



**Australian Government**

# **UEERS0023 Inspect, test and certify rail power signal equipment**

**Release: 1**

# **UEERS0023 Inspect, test and certify rail power signal equipment**

## **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 UEERS0018 Test and commission rail power equipment.

Modifications this release include:

- Title changed.
- Element titles and performance criteria amended to reflect title change.
- UEERS0007 and UEERS0008 removed from prerequisites
- Minor amendments made to Performance Criteria text.
- Performance criteria 2.2 and 3.3 added.
- Essential conditions added to Range of Conditions.
- Performance and Knowledge Evidence updated for clarity.
- Minor text changes to Assessment Conditions.

## **Application**

This unit involves the skills and knowledge required to independently inspect, test and certify rail signalling power equipment into service on rail networks.

It includes preparing, inspecting, testing and certifying rail power signalling circuits, equipment and components. It also includes completing connection of wiring circuitry, equipment and components; testing of wiring circuitry, equipment and components; finding and repairing faults; testing of control and indicating equipment; and reporting requirements.

Persons achieving competence in this unit will need to fulfil the applicable state/territory legislated rail safety requirements and 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**

UEERS0022 Find and repair rail signalling system faults

## **Competency Field**

Rail Signalling

## Unit Sector

Electrotechnology

## Elements and Performance Criteria

### ELEMENTS

Elements describe the essential outcomes.

#### **1 Prepare to inspect, test and certify power signalling circuits, equipment and components**

### 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 identified, obtained and clarified
- 1.2** Hazards are identified, WHS/OHS risks assessed, and control measures and workplace procedures implemented in preparation for work
- 1.3** Scope of inspection, testing and certifying is determined from job specifications, design drawings and regulatory requirements
- 1.4** Appropriate safe working person/s is consulted to ensure work activity is coordinated effectively with others involved on the worksite
- 1.5** Materials needed for testing and certifying of power signalling circuits, equipment and components are obtained in accordance with workplace procedures and checked against job specifications
- 1.6** Tools, equipment and testing devices needed to inspect, test and certify power signalling circuits, equipment and components are obtained in accordance with workplace procedures and checked for correct operation and safety
- 1.7** Test leads and bridges are identified and recorded to ensure that they are in accordance with the relevant standard

#### **2 Inspect, test and certify power signalling circuits, equipment and components**

- 2.1** WHS/OHS risk control measures and 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 Inspection is carried out and circuits, equipment and components are checked to ensure they are in accordance with manufacturer and system specifications
  - 2.4 Inspecting, testing and certifying work includes installation, termination and operation of the signalling equipment; and checking indicators and signal system operation is completed in accordance with network requirements and relevant industry standards
  - 2.5 Methods for dealing with unplanned situations are selected on the basis of safety and specified work outcomes
  - 2.6 Inspection, testing, certifying and repairs are performed efficiently, without waste of materials or damage to apparatus, the surrounding environment or services using sustainable energy practices
  - 2.7 Straps and bridges are used in accordance with the relevant standard and with the appropriate authority
  - 2.8 System and design faults are verified using relevant industry technical standards information, fault-finding and diagnostic techniques to identify faulty wiring equipment and components
  - 2.9 Identified irregularities and non-conforming wiring, equipment or components are documented and immediate follow-up action is initiated to ensure faults are rectified
  - 2.10 Faulty signalling equipment is replaced, adjusted and secured in accordance with manufacturer specifications and workplace procedures
- 3 Complete testing and certifying work and reports**
- 3.1 WHS/OHS work completion risk control measures and workplace procedures are followed
  - 3.2 Inspection and test results are documented in accordance with workplace procedures and faulty or replaced equipment is tagged and despatched to

maintain equipment spares

- 3.3 All straps and bridges are removed and compared against the initial record of leads, straps and bridges
- 3.4 Incomplete testing is recorded and handed over to approved/ person/s for follow up
- 3.5 Operational equipment is handed over to approved person/s in accordance with handover workplace procedures and final documentation is 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.

Essential operating conditions include:

- all of the following:
  - inspection
  - correlation check
  - wiring continuity and insulation test
  - installation check
  - set to work check.
- at least one the above tests must be conducted on each of the following types of equipment:
  - point machine
  - train detection equipment
  - power supply
  - signal
  - level crossing boom mechanism or flashing lights.

## Unit Mapping Information

This unit replaces and is equivalent to UEERS0018 Test and commission rail power equipment.

## 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 UEERS0023 Inspect, test and certify rail power signal equipment

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- Essential conditions added to Range of Conditions.
- Performance and Knowledge Evidence updated for clarity.
- Minor text changes to Assessment Conditions.

## 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:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including:
  - implementing workplace procedures and practices
  - using risk control measures
- applying sustainable energy principles and practices
- applying rail safe working practices and relevant industry standards, codes and rail safety regulations
- following relevant codes of practice, environmental protection procedures and requirements
- reading and interpreting testing plans and specifications correctly
- inspecting, testing and certifying signalling circuits, equipment and components to meet operational and technical standards
- using effective fault diagnosis and repair/replacement techniques to specified model level
- confirming circuits, equipment and components operated within specified technical parameters
- testing equipment and instruments
- using tools correctly
- completing relevant technical reports, records and documentation.

## 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:

- power signalling inspecting, testing and certifying, safe working practices and relevant standards, codes and regulations, including power signalling system design, including:
  - characteristics
  - diagrams
  - specifications
- the standards and procedures associated with the use of straps and bridges
- power signalling components including:
  - types
  - testing
  - adjustments
- power signalling system certifying including:
  - requirements
  - hazards
  - procedures
  - records and reporting
- rail safe working and safety management systems
- relevant industry standards (scope of AS7716 Signalling Testing Process), codes of practice, regulations and WHS/OHS legislated requirements
- relevant manufacturer specifications and manuals
- relevant workplace documentation.

## 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 inspecting, testing and certifying power signalling equipment
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

## **Links**

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