Australian Government

Department of Education, Employment and Workplace Relations

UEENEEN006B Maintain remote control and non-vital interlocking control systems

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

UEENEEN006B Maintain remote control and non-vital interlocking control systems

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor   **1**)

1.1) **Descriptor**

This unit covers maintenance and repair of remote and non-vital interlocking control systems on rail networks. It encompasses safe working, regulatory requirements and following work procedures performing scheduled maintenance, finding and repairing faults, testing control and indicating equipment and reporting.

Application of the Unit

Application of the Unit   **4**)

This unit shall apply to qualifications in installation and maintenance of rail signalling electrical power and control systems.

Licensing/Regulatory Information

1.2) **License to practice**

The skills and knowledge described in this unit may only be practised in the workplace under regulations related to electrical work, the codes of practice and regulations of the State/Territory in which the work is carried out. This includes codes of practice such as the 'Code Of Practice for the Defined Interstate Rail Network' for work carried out on that network.

Pre-Requisites

Prerequisite Unit(s)   **2**)

                        2.1) **Competencies**

                        Relevant work place requirements in 'Work site protection' have been acquired.

Employability Skills Information

Employability Skills   **3**)
                        This unit contains Employability Skills
                        The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a unit

Performance criteria describe the required performance needed to demonstrate achievement of the Element. Assessment of performance is to be consistent with the evidence guide.

EE-Oz Training Standards

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Prepare to undertake maintenance, fault finding and repair	1.1 OHS procedures for a given work area are identified, obtained and understood.
	1.2 Established OHS risk control measures and procedures are followed in preparation for the work.
	1.3 The extent of maintenance is determined from maintenance schedules, job specifications, drawings and regulatory requirements
	1.4 Appropriate personnel are consulted to ensure the work is coordinated effectively with others involved on the work site
	1.5 Materials needed for maintenance and repair work are obtained in accordance with established procedures and checked against job requirements
	1.6 Tools, equipment and testing devices needed to maintenance and repair work are obtained in accordance with established procedures and checked for correct operation and safety.
2. Perform scheduled maintenance	2.1 OHS risk control measures and procedures for carrying out the work are followed.
	2.2 Visual inspection is carried out and all equipment is checked to ensure module insertion security is in accordance with manufacturer and systems specifications.
	2.3 Action is implemented to ensure the sealing and security of mountings is made to comply with technical/manufacturer specifications.
	2.4 Maintenance work includes cleaning, vermin control, checking and adjusting levels, checking indicators and system operation is carried out to organisation requirements.
	2.5 Methods for dealing with unexpected situations are selected on the basis of safety and specified work outcomes.

ELEMENT	PERFORMANCE CRITERIA
	2.6 Maintenance is performed efficiently without waste of materials or damage to apparatus and the surrounding environment or services and using sustainable energy practices.
3 Find and repair faults	3.1 OHS risk control measures and procedures for carrying out the work are followed.
	3.2 System faults are verified using appropriate technical information, fault finding and diagnostic techniques to identify faulty control equipment.
	3.3 Faulty modules are replaced, adjusted and secured in accordance with manufacturer specifications and organisation procedures.
	3.4 Methods for dealing with unexpected situations are selected on the basis of safety and specified work outcomes.
	3.5 Fault finding and repairs are carried out efficiently without waste of materials or damage to apparatus and the surrounding environment or services and using sustainable energy practices.
4 Test control and indicating equipment	4.1 OHS risk control measures and procedures for carrying out the work are followed.
	4.2 Control equipment is adjusted and tested using appropriate test procedures and equipment to ensure it operates within the specified technical parameters.
5 Finalise maintenance and repair work	5.1 OHS work completion risk control measures and procedures are followed.
	5.2 System faults identified beyond the scope of first level maintenance are reported for follow-up action.
	5.3 Test results are documented in accordance with organisation requirements and faulty or replaced module(s) are tagged and dispatched to maintain equipment spares.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

7) This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of safe working practices and maintaining remote control and non-vital interlocking control systems and repairing faults.
All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.
The extent of the essential knowledge and associated skills (EKAS) required is given in Volume 2 - Part 2.2 EKAS. It forms an integral part of this unit.

2.2.2	Enterprise work activities records
2.3.13	Using supervisory control and data acquisition systems
2.4.11	Personal computers, hardware basic
2.4.13	Computer peripherals
2.4.16	Personal computers, engineering applications software basic
2.5.4	Technical standards, regulations and codes rail networks
2.5.10	Technical manuals and catalogues
2.9.3.2	Inverters
2.9.3.3	Electronic switching
2.9.11	Linear and switch mode power supplies
2.10.1.1	Electronic communications, principles
2.14.6	Rail signalling, electronic equipment
2.14.8	Rail signalling, computer applications
2.14.10	Rail signalling, remote control systems
2.14.12	Rail signalling, power supplies

REQUIRED SKILLS AND KNOWLEDGE

2.14.14	Rail signalling, drawings and diagrams
2.14.15	Rail signalling, regulations and codes
2.18.1	Occupational Health and Safety principles
2.18.2	Electrical Safe working practices
2.18.5	Rail safe working practices

Evidence Guide

EVIDENCE GUIDE

9) The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.
The Evidence Guide forms an integral part of this unit. It must be used in conjunction with all components parts of this unit and performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment	**9.1**) Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the industry-preferred model for apprenticeships. However, where summative (or final) assessment is used it must include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. In some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accordance with industry and regulatory policy.
	Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.
	The critical safety issues inherent in working with electricity, electrical equipment, gas or any other hazardous substance/material present a challenge for those determining competence. Sources of evidence need to be 'rich' in nature to minimise error in judgment.
	Activities associated with normal everyday work influence decisions about how/how much the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practised. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included for Assessors in the Assessment Guidelines of this Training Package.

EVIDENCE GUIDE

Critical aspects of evidence required to demonstrate competency in this unit	**9.2**) Before the critical aspects of evidence are considered all prerequisites must be met. Evidence for competence in this unit shall be considered holistically. Each Element and associated performance criteria shall be demonstrated on at least two occasions in accordance with the 'Assessment Guidelines - UEE07'. Evidence shall also comprise:

- A representative body of work performance demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:

  - Implement Occupational Health and Safety workplace procedures and practices including the use of risk control measures as specified in the performance criteria and range statement

  - Apply sustainable energy principles and practices as specified in the performance criteria and range statement

  - Demonstrate an understanding of the essential knowledge and associated skills as described in this unit. It may be required by some jurisdictions that RTOs provide a percentile graded result for the purpose of regulatory or licensing requirements.

  - Demonstrate an appropriate level of skills enabling employment

  - Conduct work observing the relevant Anti Discrimination legislation, regulations, polices and workplace procedures

- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:

  - Maintain remote control and non-vital interlocking control systems and repair faults as described in 8) and including:

    A   Reading and interpreting specifications correctly,

    B   Maintaining and repairing relay interlocking systems to meet operational and technical standards,

    C   Using effective fault diagnosis and repair/replacement techniques to specified model

EVIDENCE GUIDE

level,

D   Confirming equipment operated within specified technical parameters,

E   Testing equipment and instruments,

F   Using tools correctly,

G   Following relevant codes of practice, environmental protection procedures and requirements, and

H   Completing relevant records and documentation

I   Dealing with unplanned events by drawing on essential knowledge and skills to provide appropriate solutions incorporated in the holistic assessment with the above listed items

Note:
Successful completion of relevant vendor training may be used to contribute to evidence on which competency is deemed. In these cases the alignment of outcomes of vendor training with performance criteria and critical aspects of evidence shall be clearly identified.

Context of and specific resources for assessment	**9.3**) This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual work as prescribed by this unit.

These should be used in the formal learning/assessment environment.
Note:
Where simulation is considered a suitable strategy for assessment, conditions must be authentic and as far as possible reproduce and replicate the workplace and be consistent with the approved industry simulation policy.

The resources used for assessment should reflect current industry practices in relation to maintaining remote control and non-vital interlocking control systems and repairing faults.

EVIDENCE GUIDE

Method of assessment	**9.4**) This unit shall be assessed by methods given in Volume 1, Part 3 'Assessment Guidelines'. Note: Competent performance with inherent safe working practices is expected in the Industry to which this unit applies. This requires assessment in a structured environment which is intended primarily for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and skills described in this unit.
Concurrent assessment and relationship with other units	**9.5**) There are no concurrent assessment recommendations for this unit.

Range Statement

RANGE STATEMENT

8) This relates to the unit as a whole providing the range of contexts and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

This unit shall be demonstrated in relation to:

- The relevant State/Territory codes of practice and safe working requirements.
- Equipment relevant to a particular rail network.
- Code of practice for the defined interstate rail network.

Generic terms used throughout this Vocational Standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms that apply are given in Volume 2, Section 2.1.

Unit Sector(s)

Not Applicable

Competency Field

2.2) Literacy and numeracy skills
Participants are best equipped to achieve competency in this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 'Literacy and Numeracy'

Reading   3   Writing   3   Numeracy   3

2.2) Literacy and numeracy skills

Competency Field   **5**)

                                 Rail