



Australian Government

**UEERL0002 Attach cords, cables and plugs
to electrical equipment for connection to
1000 V a.c. or 1500 V d.c.**

Release: 1

UEERL0002 Attach cords, cables and plugs to electrical equipment for connection to 1000 V a.c. or 1500 V d.c.

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 attach flexible cords, cables and plugs to electrical equipment connected to a supply up to 1,000 volts (V) alternating current (a.c.) or 1,500 V direct current (d.c.).

It includes planning and attaching flexible cords, cables and plugs; and using test equipment for inspection and safety testing. It also includes locating, inspecting, testing and repairing faults in flexible cords and plugs.

The skills and knowledge described in this unit require a licence or permit to practice in the workplace where work is carried out on electrical installations which are designed to operate at voltages greater than 50 V a.c. or 120 V d.c.

Competency development activities in this unit are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, a relevant contract of training, such as an Australian Apprenticeship, may be required.

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

UEERL0001 Attach cords and plugs to electrical equipment for connection to a single phase 230 Volt supply.

Competency Field

Restricted Licensing

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 Plan electrical equipment connection

- 1.1** Work is planned, sequenced and prepared in accordance with WHS/OHS requirements and workplace procedures
- 1.2** Condition and ratings of cords, cables and plugs is in accordance with workplace procedures and work instruction from relevant person/s
- 1.3** Flexible cords, cables and plugs are selected in accordance with relevant industry standards and workplace procedures for condition and rating
- 1.4** Materials necessary to complete work are obtained in accordance with workplace procedures and checked against work instructions
- 1.5** Tools, equipment and testing devices needed to carry out work are obtained in accordance with workplace procedures and checked for correct operation and safety
- 1.6** Flexible cords, cables and plugs are prepared without damage to insulation and conductors and in accordance with relevant industry standards

2 Attach flexible cords, cables and plugs

- 2.1** WHS/OHS policies and workplace procedures are followed
- 2.2** Single insulated metal framed equipment is earthed in accordance with relevant industry standards and workplace procedures
- 2.3** Double insulated equipment is inspected and maintained in accordance with relevant industry standards and workplace procedures
- 2.4** Conductors are connected to terminals ensuring required polarity is in accordance with relevant industry standards

3 Inspect and test equipment for operation and safety

- 3.1** Electrical installation and operation of the cord/cable/s and plug/s connected to equipment are inspected and tested in accordance with relevant industry standards, work instructions and workplace procedures

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|--|------------|---|
| | 3.2 | Quality checks of work are undertaken in accordance with workplace procedures |
| 4 Locate and repair faults in attached flexible cords, cables and plugs | 4.1 | Electrical equipment and attached flexible cords, cables and plugs are checked and isolated in accordance with workplace procedures |
| | 4.2 | WHS/OHS policies and workplace procedures are followed |
| | 4.3 | Visual inspection and checks of the attached flexible cords, cables and plugs are conducted in accordance with workplace procedures to detect any abnormal, damage or fault |
| | 4.4 | Faults in attached flexible cords, cables and plugs are confirmed and determined, components to be replaced are identified and details recorded in accordance with workplace procedures |
| | 4.5 | Faults in attached flexible cords, cables and plugs are repaired in accordance with workplace procedures |
| | 4.6 | Unplanned events are referred to relevant person/s for direction in accordance with workplace procedures |
| | 4.7 | Status report/s is completed 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.

Attaching cords, cables and plugs to electrical equipment must include the following:

- cords, cables and plugs connected to equipment or cords, cables extension leads intended for multi-phase supplies up to 1,000 V a.c. to 1,500 V d.c.

This unit does not cover the knowledge and

skills necessary for the following work:

- competencies associated with fixed wiring
- in hazardous areas or on electrical equipment that is part of an explosion-protection technique
- on complex electrical apparatus, circuits and electrical work.

Unit Mapping Information

This unit replaces and is equivalent to UEENEEP025A Attach cords, cables and plugs to electrical equipment for connection to 1000 Va.c. or 1500 Vd.c. supply.

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 UEERL0002 Attach cords, cables and plugs to electrical equipment for connection to 1000 V a.c. or 1500 V d.c.

Modification History

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

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least two separate occasions and include:

- applying relevant industry standards
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including using risk control measures
- applying to quality, workplace procedures and instructions
- attaching cords, cables and plugs to electrical equipment for connection to 1,000 volts (V) alternating current (a.c.) or 1,500 volts (V) direct current (d.c.) supply
- attaching, replacing and repairing flexible cords, cables and plugs to equipment for operation, safely up to 1,000 V a.c. to 1,500 V d.c.
- dealing with unplanned events in accordance with problem-solving techniques and workplace procedures
- finding and repairing fault/s in attached flexible cords, cables and plugs
- inspecting and testing flexible cords, cables, plugs and equipment for operation and safety up to 1,000 V a.c. to 1,500 V d.c.
- planning and preparing to attach flexible cords, cables and plugs up to 1,000 V a.c. to 1,500 V d.c.
- providing status reports
- replacing and repairing flexible cords, cables and plugs up to 1,000 V a.c. to 1,500 V d.c.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- safety, including:
 - WHS/OHS and electrical safety requirements
 - requirements of AS/NZS 4836 Safe working practices on low voltage installations
- selection of flexible cords, cables and plugs to suit given applications, including:

- multi-phase systems
- structure of plug pin configuration
- applications of commonly used flexible cords, cables and plugs for connection to 1,000 V a.c. or 1,500 V d.c. supply
- determining the current rating of a range of commonly used flexible cords, cables and plugs for connection to 1,000 V a.c. or 1,500 V d.c. supply
- determining the number of cores/pins required for given situations
- multi-phase colour code and the conventional code used in the most common cords and cables
- selecting flexible cords and cables for given multi-phase loads to 1,000 V and service duty
- selecting multi-phase plugs to 1,000 V for a given load and ingress protection (IP) rating
- selecting the correct plug and socket combinations for a range of applications, including use in damp areas
- flexible cords, cables and plugs connected to multi-phase equipment, including:
 - design features of plugs and sockets which protect the conductor terminations from undue force when disconnecting a cord - tortuous path
 - cord preparation - not to mark/damage the inner core when stripping the sheath for termination, double the end of the conductor to be terminated
 - preparation of the surfaces at an earthing connection before and after completion of the termination, including terminations exposed to corrosion, and those for which no specific earthing terminal is provided
 - prepare flexible cords, cables for connection
 - single insulated metal framed equipment is earthed in accordance with requirements or the integrity of double insulated equipment is maintained
 - fitting a range of various multiphase flexible cords, cables, plugs, and sockets with attention to tortuous path requirements, colour code, polarity and correct termination of conductors with the sheath well into the body, and the cord grip anchored
- determine that a flexible cord, cable and plug is safe and is connected correctly, including:
 - importance of conducting both visual and electrical tests to ensure leads are safe and appropriate for connection to supply in regard to physical condition, sufficiently high insulation resistance, continuity, arrangements for protection against indirect contact are undamaged and in place, appropriate IP rating, and arrangements for protection against dangers of mechanical movement as relevant are undamaged and in place
 - check polarity of plug, and for any abnormal or obvious damage or fault
 - minimum acceptable value of insulation resistance between actives, neutral and earth
 - insulation resistance and continuity tests prior to, and after, connecting cords, cables and plugs to appliances
 - fault finding attached multi-phase flexible cords, cables and plugs, and multi-phase cord extension leads
- producing documentation and reports, including:
 - nature and content of, and the need to produce, status reports and documents
 - producing status reports and documents

- problem-solving techniques
- producing documentation and reports
- relevant industry standards
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications and operating instruction for tools, equipment and testing devices
- relevant WHS/OHS legislated requirements, including relevant inspections and tests
- relevant workplace policies, procedures and instructions
- relevant workplace quality procedures
- selection of flexible cords, cables and plugs to suit given applications.

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 simulated suitable 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 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 attaching cords, cables and plugs to electrical equipment for connection to 1,000 V a.c. or 1,500 V d.c. supply
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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