



Australian Government

UEERS0029 Maintain non-vital telemetry systems

Release: 1

UEERS0029 Maintain non-vital telemetry systems

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 UEERS0008 Install and maintain non-vital telemetry systems.

Modifications this release include:

- Title changed.
- Application updated to reflect title change.
- Element titles and performance criteria amended to reflect title change.
- Performance criteria 1.7, 2.2, 3.2 and 3.3 added.
- Performance and Knowledge Evidence updated for clarity.

Application

This unit involves the skills and knowledge required to maintain non-vital telemetry equipment and systems in a rail network.

It includes preparing maintaining and recertifying non-vital telemetry system. It also includes completing the maintenance of non-vital telemetry systems and data communications, repairing faults, testing telemetry equipment and reporting requirements.

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 to maintain non-vital telemetry system

- 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 clarified
- 1.2** Hazards are identified, WHS/OHS risks assessed, and control measures and workplace procedures implemented in preparation for work
- 1.3** Safety hazards not previously identified are noted on job safety assessments, and risk control measures are determined and implemented
- 1.4** Function of equipment is determined in accordance with operating manuals, rail system specifications and rail transport operator's interface
- 1.5** Materials needed to maintain non-vital telemetry system are obtained in accordance with system specifications and workplace procedures
- 1.6** Tools, equipment and testing devices needed to maintain non-vital telemetry system and diagnose the fault are obtained in accordance with workplace procedures and checked for correct operation and safety
- 1.7** Authorisation to take temporarily out of service or disable systems is obtained in accordance with workplace procedures

2 Maintain non-vital telemetry system

- 2.1** WHS/OHS risk control measures and workplace procedures for carrying out the 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** Maintenance work is carried out in accordance with manufacturer specifications and/or workplace procedures
- 2.4** Normal function and operating parameters are confirmed in accordance with appropriate manuals,

job/manufacture specifications and rail operator's interface

- 2.5 Fault-finding and diagnostic techniques are undertaken using circuit diagrams and manufacturer specifications to verify system/faults
- 2.6 Methods for dealing with unplanned situations are determined on the basis of safety, operational requirements, workplace procedures and specified work outcomes
- 2.7 Maintenance work is carried out efficiently, without waste of materials or damage to apparatus, the surrounding environment or services using sustainable energy practices
- 2.8 Fault/s is isolated and assessed to determine appropriate repair method, tools, test and measurement instruments to be used
- 2.9 Faulty, damaged or insecure components are replaced/repared or secured in accordance with manufacturer/technical specifications, workplace procedures and returned to service
- 2.10 Parts/components identified as suitable for replacement are replaced from available parts/component resources
- 2.11 Faults are diagnosed and rectified efficiently and in a logical sequence without waste of materials or damage to apparatus, the surrounding environment or services using sustainable energy practices
- 2.12 Repaired/replaced equipment is tested using approved test equipment in accordance with appropriate test procedures to ensure equipment is fully operational
- 2.13 Test equipment is checked to ensure it is calibrated to manufacturer/technical specifications in accordance with industry standards and workplace procedures
- 2.14 Appropriate adjustments are carried out to manufacturer/technical specifications in accordance with industry standards and workplace procedures

3 Complete non-vital telemetry system maintenance

- 3.1 WHS/OHS work completion risk control measures and workplace procedures are followed

- 3.2 Confirmation that system is functional and that no alarms are present or indicated
- 3.3 On-track safe working requirements are removed in accordance with workplace procedures and safety management system
- 3.4 Parts/components requiring repairs beyond the repair capacity of the service centre are despatched for external repairs or disposed of in accordance with workplace procedures
- 3.5 Documentation is completed to confirm equipment has been repaired to manufacturer specifications and relevant technical reports produced
- 3.6 Arrangements are made for the safe return of equipment to the customer and in accordance with workplace procedures

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 UEERS0008 Install and maintain non-vital telemetry systems.

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 UEERS0029 Maintain non-vital telemetry systems

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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:

- applying rail safe working practices and relevant industry standards, codes and rail safety regulations
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including:
 - implementing workplace procedures and practices
 - using risk control measures
- following relevant codes of practice, environmental protection procedures and requirements
- applying sustainable energy principles and practices
- following correct liaison procedures
- using Safety Critical Communications where required
- interpreting plans and specifications correctly
- calibrating and using test equipment and tools correctly
- maintaining and testing of non-vital telemetry equipment in accordance with workplace procedures
- using effective and efficient diagnostic fault-finding techniques
- using resources efficiently
- repairing equipment in accordance with workplace procedures
- ensuring repaired equipment conforms to manufacturer specifications/workplace requirements
- checking protective earthing, surge and lightning protection

- checking communications links for correct performance, errors or faults
- checking power supply quality
- reading mimics and animated graphics
- interpreting block diagrams and circuits
- completing relevant technical reports records and documentation
- dealing with unplanned events
- completing preventative/reactive maintenance of non-vital telemetry systems.

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:

- non-vital telemetry systems maintenance, safe working practices and relevant standards, codes and regulations, including:
 - electronic switching encompassing:
 - devices and used for electronic switching and their switching characteristic
 - circuit configuration and switch-on, switch-off conditions
 - faults in electronic switching devices/circuits
 - typical applications of electronic switching
 - using supervisory control and data acquisition systems (SCADA) encompassing:
 - SCADA system features and applications
 - industries in which SCADA systems are used
 - associate benefits of the package
 - features and facilities of different SCADA packages
 - hardware requirements
 - rail signalling - remote control systems encompassing:
 - equipment and their components - programmable logic controllers (PLCs), dedicated PCs and prep systems
 - operating principles and parameters
 - servicing procedures
 - transmission protocols encompassing:
 - carriers
 - time division multiplexing
 - relay and computer-based interlocking (CBI) interfaces
 - block diagram identification of components
 - data structure
 - elements, including addressing, parity, cyclic redundancy check, network block diagrams, direction control data and indication data
 - reading mimics and animated graphics
 - viewing data and graphical representation of selected information

- trend graphs and data matching
- alarm logging
- analysing select data
- corrective action of alarm status
- quality of power supply requirements
- correct function of earthing protection, surge & lightning protection equipment
- communications link operation
- servicing procedures, including:
 - maintenance documentation
 - coordination/planning sequence
 - operational test procedures
 - scheduled/preventative maintenance
 - unscheduled/corrective maintenance
 - relevant rail transport operator certifying train detection equipment, checklists, survey records, and workplace procedures.
- WHS/OHS requirements including:
 - Legislated requirements
 - safe working practices
 - relevant job safety assessments or risk mitigation processes
- relevant standards, safety critical communications, codes and regulations
- relevant workplace documentation, policies and procedures
- relevant manufacturer specifications and manuals

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 maintaining non-vital telemetry systems

- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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