



**Australian Government**

# **UEERS0028 Maintain mechanical rail signalling equipment and infrastructure**

**Release: 1**

# **UEERS0028 Maintain mechanical rail signalling equipment and infrastructure**

## **Modification History**

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

This unit replaces and is equivalent to UEERS0016 Maintain mechanical rail signalling equipment and infrastructure.

Modifications this release include:

- Minor amendments made to Performance Criteria text.
- Performance criteria 2.2 and 3.8 added.
- Performance and Knowledge Evidence updated for clarity.

## **Application**

This unit involves the skills and knowledge required to maintain mechanical rail signalling and infrastructure connected to electromechanical equipment.

It includes preparing, carrying out and completing the maintenance of mechanical rail signalling equipment and infrastructure.

Persons achieving competence in this unit will need to fulfil the applicable state/territory legislated rail safety requirements and to comply with relevant codes of practice, rules and/or guidelines.

No other licensing, legislative or certification requirements apply to this unit at the time of publication.

## **Pre-requisite Unit**

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

## **Competency Field**

Rail Signalling

## **Unit Sector**

Electrotechnology

## Elements and Performance Criteria

### ELEMENTS

### PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

#### **1 Prepare mechanical signalling equipment and infrastructure**

- 1.1** Work health and safety (WHS)/occupational health and safety (OHS) procedures for a given work area are identified, obtained and applied
- 1.2** Hazards are identified, risks assessed and control measures and workplace procedures implemented
- 1.3** Safety hazards that have not previously been identified are noted on job safety assessments and existing risk control measures are implemented
- 1.4** Maintenance is sequenced in accordance with job specification
- 1.5** Appropriate rail safe working person/s is consulted to ensure work is coordinated effectively with others involved on the worksite
- 1.6** Location of equipment to be maintained is determined from job specifications and diagrams
- 1.7** Materials needed for maintenance are obtained in accordance with workplace procedures and checked against job specification
- 1.8** Tools, equipment and testing devices needed to conduct maintenance work are obtained in accordance with workplace procedures and checked for correct operation and safety

#### **2 Carry out mechanical signalling equipment and infrastructure maintenance**

- 2.1** WHS/OHS risk control measures and workplace procedures for carrying out work are followed
- 2.2** On-track safe working requirements are identified and applied in accordance with workplace procedures and safety management system
- 2.3** Chemicals, lubricants and consumables are used and disposed of in accordance with material safety data sheets (MSDS)/safety data sheets (SDS) and WHS/OHS

codes of practice

- |             |                                                                                                                                                                    |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>2.4</b>  | Rubbish, weeds and obstructions are removed from equipment and housings                                                                                            |
| <b>2.5</b>  | Visual inspections and checking of operational equipment are performed to identify any equipment faults                                                            |
| <b>2.6</b>  | External surfaces are prepared/painted in accordance with organisational standards to protect equipment                                                            |
| <b>2.7</b>  | Internal surfaces and operational components are cleaned and lubricated to ensure operational effectiveness                                                        |
| <b>2.8</b>  | Maintenance is carried out in accordance with relevant industry standards and workplace procedures                                                                 |
| <b>2.9</b>  | Existing methods for dealing with unplanned situations are discussed with appropriate person/s and documented in accordance with workplace procedures              |
| <b>2.10</b> | Unplanned situations are dealt with safely in a manner that minimises risk to personnel and with the approval of authorised person/s                               |
| <b>2.11</b> | Maintenance is carried out efficiently without waste of materials, damage to apparatus, the surrounding environment or services using sustainable energy practices |
| <b>3</b>    | <b>Complete mechanical signalling equipment and infrastructure maintenance</b>                                                                                     |
| <b>3.1</b>  | WHS/OHS work completion risk control measures and procedures are followed                                                                                          |
| <b>3.2</b>  | Approval to conduct a check of equipment operation is obtained in accordance with relevant rail operational rules and procedures                                   |
| <b>3.3</b>  | Track clearance check is made before conducting equipment operation check to ensure safe train movement                                                            |
| <b>3.4</b>  | Authorised equipment check is carried out in accordance with workplace procedures to identify any equipment faults                                                 |

- 3.5 Operational effectiveness of equipment is confirmed through observation during train movements, as required
- 3.6 Equipment faults are identified, recorded and corrective action is taken
- 3.7 Equipment is locked and secured to prevent unauthorised access
- 3.8 On-track safe working requirements are removed in accordance with workplace procedures and safety management system
- 3.9 Work completion is documented and appropriate person/s notified in accordance with workplace procedures and relevant report/s completed

## Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

## Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

## Unit Mapping Information

This unit replaces and is equivalent to UEERS0016 Maintain mechanical rail signalling equipment and infrastructure.

## Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

# Assessment Requirements for UEERS0028 Maintain mechanical rail signalling equipment and infrastructure

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- Performance criteria 2.2 and 3.8 added.
- Performance and Knowledge Evidence updated for clarity.

## Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least two separate occasions and include:

- following relevant codes of practice, work health and safety (WHS)/occupational health and safety (OHS) and environmental protection procedures and requirements
- implementing workplace procedures and practices
- applying sustainable energy principles and practices
- applying rail safe working practices and relevant standards, codes and rail safety regulations
- preparing rail mechanical signalling equipment and infrastructure for maintenance interpreting drawings, plans and specifications correctly
- ensuring safe trained movement through work area
- maintaining equipment in accordance with workplace procedures
- using chemicals and tools safely
- testing that equipment is fully functional after maintenance
- checking that technical/operational specifications are met and that equipment is in compliance with work orders
- applying effective fault diagnosis techniques
- completing rail mechanical signalling equipment and infrastructure maintenance
- completing relevant technical reports, records, documentation and follow-up work orders.

## Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- mechanical rail signalling equipment and infrastructure maintenance requirements and

techniques, safe working practices and relevant standards, codes and regulations, including:

- relevant technical manuals, manufacturer specifications and catalogues
- environmental and heritage awareness
- enterprise work activities records encompassing:
  - purpose and extent of maintaining work activities records in an enterprise
  - types of records for maintaining work activities in an enterprise
  - methods for recording and maintaining work records
  - work records required by regulation requirements
- safe working practices encompassing:
  - risk assessment and management of risk
  - hazards associated with electrical equipment and traction rail return currents
  - safety, selection, use, maintenance and care of test equipment
  - legislated requirements
- rail safe working practices encompassing:
  - rail enterprise safety standards and procedures
  - rail safe working requirements
  - possessions protection and management
- rail signalling, drawings and diagrams
- drawing types and applications encompassing:
  - drawing layouts and conventions
  - drawing symbols
  - cable and equipment schedules
- rail signalling principles - mechanical encompassing:
  - overview of mechanical rail signalling
  - purpose of elements of a mechanical rail signalling system
- rail signalling equipment servicing procedures and frequency
- components and operating principles of rail signalling:
  - mechanical equipment
  - point actuating devices
  - interlocking systems - mechanical
  - electro-pneumatic equipment
- relevant workplace policies, procedures and documentation
- operational test procedures.

## Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the

time of assessment.

Assessment must occur in suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in suitable simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment (PPE) currently used in industry
- resources that reflect current industry practices in relation to servicing mechanical rail signalling equipment and infrastructure
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

## Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>