



Australian Government

UEERS0014 Install and maintain vital relay interlocking systems

Release: 1

UEERS0014 Install and maintain vital relay interlocking systems

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 vital relay interlocking systems in a rail network.

It includes preparing and installing/maintaining vital relay interlocking system. It also includes completing the installation/maintenance of vital relay interlocking system, repairing system 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

UEERS0005 Install and maintain active level crossing equipment

UEERS0009 Install and maintain power-operated point actuating devices

UEERS0012 Install and maintain trackside signal and train protection equipment

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 vital relay interlocking 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 are implemented in preparation for work |
| | 1.3 Scope of installation/maintenance work is determined from job specifications, drawings and regulatory requirements |
| | 1.4 Appropriate rail safe working person/s is consulted to ensure work is coordinated effectively with others to minimise traffic disruptions |
| | 1.5 Materials needed for installation/maintenance work are obtained in accordance with workplace procedures and checked against job specifications |
| | 1.6 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 vital relay interlocking system | 2.1 WHS/OHS risk control measures and workplace procedures for carrying out the work are followed |
| | 2.2 Visual inspection of installation wiring and equipment is carried out to identify damaged or faulty equipment |
| | 2.3 Damaged or faulty component/s identified during inspection is replaced in accordance with technical instructions, manufacturer specifications and workplace maintenance procedures |
| | 2.4 Installation/maintenance is performed efficiently, without waste of materials or damage to apparatus, the surrounding environment or services using sustainable energy practices |
| | 2.5 Systems are investigated using appropriate fault-finding and diagnostic techniques to identify faults |
| | 2.6 Fault circuit indicators and maintenance records are used to assist in the identification of electrical faults |
| | 2.7 Repairs, replacement and/or adjustment of |

- equipment/systems are carried out using appropriate tools and test equipment to ensure equipment/systems function to relevant technical and operational standards
- 2.8** Faulty, worn, damaged or insecure components are repaired/replaced or secured whilst ensuring system safety integrity is maintained in accordance with technical and/or manufacturer specifications
 - 2.9** Methods for dealing with unplanned situations are determined on the basis of safety and specified work outcomes
 - 2.10** Vital relay interlocking system is inspected and tested in accordance with workplace test procedures and relevant equipment is used to ensure it operates within specified technical parameters
- 3 Complete vital relay interlocking system installation/maintenance**
- 3.1** WHS/OHS work completion risk control measures and workplace procedures are followed
 - 3.2** Reusable, faulty and worn components are tagged and despatched for repair in accordance with workplace procedures
 - 3.3** Maintenance work activities are recorded in accordance with workplace procedures and organisation requirements
 - 3.4** Documentation, including component faults test results, authorisations and permits, is completed to provide an accurate database and facilitate follow-up action 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 UEENEEN112A Install and maintain vital relay interlocking 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 UEERS0014 Install and maintain vital relay interlocking systems

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
- using appropriate fault-finding techniques
- installing/maintaining vital relay interlocking systems to operational requirements
- organising work to minimise rail traffic disruptions
- using tools correctly
- 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 industry standards, codes and rail safety regulations
- applying relevant WHS/OHS requirements, including:
 - implementing workplace procedures and practices
 - using risk control measures
- applying sustainable energy principles and practices
- completing installation/maintenance of vital relay interlocking 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:

- vital relay interlocking systems installation/maintenance, including:
 - rail signalling, interlocking systems - electrical
 - equipment and their components encompassing:
 - power supplies
 - relays - timers
 - relays - latching/delatching

- relays - line
- relays - biased
- signaller controls/indications
- geographic modules
- mechanical interface
- operating principles and parameters encompassing:
 - normal mode operation
 - route selection circuits
 - signal approach circuits and timers
 - point release circuits and timers
 - panel indications and circuits
 - wrong-side protection mode
 - alarm mode
 - emergency operation
 - 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
 - certifying interlocking equipment (commission and decommission)
- certifying procedures applicable for compliance with rail operator and/or enterprise standards
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements
- relevant workplace policies and procedures
- safe working practices and relevant industry standards, codes and regulations.

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 power signalling and protective relay interlocking systems
- 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>