



Australian Government

UEERS0016 Maintain mechanical rail signalling equipment and infrastructure

Release: 1

UEERS0016 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.

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

Elements describe the essential outcomes.

1 Prepare mechanical signalling equipment and

PERFORMANCE CRITERIA

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

1.1 Work health and safety (WHS)/occupational health and safety (OHS) procedures for a given work area are

infrastructure		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	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
	2.3	Rubbish, weeds and obstructions are removed from equipment and housings
	2.4	Visual inspections and checking of operational equipment are performed to identify any equipment faults
	2.5	External surfaces are prepared/painted in accordance with organisational standards to protect equipment
	2.6	Internal surfaces and operational components are cleaned and lubricated to ensure operational

		effectiveness
	2.7	Maintenance is carried out in accordance with relevant industry standards and workplace procedures
	2.8	Existing methods for dealing with unplanned situations are discussed with appropriate person/s and documented in accordance with workplace procedures
	2.9	Unplanned situations are dealt with safely in a manner that minimises risk to personnel and with the approval of authorised person/s
	2.10	Maintenance is carried out efficiently without waste of materials, damage to apparatus, the surrounding environment or services using sustainable energy practices
3	Complete mechanical signalling equipment and infrastructure maintenance	
	3.1	WHS\OHS work completion risk control measures and procedures are followed
	3.2	Approval to conduct a check of equipment operation is obtained in accordance with relevant rail operational rules and procedures
	3.3	Track clearance check is made before conducting equipment operation check to ensure safe train movement
	3.4	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	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 UEENEEN101A 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 UEERS0016 Maintain mechanical rail signalling equipment and infrastructure

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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:

- interpreting specifications correctly
- 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
- ensuring safe trained movement through work area
- following relevant codes of practice, work health and safety (WHS)/occupational health and safety (OHS) and environmental protection procedures and requirements
- completing relevant technical reports, records and documentation
- dealing with unplanned events
- applying rail safe working practices and relevant standards, codes and rail safety regulations
- applying relevant WHS/OHS) requirements, including:
 - implementing workplace procedures and practices
 - using of risk control measures
- applying sustainable energy principles and practices
- completing rail mechanical signalling equipment and infrastructure maintenance
- preparing rail mechanical signalling equipment and infrastructure for maintenance.

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:
 - basic rail operations encompassing:
 - rail terminology

- train dynamics
- essentials of safe movement of trains
- purpose of rail signalling
- rail signalling, regulations and codes encompassing:
 - codes - philosophy and format
 - how to read and apply a code
 - codes that apply to rail signalling - relevant to a rail network
- technical manuals and catalogues encompassing:
 - typical format
 - how to read and apply information
- environmental and heritage awareness encompassing:
 - purpose of environmental and heritage regulation
 - typical issues affecting electrotechnology services and systems
 - meeting requirements
- 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
- electrical safe working practices encompassing:
 - risk management and assessment of risk
 - principle and purpose of risk management
 - processes for conducting a risk assessment
 - hazards associated with low voltage (LV), extra-low voltage (ELV) and high currents
 - arrangement of power distribution and circuits in an electrical installation
 - parts of an electrical system and equipment that operate at LV and ELV
 - parts of an electrical system and equipment where high currents are likely
 - safety, selection, use, maintenance and care of test equipment
 - safety characteristics of electrical testing devices
 - safe use of electrical testing device
 - checks and storage methods for maintaining the safety of testing devices
- 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 - signals, point actuating systems, locking and train detection systems, control input devices, indicators, diagrams and monitors, interlocking and safe working systems
- rail signalling - mechanical equipment encompassing:
 - equipment and their components
 - operating principles
 - servicing procedures
- rail signalling - point actuating devices encompassing:
 - equipment and their components - point machines, detectors, claw/clamp locks, swing nose mechanisms and in-bearer mechanisms
 - operating principles
 - servicing procedures
- rail signalling - interlocking systems - mechanical encompassing:
 - equipment and their components
 - operating principles and parameters
 - servicing procedures
- rail signalling - electro-pneumatic equipment encompassing:
 - equipment and their components - compressors, air lines and control valves
 - operating principles and parameters
 - servicing procedures
- safe working practices and relevant standards, codes and regulations
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and 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.

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