Australian Government

Department of Education, Employment and Workplace Relations

TLIB3058A Maintain aerial signal/telecommunications lines and cables

Release: 1

TLIB3058A Maintain aerial signal/telecommunications lines and cables

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

This unit involves the skills and knowledge required to maintain aerial signal/telecommunications lines and cables in accordance with safeworking and regulatory requirements and workplace procedures, including inspecting and servicing line and cable routes, diagnosing any identified line and cable faults and repairing any line and cable faults to the standards specified to ensure system integrity. Licensing, legislative, regulatory or certification requirements are 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 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 maintenance of aerial signal/telecommunications lines and cables as part of workplace activities across a variety of operational contexts within the Australian rail system.

Operators of mechanised equipment must have undertaken training and, where appropriate, hold the relevant licence, permit or certificate and be recognised as competent for the class of machinery being used.

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 Inspect and service line and cable routes	1.1 Routes are inspected and recorded and arrangements are made for the removal of any obstructions, damage, infringing vegetation to provide free access to cables/aerials 1.2 Routes are physically inspected to determine any breaks, misalignments, damage and insulation wear requiring repair 1.3 Poles are inspected for deterioration and a safety assessment is made
2 Diagnose line and cable faults	2.1 Permission to test isolated equipment is confirmed prior to any work being undertaken 2.2 Probable location of fault is identified from visual inspection and circuit tests are conducted to isolate fault area 2.3 The nature of the fault is identified from further tests and corrective action required is identified to enable appropriate arrangements for resources and for work to be performed 2.4 Disconnection/insulation procedures are applied to enable maintenance work to be carried out in isolation to systems where lines are in close proximity to high voltage services
3 Repair line and cable faults	3.1 Work site is made safe in accordance with organisations safety requirements to enable repair work to be safely undertaken 3.2 Aerial lines/cables are repaired to operational and technical requirements using appropriate jointing or replacement/repair procedures 3.3 Repaired/replaced line/cable is tested to specified standards to ensure conformity to operational and technical requirements 3.4 Appropriate personnel are notified of completed repairs/replacement and appropriate documentation is completed in accordance with organisations requirements and returned to appropriate organisation/department as required

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 maintenance of aerial signal/telecommunications lines and cables
- Problems that may occur during the maintenance of aerial signal/telecommunications lines and cables, and action that can be taken to report or resolve the problems
- Hazards that may exist when maintaining aerial signal/telecommunications lines and cables, and ways of controlling the risks involved
- Electrical theory and principles relevant to aerial cables
- Line/cable technical specifications
- Test equipment and procedures
- Fault diagnosis/problem solving
- Techniques for the operation of support equipment
- Pole top rescue procedures
- Common aerial cable system faults
- Clearance procedures from other services
- AS 3000 and AUSTEL requirements relevant to aerial cables
- Documentation and record keeping requirements

Required skills:

- Communicate effectively with others when maintaining aerial signal/telecommunications lines and cables
- Read and interpret instructions, procedures, information, technical data and drawings relevant to the maintenance of aerial signal/telecommunications lines and cables
- Interpret and follow operational instructions and prioritise work
- Complete documentation related to the maintenance of aerial signal/telecommunications lines and cables
- Operate electronic communication equipment to required protocol
- Work collaboratively with others when maintaining aerial signal/telecommunications lines and cables
- 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 be identified when maintaining aerial signal/telecommunications lines and cables in accordance with regulatory requirements and workplace procedures
- Implement contingency plans for unexpected events when maintaining aerial signal/telecommunications lines and cables
- 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

Required skills:

- 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 required personal protective equipment conforming to industry and OH&S standards
- Select and use hand tools, power tools and equipment
- Use relevant test equipment and aerial cable testing techniques
- Diagnose and repair aerial cable faults
- Carry out line/cable/conductor jointing and termination
- Use mechanised equipment
- Carry out a pole top rescue

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
	  • access to an appropriate range of relevant operational situations in the workplace
	• In both real and simulated environments, access is

EVIDENCE GUIDE

	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 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:	• restricted spaces • exposed conditions • controlled or open environments
Work may involve exposure to:	• chemicals • dangerous or hazardous substances • movements of equipment, materials and vehicles
Aerial signal/telecommunications lines and cables to be maintained may include:	• all those in service in the Australian rail systems
Cables may include:	• multi core wires • open wires • low voltage
All signalling cables and cable products must be:	• supplied and installed to AS 3000 or appropriate organisational standards

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Fittings may include:	• poles • cross arms • insulators including spindles, stays and guards • aerial lines • transpositioning • joint sleeves • tie wires
Test equipment may include:	• meggers • isolator and probe sets • wire test sets • pulse echo fault locaters • ohm meters • earth fault locaters • earth testers • arrestor testers • multi meters • test phones • tone generators • insulation and continuity testers • oscilloscopes
Faults may include:	• crossed wires • high resistance joints • broken/damaged insulators • crossed/damaged lead-in cables • circuit faults • damage caused by bushfires • storm damage • wind damage • earth conductors
Faults may be reported by:	• train crews • public response • fault centres • fault indicators • internal users • train controllers
Communication equipment may include:	• two-way radios • computers • telephones
Safety and protective equipment	• high visibility clothing • hearing protection

RANGE STATEMENT

may include:	• 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 • circuit diagrams and schematics • engineering drawings • line diagrams • line field books • signalling/telecommunication circuits • pole testing 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, including AS 4292 and AS 3000 • relevant state/territory OH&S legislation

RANGE STATEMENT

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

Unit Sector(s)

Not Applicable

Competency Field

Competency Field B - Equipment Checking and Maintenance