



Australian Government

Department of Education, Employment and Workplace Relations

TLIB3094B Check and repair track geometry

Release: 1

TLIB3094B Check and repair track geometry

Modification History

Not applicable.

Unit Descriptor

This unit involves the skills and knowledge required to check and repair track geometry in accordance with safeworking and regulatory requirements and workplace procedures. It includes determining the job requirements, restoring track geometry, checking track compliance after work, and completing required documentation.

Licensing or certification requirements are not applicable to this unit. Persons achieving competence in this unit will need to fulfil legislated rail safety requirements, including acts and regulations from each applicable state and territory, together with any nationally approved compliance codes and/or guidelines.

Application of the Unit

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

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

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.

1 Determine job requirements

1.1 Faults and deficiencies in track geometry are identified, and work required for restoration of track to required standard is determined

1.2 Appropriate repair methods are identified to enable repairs to be effected

1.3 Job requirements and resources are determined according to workplace procedures and scope of work

2 Restore track geometry

2.1 Survey data are used where required to establish correct geometry

2.2 Appropriate lifting and lining methods and equipment are used to lift and line track to restore running surface to required geometry in accordance with workplace standards and procedures

3 Confirm compliance after work

3.1 Track geometry is checked for compliance with acceptance standards

3.2 Vertical and horizontal structural and overhead clearances are checked against required standards to allow safe passage of trains

3.3 Track structure where work has been undertaken is checked for compliance with standards required to enable reinstatement of service

3.4 Appropriate operating conditions are applied in accordance with workplace procedures

4 Complete documentation

4.1 Documentation on work undertaken is completed in accordance with workplace requirements

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 checking and repairing track geometry
- Problems that may occur when carrying out work activities to check and repair track geometry, and action that can be taken to report or resolve them
- Hazards that may exist when checking and repairing track geometry, and ways of controlling the risks involved
- Relevant Australian standards, technical specifications and manuals
- Documentation and/or work authorisation and work completion processes and procedures
- Fault detection techniques
- Track geometry maintenance methods and techniques
- Defects that can affect safe operation, including:
 - Defects in track structure, including sleeper condition, spacing, fastening condition, rail joint condition, ballast profile and packing
 - Clearance defects
 - Defects in earthworks
- Track stability and the work requirements for differing weather conditions
- Track geometry acceptance standards
- Track certification requirements
- Relevant work recording procedures
- Procedures to be followed in the event of an emergency
- Details of relevant local authority procedures

Required skills:

- Communicate effectively with others when carrying out work activities to check and repair track geometry
- Read and interpret instructions, procedures, information, plans, drawings and specifications relevant to work activities to check and repair track geometry
- Interpret and follow operational instructions and prioritise work
- Complete documentation related to work activities to check and repair track geometry
- Record and report results of track work in required format
- Operate electronic communication equipment to required protocol
- Report and rectify within limits of own role identified problems when carrying out work activities in accordance with regulatory requirements and workplace procedures
- Plan and organise work, including determining work requirements and work methods
- Implement contingency plans for unexpected events when carrying out work activities

- Apply precautions and required action to minimise, control or eliminate potential hazards during work activities
- Monitor work activities in terms of planned schedule
- 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
- Adapt to differences in equipment in accordance with standard operating procedures
- Identify, select and use tools and equipment required in work activities to check and repair track geometry
- Select and use required personal protective equipment (PPE)
- Identify track geometry defects
- Select and use appropriate lifting and lining methods and equipment to correct geometry defects
- Use appropriate measurement methods to assess and correct geometry defects
- Identify defects affecting safe operation, including:
 - defects in track structure, including sleeper condition, spacing, fastening condition, rail joint condition, ballast profile and packing
 - structure and track centre clearance defects
 - defects in earthworks
- Assess defects against acceptance standards and apply appropriate restrictions
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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 that demonstrate competent performance of the following in a range of situations:
 - identifying a number of different faults and deficiencies
 - determining appropriate repair methods for identified faults
 - using appropriate lifting and lining methods and equipment to restore running surface to required geometry
 - after work is completed, certifying track to operational standards
 - completing documentation in accordance with standards and workplace procedures

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 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.

Ballasted track geometry to be checked and repaired may include:	• plain track • turnouts and special track work
Track geometry repair methods may include:	• manual fettling with hand tools and light equipment • manual fettling with small on-track or off-track plant (spot tampers, etc.) • resurfacing with large on-track plant
Manual fettling includes:	• any operation where measurement of geometry (before and after) is conducted by hand-held equipment and lifts and pulls are manually calculated
Resurfacing operations include:	• any operation where measurements and calculations of lifts and pulls are carried out automatically or semi-automatically by resurfacing plant
Equipment may include:	• mechanical lifting and handling devices • basic hand tools and small plant • track jacks • on-track machines, such as tampers, liners or regulators • manual and electronic measuring equipment
Certifying track after work includes:	• confirming safe clearances of any structure erected adjacent to or over the track
Reinstatement of service may include:	• unrestricted operation of rail traffic • operation under speed restriction • restricted clearance operation • operation under tonnage restrictions
Liaison may include:	• internal or external personnel from other work areas
Communication equipment systems may include:	• two-way radios • telephones, including mobile phones • agreed audible or hand signals
Depending on the type of organisation concerned and the local terminology used, workplace procedures may include:	• company procedures • enterprise procedures • organisational procedures • established procedures

RANGE STATEMENT

Safety and personal protective equipment may include:

- high visibility clothing
- hearing protection
- gloves
- sunscreen
- sunglasses
- dust mask
- safety glasses
- insect repellent
- safety headwear
- safety footwear
- portable radios and mobile phones
- hand lamps
- flags
- safety devices

Information and documents may include:

- maintenance notices, records and requests
- local instructions
- local authority regulations and procedures
- work orders
- technical instructions
- manufacturer or workplace equipment operation manuals
- operational instructions, policies and workplace procedures
- two-way radio or mobile telephone operation procedures
- emergency procedures manual
- quality assurance (QA) plans, data and document control
- conditions of service, legislation and industrial agreements, including workplace agreements and awards

Applicable regulations and legislation may include:

- legislated rail safety requirements, including acts and regulations from each applicable state or territory, together with any nationally approved compliance codes and guidelines
- relevant state or territory regulations, codes of practice and safeworking system requirements
- relevant Australian standards (AS) and related requirements, including AS 4292
- relevant state or territory legislation relating to:
 - environmental protection

RANGE STATEMENT

- OH&S

Unit Sector(s)

Not Applicable

Competency Field

Competency Field B - Equipment Checking and Maintenance