



Australian Government

Department of Education, Employment and Workplace Relations

TLIW3013A Grind switches and crossings

Release: 1

TLIW3013A Grind switches and crossings

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

This unit involves the skills and knowledge required to grind switches and crossings in accordance with approved standards, safeworking and regulatory requirements and workplace procedures. It includes determining job requirements, grinding weld and/or weld repair, grinding switches and crossings to repair surface defects, and completing all required documentation. This competency relates to the grinding of weld repairs to switches and crossings, and repairing of surface profile of switches and crossings in service. 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 state and territory together with any nationally approved compliance codes and/or guidelines.

Work is performed under some supervision, generally within a team environment. It involves the application of routine operational principles and procedures to the grinding of switches and crossings 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 Determine job requirements	1.1 Weld repairs are located 1.2 Defects relating to rail surface profile and condition in switches and crossings are identified 1.3 Appropriate equipment is selected 1.4 Appropriate repair method and/or profile is selected to ensure completed work will meet specifications 1.5 Site is cleared of obstructions and combustible material
2 Grind weld repair	2.1 Switch or crossing is ground to nominated profile after installation or welded repair using approved equipment in accordance with workplace procedures 2.2 Grinding equipment is operated safely in accordance with OH&S and environmental requirements 2.3 Switch or crossing profile and alignment are measured to ensure compliance with acceptance standards 2.4 Rail surface condition is assessed for compliance with acceptance standards
3 Grind switch or crossing to repair surface defects	3.1 Switch or crossing is ground using approved equipment in accordance with workplace procedures 3.2 Grinding equipment is operated safely in accordance with OH&S and environmental requirements 3.3 Finished surface is checked to ensure compliance with acceptance standards
4 Complete documentation	4.1 Documentation on work undertaken is completed in accordance with workplace requirements

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 safety, OH&S and environmental procedures and regulations
- Workplace procedures for the grinding of switches and crossings
- Problems that may occur during the grinding of switches and crossings, and action that can be taken to report or resolve the problems
- Hazards that may exist when grinding switches and crossings, and ways of controlling the risks

REQUIRED KNOWLEDGE AND SKILLS

involved

- Acceptance standards for switch and crossing profile and surface condition
- Grinding methods and results
- Relevant communication systems and procedures
- Authorisation/Approval processes and procedures
- Relevant recording and documentation procedures

Required skills:

- Communicate effectively with others when grinding switches and crossings
- Read and interpret technical data, drawings, instructions and manuals relevant to the grinding of switches and crossings
- Interpret and follow operational instructions and prioritise work when grinding switches and crossings
- Complete documentation related to the grinding of switches and crossings
- Operate communication equipment to required protocol
- Work collaboratively with others when grinding switches and crossings
- Promptly report and/or rectify any identified problems, faults or malfunctions that may occur when grinding switches and crossings in accordance with regulatory requirements and workplace procedures
- Implement contingency plans for unexpected events when grinding switches and crossings
- 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 required personal protective equipment
- Select and use hand tools, power tools and equipment
- Apply grinding techniques to achieve switch and crossing profile and surface condition to meet required standards and procedures

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:
 - determining job requirements
 - safely operating grinding equipment
 - grinding weld repairs using appropriate grinding wheel speed and rate of metal removal
 - grinding switches and crossings to repair surface defects
 - completing documentation correctly

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 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

EVIDENCE GUIDE

- 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.

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| Operations may be conducted: | <ul style="list-style-type: none"> • by day or night • in all weather conditions |
| Work may be conducted in: | <ul style="list-style-type: none"> • restricted spaces • exposed conditions • controlled or open environments |
| Work may involve exposure to: | <ul style="list-style-type: none"> • chemicals • dangerous or hazardous substances • movements of equipment, goods and vehicles |
| Type and rate of grinding may vary according to: | <ul style="list-style-type: none"> • location • rail mass or type • switch type • crossing type • crossing material • purpose of grinding |
| Equipment may include: | <ul style="list-style-type: none"> • hand held grinders • rail profile grinders • hand tools including gauges, track jacks, spiking hammers and bars • fume extraction equipment for grinding manganese crossings |
| Measuring equipment may include: | <ul style="list-style-type: none"> • straight edge • electronic straight edge • profile gauge |
| Materials may include: | <ul style="list-style-type: none"> • grinding wheels |
| Liaison may include: | <ul style="list-style-type: none"> • internal or external personnel from other work areas (e.g. train controllers, electricians) |
| Depending on the type of | <ul style="list-style-type: none"> • company procedures |

RANGE STATEMENT

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

- enterprise procedures
- organisational procedures
- established procedures

Communications equipment may include:

- two-way radios
- telephones/mobile phones
- agreed audible or hand signal

Depending on work context and crossing material, safety and personal protective equipment may include:

- high visibility clothing
- hearing protection
- gloves
- sunscreen
- sunglasses
- safety glasses
- insect repellent
- safety headwear
- safety footwear
- fire retardant clothing and overgear (aprons, spats etc)
- face shields
- portable radios/mobile phones
- hand lamps
- flags
- protective equipment for grinding manganese crossings
- fire fighting equipment
- safety devices

Information/documents may include:

- operational instructions, policies and workplace procedures
- local authority regulations and procedures
- information provided by other workplace personnel
- rail inspections and reports
- work orders
- technical instructions
- manufacturers or workplace equipment instructions and operation manuals
- emergency procedure manuals
- two-way radio/mobile phone operation procedures
- QA plans, data and document control
- conditions of service, legislation and industrial agreements including workplace agreements and awards

Applicable procedures 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

RANGE STATEMENT

- relevant Australian Standards and related requirements, including AS 4292
- relevant state/territory OH&S legislation
- relevant state/territory environmental protection legislation

Unit Sector(s)

Not Applicable

Competency Field

Competency Field W - Equipment and Systems Operations