



Australian Government

Department of Education, Employment and Workplace Relations

TLIS3005A Install mechanical infrastructure for signalling

Release: 1

TLIS3005A Install mechanical infrastructure for signalling

Modification History

Not Applicable

Unit Descriptor

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. It includes assembling components, installing the equipment and components to specifications, and testing and adjusting the equipment to workplace requirements. Licensing or certification requirements are not applicable to this unit.

Application of the Unit

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Persons achieving competence in this unit will need to fulfil the legislated rail safety requirements including acts and regulations from each applicable 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

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 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 Components are fabricated to ensure compliance with job specifications 2.2 Equipment/component layouts are checked to ensure positioning job specifications 2.3 All hole/fastening positions are marked and drilled to allow for installation 2.4 Equipment/components are assembled and secured in the correct sequence 2.5 All interlinking components are attached and secured 2.6 Operational 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:

REQUIRED KNOWLEDGE AND SKILLS

- Legislated rail safety requirements including acts and regulations from each applicable state and territory together with any nationally approved compliance codes and/or guidelines
- Relevant OH&S and environmental procedures and regulations
- Workplace standards and 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 (MSDS)
- 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

Required skills:

- Communicate effectively with others when installing mechanical infrastructure for signalling
- Read and interpret designs, 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
- 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

Required skills:

- Work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- Use hand, power tools, portable electric generators and air compressors etc.
- 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 mobile plant and lifting equipment
- Use and correctly dispose of a range of chemical cleaning agents, protective paints and lubricants
- Adapt to differences in equipment in accordance with standard operating procedures
- Determine compensation of points and signal lead designs
- 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
- Assessment must include exercises which demonstrate competent performance of the following in a range of situations:
 - assembling components correctly
 - installing equipment and components correctly
 - adjusting and testing equipment for correct operation

Context of and specific resources

- Performance is demonstrated consistently over a period of time and in a suitable range of contexts

EVIDENCE GUIDE

for assessment

- 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, 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.

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|-------------------------------|--|
| Operations may be conducted: | <ul style="list-style-type: none">in all weather conditions |
| Work may be conducted in: | <ul style="list-style-type: none">restricted spacesexposed conditionscontrolled or open environments |
| Work may involve exposure to: | <ul style="list-style-type: none">chemicalsdangerous or hazardous substancesmovements of equipment, materials and vehicles |
| Site preparation may include: | <ul style="list-style-type: none">levellingcleaningpreparing trenches |

RANGE STATEMENT

- Equipment types may include:
- control cable and linkage routes
 - mechanical
 - pneumatic/hydraulic
 - electric
- Equipment 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
 - derailleurs
 - 'A' frames
 - signals
 - ground frames
- Liaison may be required with:
- internal and external personnel
- Activities may include:
- cutting
 - bending
 - shaping
 - welding
 - drilling
 - bolting
 - clamping with ferrous and non-ferrous bar, rod, tube, chain and wire rope
- Resources may include:
- chemical cleaning agents
 - protective paints
 - lubricants
- Fixing and fastening may include:
- chemical bonding and bolting
 - riveting

RANGE STATEMENT

Tools may include:	• pining • hand tools • power tools • air tools • specialist tools as required by the organisation
Communication equipment may include:	• two-way radios • computers • telephones/mobile phones
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 standards, rules and procedures • enterprise procedures • organisational procedures • established procedures
Information/documents may include:	• 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 regulations, legislation and codes may include:	• legislated rail safety requirements including acts and regulations from each applicable state and territory together with any nationally approved compliance codes and/or guidelines • relevant state/territory regulations, codes of practice and

RANGE STATEMENT

- safeworking system requirements
- relevant state/territory OH&S legislation
- relevant state/territory environmental protection legislation

Unit Sector(s)

Not Applicable

Competency Field

Competency Field S - Construction and Installation