



Australian Government

UEEHA0030 Repair reeling, trailing and flexible cables used in coal mining

Release: 1

UEEHA0030 Repair reeling, trailing and flexible cables used in coal mining

Modification History

Release 1. This is the first release of this unit of competency in the Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to repair the sheathing, insulation and conductors of reeling, trailing and flexible cables. It includes: working safely and to standards; following repair instructions; applying repair techniques; and documenting the repair work.

It is adopted from clause 2.17 of AS/NZS 4761.1:2018 Competencies for working with electrical equipment for hazardous areas (EEHA). There may be differences between the content of this unit and AS/NZS 4761.1:2018, so the Standard must be checked to ensure compliance with it.

This unit applies to electrical equipment overhaul and repair job functions.

Site-specific work permits may be required to work in the hazardous environment. In addition, other permits may be required, such as confined space and to operate specific pieces of equipment such as elevated work platforms in various jurisdictions.

Additional and/or other conditions may apply in some jurisdictions subject to regulations related to electrical work. Practice in the workplace and during training is also subject to work health and safety (WHS)/occupational health and safety (OHS) regulations.

Pre-requisite Unit

Not applicable

Competency Field

Hazards

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 repair cable

- 1.1** Safe work methods to repair cables are obtained from workshops, standards and original manufacturer's instructions and understood
- 1.2** Knowledge of mining cable types, features, component functions, typical applications and how they are stored is applied to preparing for the work
- 1.3** Cable to be repaired and instructions on the extent of repairs are received and confirmed with supervising personnel
- 1.4** Materials required for the repair are obtained and checked against received instructions
- 1.5** Tools and equipment needed to carry out the cable repair work are obtained and checked for correct operation and safety

2 Carry out cable repair

- 2.1** Safe work methods to carry out cable repair work are accepted and followed
- 2.2** Knowledge of cable repair methods and procedures are applied and instructions for the extent of repair are followed
- 2.3** Damaged cable material is removed and cables prepared for joining
- 2.4** An acceptable method is applied to splicing and joining armoring, screens and conductive materials
- 2.5** Insulation, insulation screening and covering is replaced on all cores and outer sheaths correctly using materials specified in the work instructions
- 2.6** The correct method is used to join pliable cable armour
- 2.7** Cable sheath is repaired using the correct sheath tape and vulcanized at the required temperature and timed to ensure as new electrical and mechanical properties are retained
- 2.8** Cable repair is done in a manner that does not reduce the operating parameters for the cable type

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|-------------------------------------|------------|--|
| | 2.9 | Safe work methods for ‘house-keeping’ at the completion of cables repair work are followed |
| 3 Document cable repair work | 3.1 | Cable repair work completion sheets are filled out in accordance with quality assurance procedures |
| | 3.2 | Responsible supervisor is notified of the completion of the work in accordance with quality assurance 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 Electrotechnology Training Package Companion Volume Implementation Guide.

This unit must include these conditions in relation to pre and post repair testing of at least four separate cables. Among the cables for which competency is required, all of the following features shall be included:

Cable features	AS/NZS designated cable type
• Standard conductor construction	209; 210; 240; 241; 260; 275; 409; 412.1; 440; 441.1; 441; 450; 455.
• Super flexible	245.
• XR-EP-90 insulated compound	441; 450; 455.
• Semi conductive extruded screens	241; 245; 441.1; 441; 450; 455.
• Metal braided screens	209; 210; 240; 260; 409; 440; 450.
• Interstitial earths	241; 245; 275; 412.1; 441.1; 441; 450; 455.
• Interstitial pilots	240; 260; 440; 450; 455.
• Central pilot	209; 210; 241; 245; 275; 409; 441.1; 441.
• Pliable armour	260; 412.1.

- Sheath reinforcement 241; 245; 274; 441.1; 441; 450; 455.

Unit Mapping Information

This is a new unit.

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 UEEHA0030 Repair reeling, trailing and flexible cables used in coal mining

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:

- preparing to repair cables including:
 - reviewing safe work methods
 - receiving and understanding work instructions
 - obtaining and checking material required for the work against the work instructions
 - obtaining tools and equipment needed and checks them for correct operation and safety
- repairing cables including:
 - selecting four or more different cable types and voltages which collectively incorporate the features specified in AS/NZS 1747
 - confirming and accepting safe work methods
 - following repair instructions for each including:
 - removing damaged cable material and preparing a cable for repair
 - splicing and joining cable conductors correctly as required
 - replacing insulation and covering of conductors and outer sheath correctly as required
 - joining pliable cable armour correctly
 - applying cable sheath tape and vulcanizes at the required temperature, timed to ensure as new electrical and mechanical properties are retained
 - following safe work methods for ‘house-keeping’ at the completion of work
- documenting cable repair including:
 - filling out work completion sheet accurately
 - notifying the responsible supervisor that the work is completed.

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:

- cable types including:
 - cable construction, materials and features of cable components

- function of each cable component
- conditions under which cables should be stored
- Standards to which cables are manufactured
- typical applications of specific cables
- cable repair preparation and conductor splicing methods including:
 - criteria for determining the section of cable suitable to be joined
 - cable preparation and methods
 - splicing methods and application for power, pilot and earthing conductors
- replacement of cable insulation including:
 - preparation of power conductors prior to the application of insulation
 - types of insulation repair tapes and their application
 - techniques for applying insulation repair tape
- techniques for joining pliable wire armour including:
 - cable manufacturers recommendation
 - established workshop procedures
- replacing and repairing cable sheath including:
 - techniques used in replacing cable sheath
 - setting up a vulcanizer to vulcanize a repair
 - vulcanizing techniques and issues.

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 workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in 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 tools and testing devices and PPE currently used in industry
- safe work method documentation
- resources relevant to the cable repairs undertaken and required to be a recognised cable repair workshop to the scope of AS/NZS 1747 with ISO 9001 type quality assurance.

Links

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