Australian Government

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

Release: 1

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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