



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **TLIB5307B Maintain mechanical signalling locking and interlocking devices**

**Release: 1**

## **TLIB5307B Maintain mechanical signalling locking and interlocking devices**

### **Modification History**

Not applicable.

### **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.

### **Application of the Unit**

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**

Not applicable.

### **Pre-Requisites**

Not applicable.

### **Employability Skills Information**

The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this competency is packaged will assist in identifying employability skill requirements.

### **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

### Elements and Performance Criteria

| Element                                                 | Performance Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 <b>Diagnose locking/interlocking equipment faults</b> | <ul style="list-style-type: none"><li>1.1 Out-of-specification or non-operating mechanical locking and interlocking signalling equipment /components are correctly identified through operational testing</li><li>1.2 Viability of adjustments/replacements/repairs to equipment/components is correctly evaluated to ensure cost effective operations</li><li>1.3 Work is planned to ensure minimum disruption to train operations and safe repair activities</li><li>1.4 Support/assistance with diagnosis or repair operations is obtained through liaison with appropriate personnel</li></ul>                                                                        |
| 2 <b>Correct equipment faults</b>                       | <ul style="list-style-type: none"><li>2.1 Mechanical locking and interlocking signalling equipment and component cleaning/lubrication and adjustment is performed to specifications to ensure required level of operations</li><li>2.2 Equipment and components are replaced or repaired as per operational specifications to ensure required level of operations</li><li>2.3 Viability of repairs to replaced equipment/components is evaluated and equipment tagged for repair or disposed of in line with workplace requirements</li><li>2.4 Liaison with or support to other personnel is maintained to ensure equipment is maintained within specification</li></ul> |
| 3 <b>Test and adjust locking/interlocking equipment</b> | <ul style="list-style-type: none"><li>3.1 All locking/interlocking equipment functions are tested to ensure operational compliance with required standards</li><li>3.2 Final cleaning, lubricating and adjustments to equipment are carried out to ensure operational compliance</li><li>3.3 Equipment is locked/secured as specified to ensure</li></ul>                                                                                                                                                                                                                                                                                                                 |

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 signalling equipment

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

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

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 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/or equipment, and/or  
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 appropriately simulated activities 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<br>in all relevant weather conditions                                                                                                                                                                                           |
| Equipment may include:             | both locking and interlocking equipment<br>including:<br>signals<br>points equipment<br>ground frames<br>level crossing and tramway crossing<br>mechanisms<br>frames<br>rods<br>bars<br>platforms<br>structures<br>housings<br>boxes<br>signage |
| Repairs may include:               | filing<br>grinding<br>replacement of components including:<br>bushes<br>pivot pins<br>gears<br>wear plates<br>welding<br>joining                                                                                                                |
| Adjustments may include:           | designed adjustment components<br>shimming<br>checking of clearances and tolerances                                                                                                                                                             |
| Cleaning and lubrication includes: | all cleaning operations by hand, chemical or<br>steam cleaning<br>the application of protective paints or sealing<br>agents<br>the application of lubricating oils and greases                                                                  |
| Operational compliance includes:   | manufacturers or workplace specifications<br>for functional movements, operations and<br>outcomes                                                                                                                                               |

|                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Liaison may include:                                                                                              | internal or external personnel from other work areas (e.g. train controllers, electricians)                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Tools and equipment may include:                                                                                  | hand tools<br>portable power generators<br>air compressors<br>measuring rules<br>gauges                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Communication equipment may include:                                                                              | two-way radios<br>telephones                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Depending on the type of organisation concerned and the local terminology used, workplace procedures may include: | company procedures<br>enterprise procedures<br>organisational procedures<br>established procedures                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Safety and protective equipment may include:                                                                      | high visibility clothing<br>hearing protection<br>gloves<br>sunscreen<br>sunglasses<br>safety glasses<br>insect repellent<br>safety headwear<br>safety footwear<br>portable radios<br>hand lamps<br>flags<br>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<br>relevant log or record books<br>maintenance notices, records and requests<br>local instructions<br>manufacturers or workplace equipment operation manuals<br>operational instructions, policies and workplace procedures<br>emergency procedure manuals<br>two-way radio operation procedures<br>emergency procedures manual<br>conditions of service, legislation and |

Applicable regulations and legislation may include:

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

## **Unit Sector(s)**

Not applicable.

## **Competency Field**

B - Equipment Checking&Maintenance