



Australian Government

Department of Education, Employment and Workplace Relations

TLIB3053A Maintain mechanical signalling locking and interlocking devices

Release: 1

TLIB3053A Maintain mechanical signalling locking and interlocking devices

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

This unit involves the skills and knowledge required to maintain mechanical signalling locking and interlocking devices in accordance with safeworking and regulatory requirements and workplace procedures, including diagnosing and correcting faults in the devices, and testing and adjusting the repaired equipment to meet workplace and manufacturers standards. Licensing, legislative, regulatory or certification requirements are 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 the maintenance of mechanical signalling locking and interlocking devices 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
1 Diagnose locking/interlocking equipment faults	1.1 Out-of-specification or non-operating mechanical locking and interlocking signalling equipment /components are correctly identified through operational testing 1.2 Viability of adjustments/replacements/repairs to equipment/components is correctly evaluated to ensure cost effective operations 1.3 Work is planned to ensure minimum disruption to train operations and safe repair activities 1.4 Support/assistance with diagnosis or repair operations is obtained through liaison with appropriate personnel
2 Correct equipment faults	2.1 Mechanical locking and interlocking signalling equipment and component cleaning/lubrication and adjustment is performed to specifications to ensure required level of operations 2.2 Equipment and components are replaced or repaired as per operational specifications to ensure required level of operations 2.3 Viability of repairs to replaced equipment/components is evaluated and equipment tagged for repair or disposed of in line with workplace requirements 2.4 Liaison with or support to other personnel is maintained to ensure equipment is maintained within specification
3 Test and adjust locking/interlocking equipment	3.1 All locking/interlocking equipment functions are tested to ensure operational compliance with required standards 3.2 Final cleaning, lubricating and adjustments to equipment are carried out to ensure operational compliance 3.3 Equipment is locked/secured as specified to ensure safety and protection from elements or persons 3.4 Records of repair activities are correctly completed and forwarded to appropriate personnel for use in identifying future maintenance 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:

- Applicable legislated rail safety requirements including acts and regulations from each state and territory together with any nationally approved compliance codes and/or guidelines
- Relevant OH&S and environmental procedures and regulations
- Workplace procedures for the repair and adjustment of mechanical locking and interlocking

REQUIRED KNOWLEDGE AND SKILLS

signalling equipment

REQUIRED KNOWLEDGE AND SKILLS

- Problems that may occur during the repair and adjustment of mechanical locking and interlocking signalling equipment and action that can be taken to report or resolve the problems
- Hazards that may exist when repairing and adjusting mechanical locking and interlocking signalling equipment and ways of controlling the risks involved
- Contents of technical specifications and manuals
- Documentation/authorisation processes and procedures
- Track layout
- Material safety data sheets
- Mechanical fitting techniques
- Workshop facilities, personnel and manufacturing/repair capabilities
- Overview of other operations and personnel (i.e. non-mechanical)
- Material procurement procedures
- Principles of railway signalling, particularly those dealing with mechanical locking and interlocking equipment
- Use of chemicals, solvents and lubricants
- Fault detection techniques

Required skills:

- Communicate effectively with others when repairing and adjusting mechanical locking and interlocking signalling equipment
- Read and interpret instructions, procedures, information and signs relevant to the repair and adjustment of mechanical locking and interlocking signalling equipment
- Interpret and follow operational instructions and prioritise work
- Complete documentation related to the repair and adjustment of mechanical locking and interlocking signalling equipment
- Operate electronic communication equipment to required protocol
- Work collaboratively with others when repairing and adjusting mechanical locking and interlocking signalling equipment
- Adapt appropriately to cultural differences in the workplace, including modes of behaviour and interactions with others
- Promptly report and/or rectify any identified problems, faults or malfunctions that may occur when repairing and adjusting mechanical locking and interlocking signalling equipment in accordance with regulatory requirements and workplace procedures
- Implement contingency plans for unexpected events when repairing and adjusting mechanical locking and interlocking signalling equipment
- Apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities

Required skills:

- 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
- 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
- Operate mechanical locking and interlocking signalling equipment
- Correctly use protective paints and lubricants including appropriate painting techniques
- Select and use hand, portable, power and air tools
- Repair and replace mechanical locking and interlocking equipment
- Apply relevant test procedures
- Operate mechanical signalling equipment

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

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

EVIDENCE GUIDE

required to:

- relevant and appropriate materials and equipment, and
- applicable documentation including workplace procedures, regulations, codes of practice and operation manuals

EVIDENCE GUIDE

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.

Operations may be conducted:

- by day or night
- in all relevant weather conditions

Equipment may include:

- both locking and interlocking equipment including:
 - signals
 - points equipment
 - ground frames
 - level crossing and tramway crossing mechanisms
 - frames
 - rods
 - bars
 - platforms
 - structures
 - housings
 - boxes
 - signage

Repairs may include:

- filing
- grinding
- replacement of components including:
 - bushes
 - pivot pins
 - gears
 - wear plates

RANGE STATEMENT

- welding
- joining

RANGE STATEMENT

- Adjustments may include:
- designed adjustment components
 - shimming
 - checking of clearances and tolerances
- Cleaning and lubrication includes:
- all cleaning operations by hand, chemical or steam cleaning
 - the application of protective paints or sealing agents
 - the application of lubricating oils and greases
- Operational compliance includes:
- manufacturers or workplace specifications for functional movements, operations and outcomes
- Liaison may include:
- internal or external personnel from other work areas (e.g. train controllers, electricians)
- Tools and equipment may include:
- hand tools
 - portable power generators
 - air compressors
 - measuring rules
 - gauges
- Communication equipment may include:
- two-way radios
 - telephones
- Depending on the type of organisation concerned and the local terminology used, workplace procedures may include:
- company procedures
 - enterprise procedures
 - organisational procedures
 - established procedures
- Safety and protective equipment may include:
- high visibility clothing
 - hearing protection
 - gloves
 - sunscreen
 - sunglasses
 - safety glasses
 - insect repellent
 - safety headwear
 - safety footwear
 - portable radios
 - hand lamps
 - flags
 - safety devices
- Information/documents may include:
- applicable legislated rail safety requirements including acts and regulations from each state and territory together with any nationally approved compliance codes and/or guidelines

RANGE STATEMENT

- relevant log or record books
 - maintenance notices, records and requests
 - local instructions
 - manufacturers or workplace equipment operation manuals
 - operational instructions, policies and workplace procedures
 - emergency procedure manuals
 - two-way radio operation procedures
 - emergency procedures manual
 - conditions of service, legislation and industrial agreements including workplace agreements and awards
 - applicable legislated rail safety requirements including acts and regulations from each state and territory together with any nationally approved compliance codes and/or guidelines
 - relevant Australian Standards and related requirements
 - relevant state/territory OH&S legislation
 - relevant state/territory environmental protection legislation
- Applicable regulations and legislation may include:

Unit Sector(s)

Not Applicable

Competency Field

Competency Field B - Equipment Checking and Maintenance