



Australian Government

UEPMNT004 Diagnose and repair faults in large scale wind turbines

Release: 1

UEPMNT004 Diagnose and repair faults in large scale wind turbines

Modification History

Release 1. This is the first release of this unit of competency in the UEP Electricity Supply Industry - Generation Sector Training Package Release 2.0.

Application

This unit involves the skills and knowledge required to diagnose and repair faults in large scale wind turbine systems.

Diagnosing and repairing faults is the process of inspecting wind turbine systems to identify problems and ensure repairs take place. The aim is to enhance the overall delivery of large scale wind turbine systems.

Competency in this unit requires the ability to gather data, interpret data to establish a theory about fault, repair faults and record faults. 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.

The application of the skills and knowledge described in this unit may require a licence/registration to practice in the workplace.

Other conditions may apply under state and territory legislative and regulatory licensing requirements which must be confirmed prior to commencing this unit.

Pre-requisite Unit

UEPMNT009 Maintain large scale wind turbines

Competency Field

Maintenance

Unit Sector

Electricity generation

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Gather data

PERFORMANCE CRITERIA

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

- 1.1 Wind turbine system's data logging information and error codes are accessed in accordance with workplace procedures
 - 1.2 Wind turbine system's sensory data on fault is gathered
 - 1.3 Hard copy or online documentation is accessed to support fault-finding process in accordance with workplace procedures
 - 1.4 Fault indicators and error codes are examined and interpreted in accordance with workplace procedures
 - 1.5 Circuit diagrams, manufacturers' recommendations and specifications, schematics and/or consultation with technical advisors are used to determine circuit and system characteristics and function
- 2 Interpret data to establish hypothesis about fault
- 2.1 Wind turbine system performance parameters are identified and applied to interpretation of fault data
 - 2.2 Wind turbine system faults are verified, or localised, using approved techniques, procedures, tools and test equipment
 - 2.3 Priorities are set for testing or replacement of specific components, wiring and connections in wind turbine systems
- 3 Repair fault
- 3.1 Risk analysis is undertaken in accordance with workplace procedures and is communicated to the work team
 - 3.2 Safety precautions including circuit isolations, physical barriers and other protective devices or systems are used, where appropriate
 - 3.3 Tests are conducted to ensure fault has been correctly repaired or isolated in accordance with workplace procedures
 - 3.4 Wind turbine system faulty components that have been removed from service are examined and cause of

problem is identified

- 3.5 Loose connections or wiring in the wind turbine system are repaired in accordance with workplace procedures
- 3.6 Parts or components are removed and replaced with tested and operational parts
- 3.7 Wind turbine system is tested in accordance with workplace procedures to ensure correct operation
- 3.8 Fault-finding process is escalated to repairing a complex fault using a technical adviser, if required

4 Record fault

- 4.1 Wind turbine system's faulty components and parts are correctly tagged, identified and stored in accordance with workplace procedures
- 4.2 Wind turbine system's faults are recorded 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 UEP Electricity Supply Industry - Generation Sector Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEPMNT445 Diagnose and repair faults in large scale wind turbine generators.

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 UEPMNT004 Diagnose and repair faults in large scale wind turbines

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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 and performance criteria on at least two separate occasions and include:

- 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 permit to work requirements
- diagnosing wind turbine system faults
- gathering wind turbine system data
- complying with regulations, industry standards, legislative requirements, codes of practice, manufacturers' recommendations and specifications, and environmental requirements
- interpreting data logs and component error code to determine fault
- interpreting wind turbine system data to establish theory about faults
- reassembling wind turbine system
- recording faults
- repairing wind turbine system faults
- replacing faulty components
- replacing wind turbine system components
- testing wind turbine systems, including pitch system, yaw system, gearbox, generator, control systems, braking and start-up systems and weather monitoring systems.

Knowledge Evidence

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

- data logs and system
- diagnosis techniques for wind turbine system faults

- error codes
- permit to work system
- reassembly techniques for wind turbine system components
- regulations, industry standards, legislative requirements, codes of practice, manufacturers' recommendations and specifications, and environmental requirements
- replacement techniques for wind turbine system components
- tests for wind turbine systems and components
- types and characteristics of wind turbine systems
- WHS/OHS legislated requirements, including:
 - emergency procedures
 - risk control measures
 - hazard identification
 - safe working practices
- wind turbine design and control system
- wind turbine system testing and function
- workplace documentation
- workplace policies and 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 workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated 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, equipment and personal protective equipment (PPE) 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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