



Australian Government

Department of Education, Employment and Workplace Relations

TLIB4807B Carry out off-site repair, overhaul and assembly of mechanical signalling equipment

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit involves the skills and knowledge required to carry out off-site repair, overhaul and assembly of mechanical signalling equipment in accordance with safeworking and regulatory requirements and workplace procedures, including assessing equipment condition, replacing out-of-specification components, producing components where required, assembling components, and testing and adjusting equipment to ensure overall system integrity.

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 servicing and cleaning of mechanical infrastructure signalling equipment 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 Assess equipment condition	1.1 Equipment condition is established through tagged repair sheets from the field and initial examination 1.2 Condition of all out-of-tolerance equipment and components is correctly identified and recorded through detailed inspection and testing 1.3 The type and extent of required repairs are evaluated to determine viability of repair operations and to estimate time requirements 1.4 Components requiring disposal are identified and replacement components are arranged to allow work to commence
2 Replace components	2.1 Equipment is dismantled to the extent required to carry out previously identified repairs 2.2 Components requiring replacement are stored for later repair/disposed of in line with organisational requirements 2.3 Components are replaced/repaired/returned to operational condition in line with technical specifications and standard workshop practices
3 Produce components	3.1 Components are produced to comply with the defined job requirements and technical specifications 3.2 Appropriate manufacturing/workshop techniques are applied to ensure required quality components are produced

- 4 Assemble components**
 - 4.1 Assembly methods and sequencing are planned to ensure efficient operations
 - 4.2 Components are laid out for assembly in compliance with planned processes
 - 4.3 Assembly of all components, sub assemblies and equipment is correctly carried out as per planned operations and in compliance with job and technical specifications
 - 4.4 All securing methods and operations comply with the job and technical specifications
- 5 Test and adjust equipment**
 - 5.1 All equipment functions are tested to ensure conformance to drawings and specifications
 - 5.2 All assembly and joining/securing processes and outcomes are checked and tested as required to match the job and technical specifications
 - 5.3 Adjustments are made to ensure all equipment operations meet the technical specifications
 - 5.4 Operational/functional compliance to the job and technical specifications is confirmed and certified
 - 5.5 All required documentation is correctly completed and forwarded to appropriate personnel to confirm the equipment is certified for use

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 servicing and cleaning of mechanical infrastructure signalling equipment

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

Hazards that may exist when servicing and cleaning mechanical infrastructure signalling equipment, and ways of controlling the risks involved

Fundamentals of signalling and operations of mechanical signalling equipment

Rail/train movement systems

Fault detection techniques

Authorisation/approval processes and procedures

Documentation and record keeping requirements

Track/turnout layout

Required skills:

Communicate effectively with others when servicing and cleaning mechanical infrastructure signalling equipment

Read and interpret instructions, procedures, information and signs relevant to the servicing and cleaning of mechanical infrastructure signalling equipment

Interpret and follow operational instructions and prioritise work

Complete documentation related to the servicing and cleaning of mechanical infrastructure signalling equipment

Operate electronic communication equipment to required protocol

Work collaboratively with others when servicing and cleaning mechanical infrastructure 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 when servicing and cleaning mechanical infrastructure signalling equipment in accordance with regulatory requirements and workplace procedures

Implement contingency plans for unexpected events when servicing and cleaning mechanical infrastructure 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 hand, portable, power and air tools

Safely use chemical cleaning agents, solvents and lubricants

Carry out visual inspection and checking

Check/confirm compliance with operational specifications

Use basic computer skills

Use appropriate painting techniques

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 or exposed conditions controlled or open environments
Work may involve exposure to:	chemicals dangerous or hazardous substances movements of equipment, materials and vehicles
Signal equipment may include:	point machines hydraulic and pneumatic points signals points equipment ground frames channel irons wire ropes point rodding level crossing signs signal locations/housings foundations/supports/sleepers
Cleaning and servicing equipment may include:	steam cleaners hand tools brushes/wire and paint hand-held power/air tools brush/weed trimmers
Chemicals and consumables may include:	paints and paint strippers cleaning and de-greasing agents solvents weed killers oils greases cleaning rags
Rubbish removal/disposal may be carried out:	using internal and/or external operating rules and procedures
Visual checks may include:	rust

breakage
graffiti
rubbish build up
environmental damage/degradation

Operational checks may include:	mechanical movement linkages clearances interferences alignment wear loose fittings
Communication equipment may include:	two way radios computers telephones
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
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 authority to access the site or to operate equipment, including: written authority verbal authority authority as detailed in organisation operating rules and procedures notices, records and requests technical 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 and legislation 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
relevant Australian Standards and related
requirements
relevant state/territory OH&S legislation
relevant state/territory environmental
protection legislation
ADG Code and associated requirements

Unit Sector(s)

Not applicable.

Competency Field

B - Equipment Checking&Maintenance