



Australian Government

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

Release: 1

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

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 cord and plug to electrical equipment for connection to a single phase supplies up to 230 volts (V) alternating current (a.c.) supply.

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

This unit does not cover the knowledge and skills necessary for work associated with high current faults on complex electrical apparatus, circuits and electrical work; in hazardous areas or on electrical equipment that is part of an explosion-protection technique; nor, work associated with fixed wiring.

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 direct current (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, is 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

Competency Field

Restricted Licensing

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan electrical equipment connection

2 Attach flexible cord and plugs

PERFORMANCE CRITERIA

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

- | | |
|------------|---|
| 1.1 | Work is planned, sequenced and prepared in accordance with WHS/OHS requirements and workplace procedures |
| 1.2 | Condition and ratings of cord and plugs are in accordance with workplace procedures and work instruction from appropriate person/s |
| 1.3 | Flexible cords 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 and checked in accordance with workplace procedures and 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 cord and plugs are prepared without damage to insulation and conductors and in accordance with relevant industry standards |
| 2.1 | WHS/OHS workplace policies and 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 cord and plug/s connected to electrical equipment are inspected and tested in accordance with relevant industry standards, work instructions and workplace procedures |
| | 3.2 Quality checks of work are undertaken in accordance with workplace procedures |
| 4 Locate and repair fault in flexible cord and plug/s | 4.1 Electrical equipment and attached flexible cord and plug/s are isolated in accordance with WHS/OHS requirements and workplace procedures |
| | 4.2 WHS/OHS workplace policies and procedures are followed |
| | 4.3 Quality checks of the attached flexible cord and plug/s are undertaken in accordance with workplace procedures to detect any abnormal, damage or fault |
| | 4.4 Faults in attached flexible cord and plug/s are determined and details of components to be replaced are recorded in accordance with workplace procedures |
| | 4.5 Faults in attached flexible cord and plug/s are repaired, as required, in accordance with workplace procedures |
| | 4.6 Repairs are inspected and tested for compliance with industry standards |
| | 4.7 Unplanned events are referred to supervisor for direction in accordance with workplace procedures |
| | 4.8 Status report/s is completed and supervisor notified 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 and plugs to electrical equipment must include:

- any cord, cable and plug connected to equipment and cord extension leads intended for single phase supplies up to 230 V

Safe working procedures within in the scope of this unit must:

- be in accordance with AS/NZS 4836 Safe working on low-voltage electrical installations

Unit Mapping Information

This unit replaces and is equivalent to UEENEEP024A Attach cords and plugs to electrical equipment for connection to a single phase 230 Volt 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 UEERL0001 Attach cords and plugs to electrical equipment for connection to a single phase 230 Volt supply

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 quality to workplace procedures and instructions
- attaching flexible cord/s and plug/s and without damage
- inspecting flexible cords and plugs for damage, faults or abnormalities
- dealing with unplanned events in accordance with problem-solving techniques and workplace procedures
- determining the current rating of a range of commonly used flexible cords
- drawing of a basic electrical circuit using correct symbols
- testing flexible cords, plugs and connected equipment for operation and safety up to 230 volts (V) alternating current (a.c.), including polarity and continuity testing
- finding and repairing faults in attached flexible cords and plugs in accordance with established procedures
- preparing to attach flexible cord and plug supplies up to 230 V a.c. supply
- providing status report/s
- using testing equipment
- selecting appropriate flexible cords for a range of single phase appliances relating to application, load and service duty
- identifying correct plug and socket polarities for the range of commonly used 230 V plug socket combinations
- selecting the correct plug and socket combinations for a range of applications, including use in damp areas
- fitting a range of various plugs and sockets with attention to requirements, colour code, polarity and correct termination of conductors with the sheath well into the body, and the cord grip anchored
- terminating cords to several appliances utilising the appropriate cord type and rating.

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:

- electrical safety requirements, including the requirements of AS/NZS 4836 Safe working on low-voltage electrical installations
- basic electrical circuits, including:
 - simple electric circuit (supply, control device and load)
 - industry standard symbols, units of measurement and the abbreviation for electromotive force, potential difference, current and resistance
 - using multiples and sub-multiples for voltage, current and resistance values
 - a.c and direct current (d.c.) supplies
 - single phase electrical loads
 - electrical circuit protection devices
- relationships in an electrical circuit, including:
 - relationship between voltage, current and resistance (Ohm's Law)
 - changes in circuit parameters for altered values of voltage, current and resistance
 - electrical power in relationship to d.c. or resistive a.c. circuits
- test equipment - resistance measurement, including:
 - types of electrical test equipment used for resistance measurement (analogue and digital multimeters, insulation resistance testers and continuity testers)
 - selection of appropriate electrical test instrument for continuity and insulation resistance measurement
 - using analogue and digital multimeters for resistance measurement (ensuring zero setting, correct scale selection, avoidance of parallax error and estimation of between division readings for analogue multimeters)
 - continuity tests and using a continuity tester to check the polarity of a three-core extension cord
 - insulation resistance tests and minimum values for insulation resistance for low voltage (LV) equipment
 - reasons for insulation resistance testing is conducted at higher than supply voltage to relevant industry standards
 - using insulation resistance handheld tester
 - care and storage of electrical instruments
 - regulatory requirements relating to the maintenance and testing of test instrumentation for resistance measurement
- selection of flexible cords and plugs to suit given applications, including:
 - types, structures and applications of common cores, including:
 - parallel two core unsheathed ('figure 8')
 - cords, light duty sheathed
 - ordinary duty sheathed

- heavy duty sheathed
- textile braided
- service duty
- purpose of colour coding and the recommended single phase colour code
- conventional code used in the most common alternative colours
- factors affecting the choice of plugs and sockets, including ingress protection (IP) rating
- connecting flexible cords and plugs to appliances, 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
 - purpose of earthing
 - structure of double insulated appliances, symbol, reasons they should not be earthed, and maintenance of the integrity of the double insulation
 - 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
 - techniques for fitting plugs and sockets
 - techniques for terminating cords and conductors including consequences of poor electrical terminations
- testing, 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
 - checking the polarity of plug, and for any abnormal or obvious damage or fault
 - minimum acceptable value of insulation resistance between active neutral and earth
 - conducting insulation resistance and continuity tests prior to, and after, connecting cords and plugs to appliances
 - visually checking that the cord/plug assembly has a suitable IP rating for the operating environment
 - visual checks to ensure that arrangements for protection against dangers of mechanical movement as relevant are undamaged and in place
 - techniques for fault finding attached cords and plugs, and cord extension leads
- producing documentation and reports, including:
 - nature and content of, and the need to produce, status reports and documents
- relevant WHS/OHS legislated requirements including inspection and testing of electrical equipment
- relevant industry standards
- relevant manufacturer specifications and operating instruction for tools, equipment and testing devices
- relevant safe job safety assessments or risk mitigation processes
- relevant workplace policies, procedures and instructions, including relevant workplace quality procedures.

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 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.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>