



Australian Government

UEERS0013 Install and maintain train detection equipment

Release: 1

UEERS0013 Install and maintain train detection equipment

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 install/maintain train detection equipment in a rail network.

It includes preparing and installing/maintaining train detection equipment. It also includes completing the installation/maintenance of train detection equipment and repairing faults, performing operational tests 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

UEERS0010 Install and maintain rail signalling power supplies

UEERS0011 Install and maintain rail track circuit leads and bonds

Competency Field

Rail Signalling

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

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| 1 Prepare to install/maintain train detection equipment | <ul style="list-style-type: none">1.1 Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures for a given work area are identified, obtained and clarified1.2 Hazards are identified, WHS/OHS risks assessed, and control measures and workplace procedures implemented in preparation for work1.3 Scope of the installation/maintenance is determined from maintenance schedules, job specifications, drawings and regulatory requirements1.4 Appropriate rail safe working person/s is consulted to ensure work is coordinated effectively with others involved on the worksite1.5 Materials needed for the installation/maintenance work are obtained in accordance with workplace procedures and checked against job specifications1.6 Tools, equipment and testing devices needed for installation/maintenance work are obtained in accordance with workplace procedures and checked for correct operation and safety |
| 2 Install/maintain train detection equipment | <ul style="list-style-type: none">2.1 WHS/OHS risk control measures and workplace procedures for carrying out work are followed2.2 Installation/maintenance work is carried out in accordance with manufacturer specifications and workplace procedures2.3 Normal function and operating parameters are confirmed in accordance with appropriate manuals, job specifications and commissioning data2.4 Fault-finding and diagnostic techniques are used to verify system/faults2.5 Faulty, damaged or insecure components are replaced/repaired or secured in accordance with manufacturer specifications and workplace procedures2.6 Installation/maintenance, adjusting and testing work is carried out efficiently, without waste of materials or damage to apparatus, the surrounding environment or services using sustainable energy practices |

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| | 2.7 | Appropriate readings are measured and recorded using relevant test instruments |
| | 2.8 | Equipment is tested and adjusted in accordance with manufacturer specifications, workplace and equipment operating procedures |
| | 2.9 | Equipment operational inspections and tests are completed in accordance with job specifications and workplace procedures |
| | 2.10 | Methods for dealing with unplanned situations are determined on the basis of safety and specified work outcomes |
| 3 | Complete train detection equipment installation/maintenance | |
| | 3.1 | WHS/OHS risk control work completion measures and workplace procedures are followed |
| | 3.2 | Calibration of equipment is verified and equipment is confirmed by functional tests in accordance with workplace and equipment operating procedures |
| | 3.3 | Work completion is documented and appropriate rail safe working person/s notified in accordance with workplace procedures and relevant reports produced |

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 UEENEEN109A Install and maintain train detection 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 UEERS0013 Install and maintain train detection equipment

Modification History

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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 plans and specifications correctly
- installing/maintaining, adjusting and testing equipment in accordance with workplace procedures
- using tools and test equipment safely
- checking that technical operational specifications are met and equipment is in compliance with work orders
- following relevant codes of practice, work health and safety (WHS)/occupational health and safety (OHS) and environmental protection procedures and requirements, including:
 - implementing workplace procedures and practices
 - using risk control measures
- completing relevant technical reports, records and documentation
- dealing with unplanned events
- applying rail safe working practices and relevant industry standards, codes and rail safety regulations
- completing the installation/maintenance of train detection equipment
- preparing to install/maintain train detection equipment.

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:

- train detection equipment installation and maintenance, safe working practices and relevant standards, codes and regulations, including:
 - rail signalling, train detection equipment
- train detection equipment and their components encompassing:
 - track circuits, including jointed, jointless, non-vital, axle counters, treadles and level crossing predictors
 - alternating current (a.c.) and direct current (d.c.) power supplies

- transmitters
- receivers
- relays
- track shunts
- tuned joint couplers
- central processor
- diagnostics
- fixtures to ironwork
- operating principles and parameters encompassing:
 - interpreting circuits diagrams to evaluate correct operation and relationship to other signalling circuits
 - normal mode operation:
 - instantaneous coil energisation and delay pick-up
 - wrong-side operation
 - failure mode operation, including wrong-side and right-side conditions
 - alarm mode
 - redundancy mode
 - correct operation in accordance with control and locking tables
 - servicing procedures encompassing:
 - maintenance documentation
 - coordination/planning sequence
 - operational test procedures
 - scheduled/preventative maintenance
 - unscheduled/corrective maintenance
 - certification of train detection equipment (commission and decommission)
 - certifying procedures applicable for compliance with rail operator and/or enterprise standards
- safe working practices and relevant standards, codes and regulations
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements
- 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 installing/maintaining train detection equipment
- 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>