



Australian Government

Department of Education, Employment and Workplace Relations

TLIB3048A Carry out off-site repair, overhaul and assembly of mechanical signalling equipment

Release: 1

TLIB3048A Carry out off-site repair, overhaul and assembly of mechanical signalling equipment

Modification History

Not Applicable

Unit Descriptor

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. It includes assessing equipment condition, replacing out-of-specification components, producing components where required, assembling components, and testing and adjusting equipment to ensure overall system integrity. 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 applicable 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 off-site repair, overhaul and assembly of mechanical signalling equipment 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 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:

- Relevant rail safety, OH&S and environmental procedures and regulations
- Workplace procedures for the off-site repair, overhaul and assembly of mechanical signalling equipment
- Problems that may occur during the off-site repair, overhaul and assembly of mechanical signalling equipment, and action that can be taken to report or resolve the problems
- Hazards that may exist when off-site repairing, overhauling and assembling mechanical signalling equipment, and ways of controlling the risks involved
- Fundamentals of signalling and operations of mechanical signalling equipment
- Fault detection techniques
- Authorisation/approval processes and procedures
- Documentation and record keeping requirements

Required skills:

- Communicate effectively with others when off-site repairing, overhauling and assembling mechanical signalling equipment
- Read and interpret instructions, procedures, information and signs relevant to the off-site repair, overhaul and assembly of mechanical signalling equipment
- Interpret and follow operational instructions and prioritise work
- Complete documentation related to the off-site repair, overhaul and assembly of mechanical signalling equipment
- Operate electronic communication equipment to required protocol
- Work collaboratively with others when off-site repairing, overhauling and assembling mechanical signalling equipment
- Promptly report and/or rectify any identified problems, faults or malfunctions when off-site repairing, overhauling and assembling mechanical signalling equipment in accordance with regulatory requirements and workplace procedures
- Implement contingency plans for unexpected events when off-site repairing, overhauling and assembling mechanical 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

Required skills:

environments

Required skills:

- 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 appropriate painting techniques
- 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:
 - correctly identifying faults
 - carrying out appropriate repairs in accordance with workplace requirements
 - correctly testing equipment following repairs

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, 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:

- in all 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

RANGE STATEMENT

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|---|---|
| Chemicals and consumables may include: | <ul style="list-style-type: none">• paints and paint strippers• cleaning and de-greasing agents• solvents• weed killers• oils• greases• cleaning rags |
| Rubbish removal/disposal may be carried out: | <ul style="list-style-type: none">• using internal and/or external operating rules and procedures |
| Visual checks may include: | <ul style="list-style-type: none">• rust• breakage• graffiti• rubbish build up• environmental damage/degradation |
| Operational checks may include: | <ul style="list-style-type: none">• mechanical movement• linkages• clearances• interferences• alignment• wear• loose fittings |
| Communication equipment may include: | <ul style="list-style-type: none">• two-way radios• computers• telephones/mobile phones |
| Safety and protective equipment may include: | <ul style="list-style-type: none">• 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 | <ul style="list-style-type: none">• company procedures• enterprise procedures |

RANGE STATEMENT

local terminology used, workplace procedures may include:

- organisational procedures
- established procedures
- 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
- 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 Australian Standards and related requirements
- relevant state/territory OH&S legislation
- relevant state/territory environmental protection legislation

Information/documents may include:

Applicable regulations and legislation may include:

Unit Sector(s)

Not Applicable

Competency Field

Competency Field

B - Equipment Checking and Maintenance