installing and maintaining rail bonding systems for non-electrical rail safety workers.

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 or, where this is not available, in simulated workplace operational situations that replicate rail corridor 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 simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation including workplace procedures, regulations, rail industry standards, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>