



Australian Government

UEPMNT317 Diagnose and repair faults in mechanical equipment

Release: 2

UEPMNT317 Diagnose and repair faults in mechanical 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 Minor release to update superseded pre-requisite units.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 a range of mechanical equipment; this may entail work to be carried out whilst machinery or power generation plant is online.

Diagnosing and repairing faults in mechanical equipment includes locating faults, overhauling equipment and/or fitting and adjusting mechanical equipment to meet power generation facility requirements.

Competency in this unit requires the ability to plan work, verify mechanical equipment faults, find mechanical equipment faults, determine the cause of mechanical equipment faults, repair or rectify mechanical 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

MEM09002 Interpret technical drawing

MEM12023 Perform engineering measurements

MEM18001 Use hand tools

MEM18002 Use power tools/hand held operations

MEM18003 Use tools for precision work

MEM18006 Perform precision fitting of engineering components

MEM18055 Dismantle, replace and assemble engineering components

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 workplace procedures
- 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 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 selected, in accordance with workplace procedures
- 1.8** Work area is prepared, in accordance with workplace

procedures

2 Verify fault

- 2.1** Normal performance and function of mechanical equipment is ascertained by consulting manufacturers' specifications and 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** Faults are reproduced and monitored, if possible, in accordance with workplace procedures

3 Find fault

- 3.1** Isolations are confirmed, where appropriate, in accordance with workplace procedures
- 3.2** Fault finding is carried out with others, in accordance with workplace procedures
- 3.3** Mechanical equipment components, pipe work, fittings and support fixings are inspected for obvious faults, in accordance with workplace procedures
- 3.4** Test and measurement instruments are used, in accordance with workplace procedures and manufacturers' specification

4 Determine cause of fault

- 4.1** Appropriate personnel are consulted, if required, about faulty mechanical equipment, in accordance with workplace procedures
- 4.2** Maintenance records on mechanical equipment are consulted, in accordance with workplace procedures
- 4.3** Conclusions about the nature and cause of the fault, based on analysis of evidence, are used, in accordance with workplace procedures

5 Repair fault

- 5.1** Isolations are confirmed, where appropriate, 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** Parts and components are selected and replaced, as required, in accordance with workplace procedures and manufacturers' specification

- 5.4 All faults are repaired or rectified, in accordance with the work plan
 - 5.5 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 UEPMNT317B Diagnose and repair faults in mechanical 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 UEPMNT317 Diagnose and repair faults in mechanical 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:
 - emergency procedures
 - hazard identification
 - safe working practices
 - using risk control measures
- communicating with personnel
- completing work as per scheduled requirements
- determining cause of mechanical equipment fault
- determining permit to work requirements
- finding mechanical equipment fault using fault finding and diagnostic techniques
- identifying equipment and materials
- interpreting manufacturers' specifications and manuals
- locating technical drawings and plans
- planning for diagnosing and repairing faults in mechanical equipment work
- repairing mechanical equipment fault using repairing techniques and procedures
- utilising levelling and alignment techniques
- utilising test and measurement instruments
- verifying mechanical equipment 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:

- equipment and materials

- fault finding and diagnostic techniques
- generation plant and equipment, its location and operation
- legislation, industry standards, codes of practice and regulations
- manufacturers' specifications and manuals
- performance, characteristics and function of mechanical equipment
- permit to work system
- repair techniques
- technical drawings and plans
- typical arrangements of power production plant
- WHS/OHS legislated requirements including:
 - emergency procedures
 - hazard identification
 - safe working practices
 - using risk control measures
- 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.

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