



Australian Government

UEEEL0023 Terminate cables, cords and accessories for low voltage circuits

Release: 2

UEEEL0023 Terminate cables, cords and accessories for low voltage circuits

Modification History

Release 2. This is the second release of this unit of competency in the UEE Electrotechnology Training Package.

Workplace evidence requirements updated in Performance Evidence and Assessment Conditions.
Assessor requirements updated in Assessment Conditions.

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 terminate cables, cords and their conductors at accessories and current-using devices, designed to operate at voltages up to 1,000 volts (V) alternating current (a.c.) or 1,500 V direct current (d.c.).

It includes working safely to industry standards, wiring systems, cable types and applications; selecting appropriate termination accessories; preparing and terminating cables and cords; terminating cables/cord conductors; and ensuring completed termination complies with industry standard requirements.

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

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0020 Fix and secure electrotechnology equipment

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications
and

UEECD0043 Solve problems in direct current circuits

or

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

Competency Field

Electrical

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to terminate cables, cords and conductors

2 Terminate cables, cords and conductors

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|------------|--|
| 1.1 | WHS/OHS requirements and workplace procedures for a given work area are identified and applied |
| 1.2 | Hazards are identified, risks assessed and risk control measures and workplace procedures implemented in accordance with workplace procedures |
| 1.3 | Safety hazards that have not previously been identified are noted on job safety assessments and existing risk control measures are implemented |
| 1.4 | Junction box/terminal enclosures and terminal types are inspected to determine the type and size of cable and conductor termination devices needed |
| 1.5 | Tools, materials and testing devices needed for terminating cables and cords are obtained in accordance with workplace procedures and checked for correct operation and safety |
| 2.1 | WHS/OHS risk control measures and procedures for carrying out the work are followed |
| 2.2 | Circuits/machines/plant are checked as isolated, as |

- required, in accordance with WHS/OHS requirements and workplace procedures
- 2.3 Cable/cord ends are cut and sheath/insulation stripped with sufficient length to prevent strain on terminations and without undue waste
 - 2.4 Cable glands/retaining devices are fitted and secured to ensure cable/cord cannot be pulled out of entry into junction box/terminal enclosure
 - 2.5 Conductors are prepared to suit the terminal type they are to be connected to
 - 2.6 Conductors are terminated to ensure continuity across the terminal
 - 2.7 Methodology for dealing with unplanned situations are discussed with appropriate person/s and documented
 - 2.8 Unplanned situations are responded to safely in accordance with workplace procedures, in a manner that minimises risk to personnel, equipment and with the approval of an authorised person
- 3 Test terminated cables and cords**
- 3.1 WHS/OHS work completion risk control measures and workplace procedures are followed
 - 3.2 Terminated cables are tested to ensure continuity and insulation resistance comply with relevant industry standards

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.

Terminating cables, cords and accessories must include at least five of the following types of cables each at a junction box and a

- circular thermoplastic sheathed (TPS)
- flat TPS
- flexible cables

device terminal enclosure:

- flexible cords
- fire protection cables
- steel wire armoured (SWA) cables
- thermoplastic insulated (TPI) cables.

Terminating conductors must include the following terminal types:

- screw terminal
- stud terminal
- tunnel terminal.

Unit Mapping Information

This unit replaces and is equivalent to UEENEEG106A Terminate cables, cords and accessories for low voltage circuits.

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 UEEEL0023 Terminate cables, cords and accessories for low voltage circuits

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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, performance criteria and range of conditions on at least two separate occasions and include:

- # applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures and practices, including using risk control measures
- # applying sustainable energy principles and practices
- # confirming relevant circuits are isolated
- dealing with unplanned events in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- # terminating wiring and accessories for low voltage circuits, including:
 - # cutting cable ends and stripping sheath/insulation to a sufficient length
 - # fitting and securing cable glands/retaining devices correctly
 - # preparing and terminating conductors to suit the type of terminal at which they are to be connected
 - # selecting appropriate cable/cord and conductor devices
 - # testing completed cables to ensure compliant continuity and insulation resistance
- # inspecting junction box/terminal enclosures and determining the type and size of required cable and conductor termination devices
- # testing terminated cables and cords.

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:

- cable types and terminations, including:

- application of various cords and cables types, as defined by the properties of their insulation, sheathing, armouring and/or screening
- Australian and international colour standards for cords and cables
- single cables, flexible cables, flexible cords, screened cables, armoured cables, other similar and like cables
- construction of common cables
- identification of cords and cables by conductor size, type and rating
- identification of hardware used in terminating cords and cables
- requirements to protect and support cables adequately (protection against mechanical damage, protection from adverse temperatures and corrosion and protection from magnetic field that may affect the performance of the cable)
- structural components of cables and their purpose (conductor material, stranding, insulation type, voltage rating, screening, sheathing, armour and serving)
- techniques for termination of cords and cables using crimp lugs, tunnel connectors, soldering and solderless lugs
- cords, cables and plugs, including:
 - techniques for selection of flexible cords for given applications
 - preparation of cord ends for connection
 - fitting standard three pin plug tops and extension sockets to flexible cords
 - connecting a variety of plug tops and extension sockets to different flexible cord types
- flat thermoplastic sheathed (TPS) wiring systems, including techniques for:
 - installation of flat TPS cable in trunking and duct for the supply of socket outlets
 - using flat TPS cable for lighting looms
- circular TPS wiring systems, including techniques for:
 - installation of circular TPS cables on cable ladder/tray
 - installation of circular TPS cable
- thermoplastic insulated (TPI) cables in non-metallic enclosures, including techniques for:
 - cutting and setting rigid non-metallic ducting, trunking and conduit and accessories
 - installation of circuits using TPI cables in non-metallic enclosures
- TPI cables in metallic enclosures, including techniques for:
 - fitting metallic conduit to metallic trunking and accessories
 - cutting, threading and setting metallic conduit
 - installation of circuits using TPI cables in metallic conduit, ducting and trunking
- fire protection cabling and systems encompassing:
 - requirements when passing a wiring system through a fire rated wall or floor
 - techniques for recognising different fire protection cable types
 - techniques for installation and termination of fire protection cable
- steel wire armoured (SWA) cables, including techniques for:
 - identifying accessories used with SWA cables
 - installation of circuits using SWA cables
- trailing cables and catenary systems, including techniques for:

- identifying equipment used with trailing cable and catenary systems
- installation of catenary wiring systems
- installation of trailing cable systems supplying pendant sockets
- relevant industry standards and testing requirements for safe operation relating to:
 - cords, cables and plugs
 - circular and flat TPS wiring systems
 - TPI cables in non-metallic enclosures
 - TPI cables
 - fire protection cabling
 - SWA cables
 - trailing cables and catenary systems
- relevant manufacturer specifications

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessors must also hold the occupational licence for the jurisdiction the assessment is occurring where the activity being assessed requires a licence to practice.

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
- applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals.

In addition, evidence of Performance Evidence items of this unit marked with a hash (#) must be gathered in authentic workplace operational conditions (not simulated) before final determination of competence in this unit can be made.

Links

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