



Australian Government

UEERS0009 Install and maintain power-operated point actuating devices

Release: 1

UEERS0009 Install and maintain power-operated point actuating devices

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 power-operated point actuating devices in rail networks.

It includes preparing and installing/maintaining power-operated point actuating devices. It also includes completing installation/maintenance of power-operated point actuating device, 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 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

UEERS0013 Install and maintain train detection 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 power-operated point actuating device | <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 are assessed, control measures and workplace procedures are 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 personnel are consulted to ensure work is coordinated effectively with others involved on the worksite1.5 Materials needed for the installation/maintenance 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 power-operated point actuating device | <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, cleaning, brushing and lubricating work are carried out on point actuating devices in accordance with technical and operational specifications2.3 Adjustments to point actuating devices are made to ensure correct operation, and perway fastenings and timbers are inspected in accordance with operational specifications2.4 Position and mounting of point actuating devices are checked in accordance with site layout and operational specifications2.5 Installation/maintenance is performed efficiently, without waste of materials, damage to apparatus, the surrounding environment or services using sustainable energy practices |

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| | <p>2.6 Function of equipment is determined from technical data, maintenance handbooks, workplace and equipment operating procedures</p> <p>2.7 Faulty, worn, damaged or insecure components are replaced, repaired or secured in accordance with technical and manufacturer specifications to ensure operational effectiveness</p> <p>2.8 Equipment is inspected and tested in accordance with workplace testing procedures to ensure operational and technical requirements are achieved</p> <p>2.9 Methods for dealing with unplanned situations are determined on the basis of safety and specified work outcomes</p> |
| <p>3 Complete power-operated point actuating device installation/maintenance</p> | <p>3.1 WHS/OHS work completion risk control measures and workplace procedures are followed</p> <p>3.2 Documentation is completed to provide an accurate installation/maintenance record and Network Control Officer informed of work status details</p> <p>3.3 Reusable, faulty or worn components are tagged and despatched for repair to maintain adequate spares</p> <p>3.4 Faulty perway conditions/components are documented to provide details for corrective/follow-up action</p> <p>3.5 Point actuating devices are temporarily taken out of service, instated back into service and certified in accordance with organisation requirements and workplace procedures</p> <p>3.6 Maintenance work activities are recorded in accordance with organisation requirements to provide accurate records and produce relevant reports</p> |

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 UEENEEN108A Install and maintain power operated point actuating devices.

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 UEERS0009 Install and maintain power-operated point actuating devices

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
- maintaining point actuating devices to operational requirements
- using appropriate fault-finding techniques
- documenting perway defects accurately
- using tools correctly
- 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
- applying sustainable energy principles and practices
- completing the installation/maintenance of power-operated point actuating devices.

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-operated point actuating device installation/maintenance, safe working practices and relevant standards, codes and regulations, including:
 - rail signalling principles - electrical
 - overview of electrical rail signalling encompassing:
 - types of rail signalling/safe working systems, including centralised traffic control (CTC), automatic, controlled and interlocked signalling
 - advantages of electrical over mechanical signalling
 - advantages of computer-based interlocking (CBI) over electrical signalling systems

- effects of overhead traction systems on electrical signalling systems (where applicable)
- purpose of elements of an electrical rail signalling system, including signals and aspect systems, train protection systems, point actuating systems, mechanical locking, relay interlocking, CBI, train detection systems, control input devices, indicators, diagrams and monitors, and safe working systems
- rail signalling principles - mechanical
- overview of mechanical rail signalling encompassing:
 - types of mechanical rail signalling systems for different rail traffic, including passenger train, freight train, maintenance vehicles and heritage/tourism train
 - deficiencies of mechanical signalling systems, including automatic, controlled and interlocked signalling
 - effects of overhead traction systems on mechanical signalling systems (where applicable)
 - effects of external factors on the mechanical rail signalling system, including rail overhead, gradients/terrain, environmental and civil configuration
 - purpose of elements of a mechanical rail signalling system, including signals, point actuating systems, locking and train detection systems, control input devices, indicators, diagrams and monitors, mechanical interlocking frames, safe working systems and electro-mechanical interfaces
- rail signalling - point actuating devices
- equipment and their components encompassing:
 - point actuating mechanisms, including mechanical, pneumatic, hydraulic and electric powered units
 - blade and operation detection devices
 - on-rail locking devices
 - off-rail locking devices
 - swing nose devices
 - ironwork and fixtures
 - equipment, including point machines, detectors, claw/clamp locks, swing nose mechanisms and in-bearer mechanisms
- operating principles encompassing:
 - point operation, normal and reverse
 - point locking, normal and reverse
 - point detection, normal and reverse
 - detectors
 - off-rail locking operation
 - on-rail locking operation
 - electric operation of contactors, motor control and detection circuits
 - interpreting circuit diagrams to evaluate correct operation and relationship to other signalling circuits
 - normal mechanical movement

- failure mode mechanical movement, including wrong side and right-side conditions identifying if movement should be possible
- 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 point equipment (commission and decommission)
 - certifying procedures applicable for compliance with rail operator/enterprise standards
- safe working practices and relevant standards, codes and regulations
- relevant job safety assessments or risk mitigation processes
- relevant WHS/OHS legislated requirements
- relevant workplace policies and procedures, including rail transport operator safety management system.

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 onsite power-operated point actuating devices
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

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