



Australian Government

UEPMNT404 Maintain complex mechanical pumps

Release: 2

UEPMNT404 Maintain complex mechanical pumps

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 Minor release to update superseded pre-requisite units.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 undertake the maintenance of complex mechanical pumps which may include multi-stage centrifugal pumps, axial flow compressors, fans and blowers.

Maintenance is the process of regularly monitoring, inspecting and maintaining complex mechanical pumps in a power generation facility to ensure optimal performance.

Competency in this unit requires the ability to plan work, remove complex mechanical pumps for maintenance, maintain complex mechanical pumps, replace or install complex mechanical pumps 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

UEPMNT304 Maintain mechanical pumps

Competency Field

Maintenance

Unit Sector

Electricity generation

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan and prepare for work

2 Remove complex mechanical pumps for

PERFORMANCE CRITERIA

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

- 1.1** Requirements including scope of work and assigning 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, manufacturer 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
- 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 procedures

- 2.1** Isolations for work are confirmed, in accordance with

maintenance		workplace procedures
	2.2	Complex mechanical pump is disconnected, in accordance with workplace procedures
	2.3	Complex mechanical pump is removed, in accordance with workplace procedures
	2.4	Complex mechanical pump is inspected for abnormalities, in accordance with workplace procedures
3 Maintain complex mechanical pumps	3.1	Maintenance is performed on complex mechanical pump, in accordance with workplace procedures and manufacturers' specifications
	3.2	Complex mechanical pump is dismantled for maintenance, in accordance with workplace procedures and manufacturers' specifications
	3.3	Sketches are made, data noted and components marked for identification or reassembly, in accordance with workplace procedures
	3.4	New components are inspected, in accordance with workplace procedures, for compliance with manufacturers' specifications
	3.5	Dimensional inspection is performed with precision measuring devices, in accordance with workplace procedures, to ensure compliance with manufactures' specifications and results are recorded
	3.6	Complex mechanical pump is reassembled, using industry principles and approved techniques, in accordance with workplace procedures and manufacturers' specifications
	3.7	Modifications or alterations are undertaken, in accordance with workplace procedures
4 Replace or install complex mechanical pumps	4.1	Equipment and plant is prepared for complex mechanical pump replacement, in accordance with workplace procedures
	4.2	Complex mechanical pump is replaced, in accordance with workplace procedures and manufacturers' specifications
	4.3	Complex mechanical pump is levelled, aligned, coupled and connected, in accordance with workplace

procedures

- 4.4 All fastenings are torqued, in accordance with workplace procedures and manufacturers' specifications
- 4.5 Machinery, plant and pump are given a test run, then monitored and adjusted, as required, in accordance with workplace procedures and manufacturers' specifications

5 Complete work

- 5.1 Work is completed and appropriate personnel are notified, in accordance with workplace procedures
- 5.2 Work area is cleared of waste, cleaned, restored and secured, in accordance with workplace procedures
- 5.3 Tools and equipment are cleaned, maintained and stored, in accordance with workplace procedures
- 5.4 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 UEPMT404B Maintain complex mechanical pumps.

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 UEPMNT404 Maintain complex mechanical pumps

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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:

- analysing using data analysis techniques
- 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 as per scheduled requirements
- determining permit to work requirements
- dismantling and reassembling techniques for maintaining complex mechanical valves
- implementing legislation, industry standards, codes of practice and regulations
- interpreting manufacturers' specifications and manuals
- levelling and aligning with approved techniques
- maintaining complex mechanical pumps using maintenance techniques and procedures
- operating with torque techniques
- planning for maintenance of complex mechanical pump work
- reading technical drawings and data
- recognising worn or damaged components
- removing complex mechanical pumps for maintenance using removal techniques
- replacing or installing complex mechanical pumps using installation techniques and procedures
- selecting materials and components
- testing using diagnostic and testing techniques
- undertaking isolations and torquing
- using tools
- utilising precision measuring equipment

- working with and applying fluid dynamics principles

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:

- analysis and data recording techniques
- diagnostic and testing techniques
- fluid dynamics
- isolations
- legislation, industry standards, codes of practice and regulations
- level and alignment techniques
- maintenance of complex mechanical pumps generation plant and equipment, its location and operation
- manufacturers' specifications and manuals
- materials and components of pumps
- permit to work system
- precision measuring equipment
- technical drawings and data
- tools
- torque techniques
- typical arrangements of power production plant
- WHS/OHS legislated requirements including:
 - emergency procedures
 - risk control measures
 - hazard identification
 - 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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