



Australian Government

Department of Education, Employment and Workplace Relations

TLIB4071A Install and maintain pole mounted switches and transformers

Release: 1

TLIB4071A Install and maintain pole mounted switches and transformers

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

This unit involves the skills and knowledge required to install and maintain pole mounted switches and transformers in accordance with safeworking and regulatory requirements and workplace procedures, including planning the installation and maintenance, preparing the worksite, installing switches and transformers in accordance with workplace specifications, maintaining switches and transformers, and completing all work in accordance with workplace requirements. 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 installation and maintenance of pole mounted switches and transformers as part of workplace activities across a variety of operational contexts within the Australian rail system.

Persons working on energised overhead or underground systems or electrical equipment must have undertaken training and, where appropriate, hold the relevant licence, permit or certificate and be recognised as competent to carry out the work involved.

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 Plan installation and maintenance	1.1 Works order is analysed and confirmed, if necessary by site inspection 1.2 Resources required for the job are identified and scheduled according to organisation procedures 1.3 Switch equipment and transformer is transported to the worksite 1.4 Liaison and communication issues are resolved according to organisation negotiation procedures
2 Prepare the worksite	2.1 Work plan and resources required are confirmed/checked at the work-site 2.2 Personnel participating in the activity, including plant operators and contractors, are fully briefed 2.3 Road signs, barriers and warning devices are positioned to ensure a safe worksite 2.4 Safeworking practices are observed on or about the running track/line 2.5 Work-site is laid out in accordance with the work plan so as to ensure a minimum of waste and rework 2.6 Systems/circuits are isolated as required, proved safe to work on in accordance with works order, and electrical permits are received/accepted/returned
3 Install switches and transformers	3.1 Switch equipment , transformers and earthing systems are installed and connected 3.2 Transformer is tested and voltage output adjusted 3.3 Visual inspection is carried out to confirm that equipment/apparatus is in a safe condition to test and/or commission 3.4 Commission is carried out according to works order/plan
4 Maintain switches and transformers	4.1 Maintenance requirement is confirmed by detailed diagnosis at site 4.2 Maintenance, including removal, repair, replacement and reinstatement, is carried out in accordance with the works order and the condition of equipment
5 Complete the work	5.1 Worksite is rehabilitated 5.2 Appropriate authority is notified on completion of work 5.3 Records and documentation for updating system data are completed

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 and maintenance of pole mounted switches and transformers
- Problems that may occur during the installation and maintenance of pole mounted switches and transformers
- Hazards that may exist when installing and maintaining pole mounted switches and transformers
- Switching or de-energising procedures and maintenance operations
- Characteristics, capabilities and uses of types of equipment included in the range of variables
- Visual inspection procedures
- Distribution system earthing procedures
- Relevant organisation and commercial publications, including construction manuals and technical instructions as they relate to the installation and maintenance of electrical equipment
- The responsibilities and rights of other authorities, clients and landowners
- Statutory/organisation traffic control requirements, rigging regulations and guidance signals for plan operations
- Live line working techniques and equipment
- Relevant electrical/electronic theory and principles
- Relevant recording and documentation procedures
- Relevant sections of Australian Standards AS 4292 and AS 3000

Required skills:

- Communicate effectively with others when installing and maintaining pole mounted switches and transformers
- Read and interpret instructions, procedures, information, technical data, manuals and drawings relevant to the installation and maintenance of pole mounted switches and transformers
- Interpret and follow operational instructions and prioritise work
- Communicate plans, intentions and safety criteria to others
- Complete documentation related to the installation and maintenance of pole mounted switches and transformers
- Operate electronic communication equipment to required protocol

Required skills:

- Perform calculations required for installation procedures
- Work collaboratively with others when installing and maintaining pole mounted switches and transformers
- 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 and maintaining pole mounted switches and transformers 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
- Operate and adapt to differences in equipment in accordance with standard operating procedures
- Select and use hand and power tools and equipment
- Select and use test equipment and testing techniques
- Apply appropriate repair/testing practices and procedures
- Rig/sling loads for lifting
- 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

EVIDENCE GUIDE

Context of and specific resources for assessment

- other relevant aspects of the range statement
- 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 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 in:

- restricted spaces
- exposed conditions
- controlled or open environments

Work may involve exposure to:

- chemicals
- dangerous or hazardous substances

RANGE STATEMENT

Switchgear covered by the unit may include:	• movements of equipment, materials and vehicles • sectionalisers • dropout fuses • disconnectors • isolators • air break switches • links • fuses • fuse switches • circuit-breakers
Electrical apparatus may include:	• transformers • surge diverters • earthing systems
Liaison may involve:	• personnel • plant • equipment • transport
Communication equipment may include:	• two-way radios • computers • telephones
Installation and maintenance work may be performed with:	• the system energised, subject to the organisation's procedures including those for the use of live line working techniques and equipment
Maintenance may include:	• the removal, repair and replacement of switching equipment and transformers including the repair, replacement and cleaning of associated hardware
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	• company procedures

RANGE STATEMENT

organisation concerned and the local terminology used, workplace procedures may include:

Information/documents may include:

Applicable regulations and legislation may include:

- enterprise procedures
- organisational procedures
- established procedures
- 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
- works orders, including drawings, plans, materials and resource lists
- 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 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
- 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