



Australian Government

UEPMNT434 Diagnose and repair faults in wind turbine control systems

Release: 1

UEPMNT434 Diagnose and repair faults in wind turbine control 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 diagnose and repair faults in wind turbine control systems, associated accessories and wiring systems.

The diagnosis and repair of faults in wind turbine control systems, associated accessories and wiring systems requires the inspection, repair and verification that they are operating efficiently and meeting operational requirements.

Competency in this unit requires the ability to plan work, verify fault, find fault, determine cause of fault, rectify or repair fault and complete 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

UEPMNT362 Maintain wind turbine control systems

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

UEENEEE102A Fabricate, assemble and dismantle utilities industry components

UEENEEE104A Solve problems in D.C. circuits

UEENEEE105A Fix and secure electrotechnology equipment

UEENEEE107A Use drawings, diagrams, schedules, standards, cords 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 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 are 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 for compliance with job specification
- 1.6** Work is planned, sequenced and prioritised, in accordance with workplace procedures
- 1.7** Potential hazards are identified and risk control measures are implemented, in accordance with

- workplace procedures
- 1.8** Work area is prepared, in accordance with workplace procedures
- 2 Verify fault**
- 2.1** Wind turbine control system drawings, circuit diagrams, flow charts, equipment manuals and expert personnel are consulted
- 2.2** Fault indicators, technical information and approved diagnostic techniques are used to verify reported faults, in accordance with workplace procedures
- 2.3** Wind turbine control system faults are reproduced and monitored, if practical, in accordance with workplace procedures
- 3 Find fault**
- 3.1** Isolations for work are confirmed, where appropriate, in accordance with workplace procedures
- 3.2** Wind turbine control system equipment components, wires, cables, terminations and support fixings are inspected for obvious faults, in accordance with workplace procedures
- 3.3** Diagnostic techniques are selected and used to determine wind turbine control system fault, in accordance with workplace procedures
- 3.4** Faulty wind turbine control system equipment and components are localised or isolated, and the malfunction is confirmed by inspection and testing, in accordance with workplace procedures
- 3.5** Test and measurement instruments are used, in accordance with manufacturers' instructions
- 4 Determine cause of fault**
- 4.1** Appropriate personnel are consulted, in accordance with workplace procedures, to obtain details relating to faulty wind turbine control system equipment
- 4.2** Wind turbine control system monitoring equipment, fault indicators and maintenance records are reviewed to obtain details relating to faulty equipment
- 4.3** Analysis of available evidence, is undertaken, in accordance with workplace procedures
- 5 Repair or rectify fault**
- 5.1** Isolations are confirmed, where appropriate, in

accordance with workplace procedures

- 5.2 Faulty, worn, damaged or unsecured wind turbine control system equipment or components are replaced, repaired or secured, in accordance with workplace procedures
- 5.3 Wind turbine control system equipment or components are selected and replaced, as required, in accordance with manufactures' specifications and workplace procedures
- 5.4 Disconnected wind turbine control system components are reconnected and all terminations are checked to ensure they are electrically and mechanically sound, in accordance with workplace procedures
- 5.5 All faults are repaired or rectified, in accordance with workplace procedures
- 5.6 Correct operation of the wind turbine control system is confirmed, in accordance with workplace procedures
- 5.7 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 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 UEPMNT434A Diagnose and repair faults in wind turbine control 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 UEPMNT434 Diagnose and repair faults in wind turbine control systems

Modification History

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

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:

- analysing data using data analysis techniques and tools
- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) requirements including:
 - emergency procedures
 - hazard identification
 - risk control measures
 - safe working practices
- communicating with personnel
- determining cause of wind turbine control system fault using diagnostic and fault finding techniques and procedures
- determining permit to work requirements
- identifying and finding wind turbine control system fault
- implementing legislation, industry standards, codes of practice and regulations
- planning diagnosis and repair of faults in wind turbine control systems work
- repairing wind turbine control system fault using repair techniques and procedures completing and documenting work
- selecting resources and materials
- using manufacturers' specifications and manuals
- utilising test and measurement instruments
- verifying wind turbine control system fault using verification techniques
- working with tools and equipment

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:

- diagnostic and fault finding methods and techniques

- equipment and materials
- fault verification methods and techniques
- isolations
- legislation, industry standards, codes of practice and regulations
- manufacturers' specifications and manuals
- operational requirements for equipment
- permit to work system
- repair methods and techniques
- test and measurement instruments and techniques
- typical arrangements of wind farm power production plant
- wind farm control systems and equipment including wind generator control system
- wind generation plant and equipment, and its location
- WHS/OHS legislated requirements including:
 - emergency procedures
 - hazard identification
 - risk control measures
 - safe working practices
- 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.

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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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