



Australian Government

UEPMNT408 Install hydro turbines

Release: 2

UEPMNT408 Install hydro turbines

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 Minor release to update superseded pre-requisite units.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 install hydro turbines. The installation of a hydro turbine refers to a hydro turbine being removed from service, for repair and overhaul.

Installation is a key feature of placing hydro turbines into service, it can include conducting repairs and/or the overhaul of a hydro turbine to ensure reliability of operation during its service life.

Competency in this unit requires the ability to plan work, disassemble a hydro turbine, inspect hydro turbine's components, repair a hydro turbine and/or its' components and to report on all completed work tasks. Individuals will, in general, work under supervision as a maintenance operative in a power generation facility.

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

MEM18009 Perform levelling and alignment of machines and engineering components

MEM18055 Dismantle, replace and assemble engineering components

UEPMNT402 Conduct complex levelling and alignment

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

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|---|---|
| 2 Disassemble hydro turbine | 2.1 Isolations for work are confirmed, in accordance with workplace procedures |
| | 2.2 Hydro turbine is disassembled, in accordance with manufacturers' specifications and workplace procedures |
| | 2.3 Hydro turbine components are removed in priority order, in accordance with manufacturers' specification and workplace procedures |
| | 2.4 Disassembly is carried out to facilitate reassembly, in accordance with workplace procedures |
| | 2.5 Components are measured and clearances are taken, in accordance with workplace procedures, to determine conformity to manufacturer's limits and to ensure assembly meets manufacturers' specifications |
| | 2.6 Measurements and clearances are recorded, in accordance with manufacturer' specifications and workplace procedures |
| 3 Inspect hydro turbine components | 3.1 Components are cleaned and inspected, in accordance with workplace procedures |
| | 3.2 Faults are identified and recorded, in accordance with workplace procedures |
| | 3.3 New components are inspected for compliance to manufacturers' specifications, in accordance with workplace procedures |
| | 3.4 Components are prepared for assembly, in accordance with workplace procedures |
| 4 Repair hydro turbine or components | 4.1 Repairs are carried out, in accordance with workplace procedures |
| | 4.2 Repairs are tested and results are analysed to ensure conformance to manufactures' specifications, in accordance with workplace procedures |
| | 4.3 Data from testing is recorded, in accordance with workplace procedures |
| 5 Reassemble hydro turbine | 5.1 Equipment and plant is prepared for reassembly of hydro turbine, in accordance with workplace procedures. |
| | 5.2 Isolations are confirmed, in accordance with workplace |

procedures

5.3 Components are refitted, in accordance with workplace procedures and manufacturers' specifications.

5.4 Hydro turbine is assembled, in accordance with workplace procedures and manufacturers' specifications.

5.5 Hydro turbine is test run, and operating characteristics are monitored, to ensure compliance with manufacturers' specifications, 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 UEPMT408B Install hydro turbines.

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 UEPMNT408 Install hydro turbines

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 maintenance and installation techniques
- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) requirements including:
 - emergency procedures
 - identifying hazardous materials
 - risk control measures
 - safe working practices
- communicating with personnel
- completing work as per scheduled requirements
- determining permit to work requirements
- diagnosing and testing using precision measuring equipment
- disassembling hydro turbine
- identifying components
- implementing legislation, industry standards, codes of practices and regulations
- inspecting hydro turbine components
- interpreting manufacturers' specifications and manuals
- performing isolations
- planning for installation of hydro turbine work
- reassembling hydro turbine
- recognising worn, damaged or faulty components
- repairing hydro turbine or components using replacement techniques
- using drawings and data

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:

- data recording techniques
- diagnostic and test techniques
- hydro turbine types and characteristics
- installation and maintenance techniques
- isolations
- legislation, industry standards, codes of practices and regulations
- manufacturers' specifications and manuals
- permit to work system
- power generation plant and equipment, its location and operation
- technical drawings
- typical arrangements of power production plant
- WHS/OHS legislated requirements including:
 - emergency procedures
 - identifying hazardous materials
 - 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.

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.

Links

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