



Australian Government

UEPMNT410 Diagnose and repair faults in electronic equipment

Release: 2

UEPMNT410 Diagnose and repair faults in electronic equipment

Modification History

Release 2. Minor release to update superseded pre-requisite units.

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 diagnose and repair faults in electronic equipment at board and component level; this may involve work to be carried out with equipment on line.

Diagnosing and repairing includes the inspection, testing and verification of the operation and reliability of electronic equipment including components, wires, cables, boards, terminations and support fixings used in a power generation facility.

Competency in this unit requires the ability to plan work, diagnose electronic equipment faults, find electronic equipment faults, determine cause of electronic equipment faults, repair electronic equipment faults 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

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0020 Fix and secure electrotechnology equipment

UEECD0043 Solve problems in direct current circuits

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

UEEEL0003 Arrange circuits, control and protection for general electrical installations

UEEEL0011 Evaluate performance of low voltage electrical apparatus

UEEEL0014 Isolate, test and troubleshoot low voltage electrical circuits

UEEEL0020 Solve problems in low voltage A.C. circuits

UEEEL0021 Solve problems in magnetic and electromagnetic devices

UEEEL0023 Terminate cables, cords and accessories for low voltage circuits

UEEEL0024 Test and connect alternating current (a.c.) rotating machines

UEEEL0025 Test and connect transformers

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 and 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

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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 and site procedures |
| 2 Verify electronic equipment fault | 2.1 | Normal performance and function of equipment is ascertained using manufacturers' manuals, in accordance with workplace procedures |
| | 2.2 | Fault indicators, technical information and diagnostic techniques are used to verify reported faults, in accordance with workplace procedures |
| | 2.3 | Electronic equipment faults are reproduced and are monitored, in accordance with workplace procedures |
| 3 Find electronic equipment fault | 3.1 | Isolations for work are confirmed, in accordance with workplace procedures |
| | 3.2 | Electronic equipment components, wires, cables, terminations and support fixings are inspected for faults, in accordance with workplace procedures |
| | 3.3 | Diagnostic techniques are selected and used to determine faults, in accordance with workplace procedures |
| | 3.4 | Components are disconnected, in accordance with workplace procedures, to enable accurate test measurements of suspected faulty components ensuring back feed readings do not occur |
| | 3.5 | Test and measurement instruments are used, in accordance with workplace procedures, manufacturers' specifications and job requirements |
| 4 Determine cause of electronic equipment fault | 4.1 | Appropriate personnel are consulted, in accordance with workplace procedures |
| | 4.2 | Information from fault indicators and maintenance records are used, in accordance with workplace procedures |
| 5 Repair electronic equipment fault | 5.1 | Isolations are confirmed, in accordance with workplace procedures site requirements |
| | 5.2 | Faulty, worn, damaged or unsecured components are |

replaced or repaired, in accordance with workplace procedures

5.3 Electronic equipment parts and components are selected and replaced, as required, in accordance with workplace procedures and manufacturers' specifications

5.4 Components disconnected for testing are reconnected, and all terminations are checked to ensure they are electrically and mechanically sound, in accordance with workplace procedures

5.5 Faults are repaired, in accordance with workplace procedures

5.6 Final inspection is performed, in accordance with workplace procedures

6 Complete work

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

6.2 Work area is cleared of waste, cleaned, restored and secured in accordance with workplace procedures

6.3 Tools and equipment are cleaned, maintained and stored, in accordance with workplace procedures

6.4 Work completion details are finalised, 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 UEPMNT410B Diagnose and repair faults in electronic equipment.

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 UEPMNT410 Diagnose and repair faults in electronic equipment

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
- completing work as per scheduled requirements
- determining cause of electronic equipment faults
- determining permit to work requirements
- diagnosing and repairing faults in electronic equipment using diagnostic and fault finding techniques and procedures
- finding electronic equipment faults
- implementing legislation, industry standards, codes of practice and regulations
- interpreting manufacturers' specifications and manuals
- planning for diagnosis and repair of faults in electronic equipment
- repairing electronic equipment faults using repair techniques and procedures
- selecting materials
- using tools and equipment
- utilising data analysis techniques and tools
- verifying electronic equipment faults using verification techniques
- working with test and measurement instruments

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:

- electronic equipment
- equipment and materials
- fault finding, testing, verification and diagnostic techniques
- isolations
- legislation, industry standards, codes of practice and regulations
- manufacturers' specifications and manuals
- permit to work system
- plant and equipment, its location and operation
- repair techniques
- test and measurement instruments
- 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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