



Australian Government

UEPMNT435 Diagnose and repair faults in wind turbine mechanical systems

Release: 1

UEPMNT435 Diagnose and repair faults in wind turbine mechanical 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 undertake the diagnosis and repair of wind turbine mechanical systems.

Diagnosis and repair of wind turbine mechanical system faults requires the inspection, repair and verification that the system is operating efficiently and is meeting operational requirements.

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

UEPMNT361 Maintain wind turbine mechanical systems

Competency Field

Maintenance

Unit Sector

Electricity generation

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan and prepare work

2 Verify fault

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 for compliance with job specifications
- 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
- 2.1** Wind turbine mechanical system function is determined by referring to principles, drawings, flow charts, equipment manuals and expert personnel
- 2.2** Fault indicators, technical information and diagnostic techniques are used to verify reported wind turbine mechanical system faults, in accordance with workplace procedures
- 2.3** Wind turbine mechanical system faults are reproduced and monitored, if practical, in accordance with workplace procedures

3 Find fault

- 3.1** Isolations are confirmed, where appropriate, in accordance with workplace procedures and site requirements
- 3.2** Wind turbine mechanical system equipment components, pipes, couplings, gears and support fixings are inspected for obvious faults, in accordance with workplace procedures
- 3.3** Fault finding and diagnostic techniques are selected and used to determine fault cause, in accordance with workplace procedures
- 3.4** Wind turbine mechanical system faulty equipment or components are localised and/or isolated, and the malfunction is confirmed by inspection and testing, in accordance with site requirements and 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 to obtain details relating to faulty equipment
- 4.2** Wind turbine mechanical system monitoring equipment, fault indicators and maintenance records are reviewed to obtain details relating to fault
- 4.3** Analysis on cause of wind turbine mechanical system fault is completed, in accordance with the workplace procedures

5 Repair fault

- 5.1** Isolations are confirmed, where appropriate, in accordance with workplace procedures
- 5.2** Wind turbine mechanical system's faulty, worn, damaged or unsecured equipment or components are repaired, in accordance with workplace procedures
- 5.3** All faults are repaired, in accordance with the workplace procedures
- 5.4** Correct operation of wind turbine mechanical system is confirmed, in accordance with site requirements and workplace procedures
- 5.5** Final inspection is performed, in accordance with workplace procedures

6 Complete work

- 6.1** Work is completed and appropriate are personnel 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 UEPMT435A Diagnose and repair faults in wind turbine mechanical 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 UEPMNT435 Diagnose and repair faults in wind turbine mechanical 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:
 - emergency procedures
 - hazard identification
 - risk control measures
 - safe working practices
- communicating with personnel
- completing work using completion of work procedures
- determining cause of faults using data analysis techniques and tools
- determining permit to work requirements
- fault cause using fault finding and diagnostic techniques
- identifying and selecting materials
- implementing legislation, industry standards, codes of practice and regulations
- operating test and measurement instruments
- planning diagnosis and repair of faults in wind turbine mechanical systems work
- repairing faults using repair techniques and procedures
- using tools and equipment
- utilising technical drawings, manufacturers' specifications and manuals
- verifying faults using verification techniques and procedures finding

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 techniques
- isolations
- legislation, industry standards, codes of practice and regulations

- manufacturers' specifications and manuals
- measuring equipment
- operational requirements of equipment and materials required
- permit to work system
- technical drawings
- typical arrangements of wind farm power production plant
- verification and repair techniques
- WHS/OHS legislated requirements including:
 - emergency procedures
 - hazard identification
 - risk control measures
 - safe working practices
- wind farm principles
- wind turbine mechanical system and equipment location
- wind turbine types and characteristics
- 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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