



Australian Government

Department of Education, Employment and Workplace Relations

TLIS3009A Install mechanical signalling locking and interlocking devices

Release: 1

TLIS3009A Install mechanical signalling locking and interlocking devices

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

This unit involves the skills and knowledge required to install mechanical signalling locking and interlocking devices in accordance with safeworking and regulatory requirements and workplace procedures, including assembling components, installing equipment and components to specifications, and testing and adjusting the equipment in accordance with workplace procedures. Licensing, legislative, regulatory or certification requirements are applicable to this unit.

Application of the Unit

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 installation 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 Assemble components	1.1 Correct components are identified and selected to comply with job specifications 1.2 Equipment and components are pre-assembled and positioned for installation in compliance with work orders and job specifications
2 Install equipment and components	2.1 Equipment/component layout is prepared and checked to ensure position matches the job specifications 2.2 All fastening positions are marked and drilled for installation 2.3 Equipment and components are secured in the correct sequence and position, and are in compliance with the job specifications 2.4 Additional requirements or alterations to existing components are identified and appropriate follow-up action is taken 2.5 Manufacturing of additional components is carried out to allow for complete installation 2.6 Alterations to existing components are carried out to provide for the installation of new equipment 2.7 All interlinking components are correctly attached and secured ready for testing in compliance with work specifications
3 Test and adjust equipment	3.1 Required authorisation for tests is confirmed to ensure safe train operations may continue 3.2 Test procedures are coordinated and liaison with appropriate personnel is maintained to ensure overall safety 3.3 Appropriate tests are carried out to ensure all operations are within specifications and appropriate adjustments are made to ensure smooth operation 3.4 Testing is carried out to ensure functionality of all operations to the locking table 3.5 Operational readiness is confirmed and required documentation/certification is correctly completed to allow for commissioning

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

REQUIRED KNOWLEDGE AND SKILLS

- Workplace procedures for the installation of mechanical signalling locking and interlocking devices
- Problems that may occur during the installation of mechanical signalling locking and interlocking devices, and action that can be taken to report or resolve the problems
- Hazards that may exist when the installing mechanical signalling locking and interlocking devices, and ways of controlling the risks involved
- Principles of signalling
- Material safety data sheets
- Mechanical fitting techniques
- Fault finding techniques
- Characteristics and applications of chemicals, paints and lubricants
- Pneumatic and hydraulic techniques
- Machining techniques
- Track layout
- Relevant mechanical theory and principles
- Relevant recording and documentation procedures
- Relevant sections of Australian Standards AS 4292 and AS 3000

Required skills:

- Communicate effectively with others when installing mechanical signalling locking and interlocking devices
- Read and interpret instructions, procedures, information, technical data and drawings relevant to the installation of mechanical signalling locking and interlocking devices
- Interpret and follow operational instructions and prioritise work
- Complete documentation related to the installation of mechanical signalling locking and interlocking devices
- Operate electronic communication equipment to required protocol
- Work collaboratively with others when installing mechanical signalling locking and interlocking devices
- 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 installing mechanical signalling locking and interlocking devices in accordance with regulatory requirements and workplace procedures
- Implement contingency plans for unplanned events that may occur when installing mechanical signalling locking and interlocking devices
- 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
- Use and dispose of a range of chemical cleaning agents, protective paints and lubricants
- Use high level fitting skills to fit and finely adjust inter-linking mechanical components
- Use hand, portable, power and air tools
- Assemble inter-linking components
- Test and adjust close tolerance mechanically operating equipment
- Use portable electric generators and air compressors
- Check and confirm compliance with operational specifications
- Work in confined spaces
- Use appropriate painting techniques
- 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

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

EVIDENCE GUIDE

- 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

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: | <ul style="list-style-type: none">• by day or night• in all relevant 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 |
| Locking and interlocking devices to be installed and maintained may include: | <ul style="list-style-type: none">• all those in service in the Australian rail system |
| Job specifications are: | <ul style="list-style-type: none">• as defined in relevant technical manuals/documents |
| Equipment may include: | <ul style="list-style-type: none">• ground frames• locking/interlocking machines (cabins)• Annett locks• key locks• staff locks• circuit controller• rod leads• point indicators• CCT controllers |

RANGE STATEMENT

Equipment technology may include:

- mechanical
- pneumatic
- hydraulic
- electric

Tools may include:

- jigs
- vices
- cutting equipment
- drills
- spanners
- files
- bending devices
- verniers
- gauges
- clamps

Installation and assembly may include:

- application of chemical cleaning agents
- protective paints and lubricants

Liaison may be required with

- internal personnel
- external personnel

Layout includes:

- the physical placement and planning of all equipment, components and connections

Fixing and fastening may include

- chemical bonding
- bolting

Manufacturing and installing may include:

- cutting
- bending
- shaping
- welding
- drilling
- bolting
- clamping with ferrous and non-ferrous bar
- rod
- tube
- chain
- wire rope

Components may include:

- bolts
- shims
- pins
- rods
- bars
- points

RANGE STATEMENT

- floor plates
- brackets
- levers

RANGE STATEMENT

Communication equipment may include:	• two-way radios • computers and/or 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 • operational instructions, policies and workplace procedures • site and route plans • schematic/wiring diagrams and sketches • traction bonding plans • equipment/operational management information • technical and engineering instructions and specifications • manufacturers or workplace equipment operation manuals and specifications • emergency procedure manuals • two-way radio 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:	• relevant state/territory regulations, codes of practice and safeworking system requirements • relevant Australian Standards and related requirements

RANGE STATEMENT

including AS 4292 and AS 3000

- relevant state/territory OH&S legislation
- relevant state/territory environmental protection legislation
- ADG Code and associated requirements

Unit Sector(s)

Not Applicable

Competency Field

Competency Field S - Construction and Installation