



Australian Government

TLIW3043 Weld rail on tram/light rail systems using electric welding process

Release: 2

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Modification History

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

- Minor word change in PC 1.1, 4.1 and 6.2
- 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 weld rail, crossings or switches on tram or light rail systems using an electric welding process in accordance with tram/light rail network standards, safeworking and regulatory requirements, and organisational procedures.

It includes preparing rails, crossings or switches for welding, gouging or grinding; setting up welding equipment; performing the welding operation; checking weld conformance; and completing required documentation.

This unit covers the processes used to repair rail surface defects and restore rail profile to plain rail, crossings and switches.

Welding equipment may include:

- electric welders
- electrode holder
- generators
- robotic welder
- wirefeed welding unit.

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

Pre-requisite Unit

Not applicable.

Competency Field

W – Equipment and Systems Operations

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.

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|---|---|
| 1 Prepare rails, crossings or switches for welding | 1.1 Weld repair area is identified and assessed in accordance with tram/light rail network standards and workplace procedures |
| | 1.2 Welding equipment and consumables are prepared and checked for serviceability |
| | 1.3 Hazards are identified, risks are assessed and control measures are implemented |
| | 1.4 Weld repair area is prepared for welding in accordance with workplace standards and procedures |
| | 1.5 Track components are assembled/aligned to specification as required |
| 2 Assemble and set up welding equipment | 2.1 Welding equipment is set up and adjusted to meet welding process requirements |
| | 2.2 Accessories and consumables are selected for use |
| 3 Assemble and set up gouging and grinding equipment | 3.1 Gouging and grinding equipment is assembled and set up |
| | 3.2 Equipment settings are adjusted to meet process requirements |
| | 3.3 Accessories and consumables are selected for use |
| 4 Remove defect | 4.1 Appropriate method to be used to remove the defect is identified in accordance with tram/light rail network standards and workplace procedures |
| | 4.2 Defect is removed using identified method in accordance with organisational standards and procedures |

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| 5 Perform welding operation | 5.1 Weld metal is applied to repair area to meet specifications in accordance with tram/light rail network standards and workplace procedures |
| | 5.2 Welded area is cleaned in preparation for grinding |
| | 5.3 Welded area is ground in accordance with tram/light rail network standards and workplace procedures |
| 6 Check weld conformance | 6.1 Finished ground weld area is visually inspected for surface finish and defects |
| | 6.2 Finished ground weld area is checked for conformance to rail/crossing/switch profile tram/light rail network standards |
| 7 Complete post-operative checks and documentation | 7.1 Equipment is checked for serviceability |
| | 7.2 Defective equipment is replaced and/or reported for servicing/repair in accordance with organisational policies and workplace procedures |
| | 7.3 Documentation is completed and processed in accordance with organisational 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.

Unit Mapping Information

This unit replaces and is equivalent to TLIW3043A Weld rail on tram/light rail systems using electric welding process.

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 TLIW3043 Weld rail on tram/light rail systems using electric welding process

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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 five separate occasions and include:

- applying relevant safeworking and workplace procedures
- ensuring weld conforms to organisational requirements
- identifying job hazards and taking required action to minimise, control or eliminate identified hazards
- 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
- operating and adapting to differences in equipment in accordance with operating procedures
- performing welding grinding, gouging and testing operations on rails, crossings or switches systems using electric welding processes in accordance with tram/light rail network standards and workplace procedures
- preparing items for welding according to workplace requirements
- reading and interpreting relevant technical data, drawings, instructions and manuals
- reporting and/or rectifying identified problems, faults or malfunctions in accordance with workplace procedures
- selecting and using hand tools, power tools and equipment
- 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:

- documentation and record keeping requirements
- fundamentals of tram track and components
- hazards that may exist when welding rail using an electric welding process and ways of controlling the risks involved
- problems that may occur when welding rail using an electric welding process and action that can be taken to report or resolve these problems
- tram/light rail network standards for weld repairs on rail
- relevant rail danger zones
- relevant safety data sheets (SDS)/material safety data sheets (MSDS) workplace procedures
- relevant tram/light rail safety, work health and safety (WHS)/occupational health and safety (OHS) and environmental procedures and regulations
- track network standards for tram/Light rail, crossing and switch condition and surface profile
- workplace procedures for removing defects by gouging, grinding and welding rail using an electric welding process.

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 tram or light 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 assess 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, tram/light rail network standards, SDS/MSDS, codes of practice and operation manuals.

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