



Australian Government

Department of Education, Employment and Workplace Relations

TLIS507B Install mechanical infrastructure for signalling

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit involves the skills and knowledge required to install mechanical infrastructure for signalling in accordance with safeworking and regulatory requirements and workplace procedures, including assembling components, installing the equipment and components to specifications, and testing and adjusting the equipment to workplace requirements.

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 infrastructure for signalling 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 Assemble components	1.1 Correct components are identified and selected to comply with specifications 1.2 Components are pre-assembled and positioned for installation and to identify any manufacturing fitting requirements 1.3 Components/linkages are modified to allow for complete installation as per job specifications
2 Install equipment and components	2.1 Equipment/component layouts are checked to ensure positioning matches job specifications 2.2 All hole/fastening positions are marked and drilled to allow for installation 2.3 Equipment/components are assembled and secured in the correct sequence 2.4 All interlinking components are attached and secured 2.5 Components are fabricated to ensure compliance with job specifications 2.6 Power source is connected by appropriate personnel if required to allow for operational testing
3 Test and adjust equipment	3.1 Required authorisation for testing is confirmed to ensure safe train operations may continue 3.2 Correct test equipment/procedures are identified 3.3 Appropriate tests are correctly carried out in conjunction with other personnel to ensure operational compliance 3.4 All required adjustments are carried out in conjunction with other personnel when required to ensure correct operational compliance 3.5 Operational readiness is confirmed and required documentation/certification is correctly completed

to allow for commissioning

- 3.6 Equipment is locked and secured to ensure against unauthorised interference

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 installation of mechanical infrastructure for signalling

Problems that may occur during the installation of mechanical infrastructure for signalling, and action that can be taken to report or resolve the problems

Hazards that may exist when installing mechanical infrastructure for signalling, and ways of controlling the risks involved

Principles of signalling

Mechanical infrastructure limitations and characteristics

Fault diagnosis, fault rectification and problem solving

Material safety data sheets

Materials procurement procedures

Features, characteristics and applications of chemicals, paints and lubricants used on mechanical infrastructure

Mechanical signal adjusting techniques

Fault finding and testing procedures

Track layout

Relevant recording and documentation procedures

Relevant sections of Australian Standards AS 4292 and AS 3000

Required skills:

Communicate effectively with others when installing mechanical infrastructure for signalling

Read and interpret instructions, procedures, information, technical data and drawings relevant to the installation of mechanical infrastructure for signalling

Interpret and follow operational instructions and prioritise work

Complete documentation and records related to the installation of mechanical infrastructure for signalling

Operate electronic communication equipment to required protocol

Work collaboratively with others when installing mechanical infrastructure for signalling

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 infrastructure for signalling in accordance with regulatory requirements and workplace procedures

Implement contingency plans for unplanned events

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

Use hand and power tools

Use appropriate fabrication techniques

Measure, align and assemble pre-made components

Assemble inter-linking components

Test and adjust mechanical equipment

Check and confirm compliance to operational specifications

Use portable electric generators and air compressors

Use and dispose of a range of chemical cleaning agents, protective paints and lubricants

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

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 in all relevant weather conditions
Work may be conducted in:	restricted spaces exposed conditions controlled or open environments
Work may involve exposure to:	chemicals dangerous or hazardous substances movements of equipment, materials and vehicles
Site preparation may include:	levelling cleaning preparing trenches control cable and linkage routes
Equipment may include:	mechanical pneumatic/hydraulic electric
Liaison may be required with:	internal and external personnel
Manufacturing may include:	cutting bending shaping welding drilling bolting clamping with ferrous and non-ferrous bar, rod, tube, chain and wire rope
Resources may include:	signs lamps brackets level crossing assembly backboards clamp locks hoods switch locks warning lights bells

masts
mechanical points and point machines
train stop
non-interlocked levers
chain locks
facing point locks
rod lines
derailers
'A' frames

Installation and assembly may include the application of:	chemical cleaning agents protective paints lubricants
Fixing and fastening may include:	chemical bonding and bolting
Compensation requirements may:	have to be determined
Tools may include:	hand tools power tools air tools specialist tools as required by the organisation
Communication equipment may include:	two way radios computers and/or telephones
Safety and protective equipment may include:	high visibility clothing hearing protection gloves sunscreen sunglasses and safety glasses insect repellent safety headwear and footwear portable radios hand lamps and flags safety devices
Depending on the type of organisation concerned and the local terminology used, workplace procedures may include:	company procedures enterprise procedures organisational procedures established procedures
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 job specifications technical manuals equipment/operational management information technical and engineering instructions 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 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

S - Installation and Commissioning