



Australian Government

Department of Education, Employment and Workplace Relations

TLIB2101A Install and maintain rail joints

Release: 1

TLIB2101A Install and maintain rail joints

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

This unit involves the skills and knowledge required to install and maintain rail joints in accordance with approved standards, safeworking and regulatory requirements and workplace procedures. It includes identifying and determining parameters or components that require repair, cutting and boring rail, maintaining rail joints, and completing all required documentation. Licensing or certification requirements may be applicable to this unit.

Application of the Unit

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Persons achieving competence in this unit will need to fulfil the applicable legislated rail safety requirements including acts and regulations from each state and territory together with any nationally approved compliance codes and/or guidelines.

Work is performed under minimal supervision, generally within a team environment. It involves the application of routine operational principles and procedures to installing and maintaining rail joints as part of workplace activities across a variety of operational contexts within the Australian rail system.

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.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

Employability Skills Information

Employability Skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Identify and determine parameters or components that require adjustment	1.1 Rail joint condition, component, fastening and anchoring defects affecting rail joints are identified in accordance with workplace procedures 1.2 Appropriate repair method is selected to ensure rail joint meets specifications 1.3 Scope of work is determined and resources are arranged
2 Install rail joint	2.1 Location of rail joint is determined 2.2 Rail is cut and correct rail gap is established for joint type (mechanical or insulated) 2.3 Rail ends are bent (if required) in accordance with workplace procedures 2.4 Bolt holes are bored to meet joint specification 2.5 Joint is assembled to meet specification
3 Maintain rail joint	3.1 Surfaces and component parts are checked for insulation, lubrication, correct spacing and correct installation in accordance with specifications and work procedures 3.2 Rail joint is maintained to specifications following workplace procedures
4 Complete documentation	4.1 Required documentation is completed in accordance with workplace procedures

Required Skills and Knowledge

REQUIRED KNOWLEDGE AND SKILLS

This describes the essential knowledge and skills and their level required for this unit.

Required knowledge:

- Relevant safety, OH&S and environmental procedures and regulations
- Workplace procedures for installing and maintaining rail joints
- Problems that may occur when installing and maintaining rail joints, and action that can be taken to report or resolve the problems
- Hazards that may exist when installing and maintaining rail joints, and ways of controlling the risks involved
- Fundamentals of track structures relating to rail joints
- Track standards relating to rail joints
- Rail joint components

REQUIRED KNOWLEDGE AND SKILLS

- Rail joint defects
- Relevant communication systems and procedures
- Authorisation/approval processes and procedures
- Documentation requirements

Required skills:

- Communicate effectively with others when installing and maintaining rail joints
- Read and interpret instructions, procedures, information, technical data, standards and drawings relevant to installing and maintaining rail joints
- Interpret and follow operational instructions
- Complete documentation related to installing and maintaining rail joints
- Operate electronic communication equipment to required protocols
- Work collaboratively with others when installing and maintaining rail joints
- Promptly report and/or rectify any identified problems, faults or malfunctions that may be identified when installing and maintaining rail joints in accordance with regulatory requirements and workplace procedures
- Apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
- Modify activities depending on differing operational contingencies, risk situations and environments
- Work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- Operate and adapt to differences in equipment in accordance with standard operating procedures
- Select and use required personal protective equipment conforming to industry and OH&S standards
- Select and use hand tools, power tools and equipment
- Identify/locate parameters or components of rail joints requiring adjustment or replacement
- Adjust and repair rail joints
- Install rail joints
- Use relevant plant and mechanised equipment

Evidence Guide

EVIDENCE GUIDE

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills, the range statement and the assessment guidelines for this Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- The evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria of this unit and include demonstration of applying:
 - the underpinning knowledge and skills
 - relevant legislation and workplace procedures
 - other relevant aspects of the range statement
- Assessment must include exercises which demonstrate competent performance of the following in a range of situations:
 - examining rail joints to determine defects and selecting appropriate repair methods
 - installing rail joints correctly
 - checking component parts and carrying out appropriate maintenance activities
 - completing documentation to organisational requirements

Context of and specific resources for assessment

- Performance is demonstrated consistently over a period of time and in a suitable range of contexts
- Resources for assessment include:
 - a range of relevant exercises, case studies and/or other simulated practical and knowledge assessment, and/or
 - access to an appropriate range of relevant operational situations in the workplace
- In both real and simulated environments, access is required to:
 - relevant and appropriate materials and equipment, and
 - applicable documentation including workplace procedures, regulations, codes of practice and operation manuals

Method of assessment

- Assessment of this unit must be undertaken by a registered training organisation
- As a minimum, assessment of knowledge must be conducted through appropriate written/oral tests
- Practical assessment must occur:
 - through activities in an appropriately simulated

EVIDENCE GUIDE

- environment at the registered training organisation, and/or
- in an appropriate range of situations in the workplace

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

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|--|--|
| Operations may be conducted: | <ul style="list-style-type: none">• by day or night• in all weather conditions |
| Work may be conducted in: | <ul style="list-style-type: none">• restricted spaces• exposed conditions• controlled or open environments |
| Work may involve exposure to: | <ul style="list-style-type: none">• chemicals• dangerous or hazardous substances• movements of equipment, materials and vehicles |
| Equipment may include: | <ul style="list-style-type: none">• mechanical handling/lifting equipment• track machines• hand tools including impact or tension wrenches, grinders, friction rail saws, rail punches, rail borers, tie tampers, gauges, track jacks, spiking hammers and bars• rail tensors• fastening equipment• oxy/acetylene equipment |
| Materials may include: | <ul style="list-style-type: none">• resilient and/or static fastenings• sleeper plates/pads• anchors• bolts• nuts• washer clips• shims• fish plates• swage fastenings |
| Rail joint parts and surroundings to be checked may include: | <ul style="list-style-type: none">• joint insulation• expansion gap• fishplates |

RANGE STATEMENT

- fishbolts
- sleeper
- sleeper fastening
- rail anchoring and rail bonds
- track geometry
- Fastenings may include:
 - pandrol clips, fist fastenings, Trak Lok, Rex lock
 - dogspikes/dog screws
 - bolts, spring washers, nuts
 - double shouldered sleeper plates
 - insulated sleeper pads
- Types of rail joint may include:
 - mechanical joint
 - mechanical junction joints
 - insulated mechanical joint
 - insulated plate joints
 - bow plates
 - bonded insulated joint
- Rail ends on curves may require:
 - bending (also known as pressing or crowing)
- Special transitional rail joints may be:
 - required between changes of mass/wear
- Liaison may include:
 - internal or external personnel from other work areas (e.g. train controllers, electricians)
- Communication systems may include:
 - two-way radios
 - telephones/mobile phones
 - agreed audible or hand signals
- Depending on work context, safety and personal protective equipment may include:
 - high visibility clothing
 - hearing protection
 - gloves
 - sunscreen
 - sunglasses
 - safety glasses
 - insect repellent
 - safety headwear
 - safety footwear
 - portable radios/mobile phones
 - hand lamps
 - flags
 - safety devices
- Depending on the type of organisation concerned and the
 - company procedures
 - enterprise procedures

RANGE STATEMENT

local terminology used, workplace procedures may include:

- organisational procedures
- established procedures

Information/documents may include:

- operational instructions, policies and workplace procedures
- information provided by other workplace personnel
- technical instructions
- manufacturers or workplace equipment operation manuals and specifications
- emergency procedure manuals
- two-way radio/mobile phone operation procedures
- QA plans, data and document control
- conditions of service, legislation and industrial agreements including workplace agreements and awards

Applicable procedures and codes may include:

- legislated rail safety requirements including acts and regulations from each applicable state and territory together with any nationally approved compliance codes and/or guidelines
- relevant state/territory regulations, codes of practice and safeworking system requirements
- relevant Australian Standards and related requirements including AS 4292
- relevant state/territory OH&S legislation
- relevant state/territory environmental protection legislation

Unit Sector(s)

Not Applicable

Competency Field

Competency Field

B - Equipment Checking and Maintenance