



Australian Government

UEPMNT502 Test and commission electronic electrical systems

Release: 1

UEPMNT502 Test and commission electronic electrical systems

Modification History

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

Application

This unit involves the skills and knowledge required to conduct testing and commissioning of electronic electrical systems. System can refer to a combination of electronic electrical machinery and equipment.

Testing and commissioning of an electronic electrical systems includes the assessment and verification that all equipment and components are working efficiently and are meeting operational requirements.

Competency in this unit requires the ability to plan work, test wiring systems, test electronic electrical systems, commission electronic electrical systems and to report on all completed work tasks. Individuals will, in general, work under supervision in an electrical, electronic and/or mechanical equipment repair workshop or on site.

Power generation maintenance personnel are typically trained and authorised to receive permits to work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Note: Workplace practice

The application of the skills and knowledge described in this unit of competency may require a licence or training permit to practice in the workplace, where work is carried out on gas and electrical installations. Additional and/or other conditions may apply under state and territory legislative and regulatory licensing requirements.

Pre-requisite Unit

UEPMNT352 Test and commission electronic electrical equipment

UEENEEG108A Troubleshoot and repair faults in low voltage electrical apparatus and circuits

UEENEEE102A Fabricate, dismantle, assemble of utilities industry components

UEENEEE104A Solve problems in D.C. circuits

UEENEEE105A Fix and secure electrotechnology equipment

UEENEEE107A Use drawings, diagrams, schedules, standards, codes and specifications

UEENEEG006A Solve problems in single and three phase low voltage machines

UEENEEG033A Solve problems in single and three phase low voltage electrical apparatus and circuits

UEENEEG063A Arrange circuits, control and protection for general electrical installations

UEENEEG101A Solve problems in electromagnetic devices and related circuits

UEENEEG102A Solve problems in low voltage A.C. circuits

UEENEEG106A Terminate cables, cords and accessories for low voltage circuits

Competency Field

Maintenance

Unit Sector

Electricity generation

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan and prepare for work

PERFORMANCE CRITERIA

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

- 1.1** Requirements including scope of work and assigned roles are identified and confirmed with appropriate personnel or by site inspection, in accordance with workplace procedures
- 1.2** Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) regulations, legislative requirements, industry standards, codes of practice, manufacturers' specifications, environmental obligations workplace procedures are reviewed in preparation for work
- 1.3** Resources are obtained and inspected for compliance with job specification
- 1.4** Relevant plans, drawings and manuals are selected and used, in accordance with workplace procedures
- 1.5** Correct materials and components for work are obtained and inspected, in accordance with workplace procedures, for compliance with job specification
- 1.6** Work is planned, sequenced and prioritised, in accordance with workplace procedures and system requirements

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| | 1.7 | Potential hazards are identified and risk control measures are selected and implemented, in accordance with workplace procedures |
| | 1.8 | Work area is prepared, in accordance with workplace procedures |
| 2 Test wiring systems | 2.1 | Isolations are confirmed, where appropriate, in accordance with workplace procedures and site requirements |
| | 2.2 | Wiring systems are tested, in accordance with workplace procedures, plans, drawings and manuals |
| | 2.3 | Wiring systems, including enclosures and supports, are inspected prior to testing, in accordance with workplace procedures, to ensure absence of damage, defects and deterioration |
| | 2.4 | Fixed wiring is tested, in accordance with workplace procedures and results are documented to confirm compliance with job specification |
| 3 Test electronic electrical systems | 3.1 | Isolations are confirmed, where appropriate, in accordance with workplace procedures |
| | 3.2 | Electronic electrical equipment is tested, in accordance with workplace procedures, plans, drawings and manuals |
| | 3.3 | Test conditions are confirmed and the equipment is inspected, in accordance with workplace procedures, to ensure absence of damage, defects and deterioration |
| | 3.4 | Electronic electrical system and equipment is tested using appropriate techniques, in accordance with the workplace procedures |
| | 3.5 | Electronic electrical system test results are documented to confirm compliance with job specification |
| 4 Commission electronic electrical systems | 4.1 | Isolations are confirmed, where appropriate, in accordance with workplace procedures |
| | 4.2 | Electronic electrical system is commissioned, in accordance with workplace procedures, plans, drawings and manuals |
| | 4.3 | Electronic electrical system and equipment is set up in |

accordance with workplace procedures, operational requirements and manufacturers' specifications

4.4 Testing and monitoring, in accordance with workplace procedures, is implemented and results are monitored and documented to ensure equipment operates within manufacturers' specifications

4.5 Electronic electrical system is commissioned, in accordance with workplace procedures

4.6 Final inspection is carried out, in accordance with workplace procedures

5 Complete work

5.1 Work is completed and appropriate personnel are notified, in accordance with workplace procedures

5.2 Work area is cleared of waste, cleaned, restored and secured, 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 Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEPMT502B Test and commission electronic electrical systems.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1715b9fa-e7bd-441c-bb8d-cf22c9c825a8>

Assessment Requirements for UEPMNT502 Test and commission electronic electrical systems

Modification History

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Performance Evidence

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

- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) requirements including:
 - hazard identification
 - risk control measures
 - safe working practices
 - using emergency procedures
- commissioning electronic electrical systems using commissioning procedures
- communicating with personnel
- completing work as per scheduled requirements
- determining permit to work requirements
- implementing regulations, industry standards, codes of practice and legislation
- inspecting and monitoring electronic electrical systems and wiring systems
- interpreting manufacturers' specifications, circuit plans and manuals
- planning for testing and commissioning electronic electrical systems work
- selecting materials
- testing electronic electrical systems using test and measurement instruments
- testing electronic electrical wiring systems using testing techniques
- using tools and equipment
- utilising data analysis techniques and tools

Knowledge Evidence

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

- commission and test techniques
- electronic and electrical systems and operational characteristics
- equipment and material

- isolations
- legislation, industry standards, codes of practice and regulations
- manufacturers' specifications, circuit plans and manuals
- permit to work system
- plant and equipment, its location and operation
- test and measurement instruments
- testing and commissioning electronic electrical systems,
- typical arrangements of power production plant
- WHS/OHS legislated requirements including:
 - hazard identification
 - risk control measures
 - safe working practices
 - using emergency procedures
- workplace documentation
- workplace policies and procedures

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

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.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions. Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

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