



Australian Government

UEPMNT313 Maintain internal combustion engines

Release: 1

UEPMNT313 Maintain internal combustion engines

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 conduct maintenance and major overhauls of fixed or pad mounted internal combustion engines.

An overhaul is a thorough examination of a fixed or pad mounted internal combustion engine, with repairs or changes made, as required. This may mean taking apart an internal combustion engine to examine and repair.

Competency in this unit requires the ability to plan work, assess an internal combustion engine's condition, remove auxiliary systems, overhaul and maintain an internal combustion engine, replace auxiliary systems 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

MEM18006C Repair and fit engineering components

MEM09002B Interpret technical drawing

MEM12023A Perform engineering measurements

MEM18001C Use hand tools

MEM18002B Use power tools/hand held operations

MEM18003C Use tools for precision work

MEM18055B 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

2 Assess engine condition

PERFORMANCE CRITERIA

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

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|------------|---|
| 1.1 | Requirements including scope of work and assigned tasks 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, 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 | Internal combustion engine is run and components are assessed visually or aurally to determine condition of |

- engine under load, in accordance with workplace procedures
- 2.2** Internal combustion engine condition is tested whilst under load, using appropriate test equipment, in accordance with workplace procedures and manufacturers' specification
- 3 Remove auxiliary systems**
- 3.1** Isolations are confirmed, where appropriate, in accordance with workplace procedures
- 3.2** Auxiliary systems are removed, marked and labelled, to facilitate replacement, in accordance with workplace procedures
- 3.3** Load device is uncoupled and removed, in accordance with workplace procedures
- 4 Overhaul and maintain engine**
- 4.1** Internal combustion engine is systematically dismantled, and component parts are clearly marked for identification, in accordance with workplace procedures
- 4.2** Internal combustion engine components are examined, and dimensional inspection is performed, in accordance with workplace procedures, to determine conformance to manufacturers' specification
- 4.3** Faulty components are replaced, in accordance with manufacturers' specification
- 4.4** Internal combustion engine components are reassembled, and necessary adjustments are made, in accordance with workplace procedures and manufacturers' specification
- 5 Replace auxiliary systems**
- 5.1** Load device is coupled, in accordance with workplace procedures and manufacturers' specification
- 5.2** Auxiliary equipment is maintained, as required, in accordance with workplace procedures and manufacturers' specification
- 5.3** Auxiliary equipment is aligned and installed, in accordance with workplace procedures and manufacturers' specification
- 5.4** Internal combustion engine is started and function tested, in accordance with workplace procedures and manufacturers' specification

- 5.5 Internal combustion engine operating characteristics are monitored, recorded and adjustments are made to obtain optimum performance, in accordance with workplace procedures and manufacturers' specification
 - 5.6 Auxiliary equipment and/or components are overhauled, as required, in accordance with workplace procedures and manufacturers' specification
- 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 UEPMT313B Maintain internal combustion engines.

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 UEPMNT313 Maintain internal combustion engines

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
 - hazardous material identification
 - risk control measures
 - safe working practices
 - safety signs
- assessing internal combustion engine condition using diagnosis and testing techniques and methods
- communicating with personnel
- completing work as per scheduled arrangements
- determining permit to work
- identifying and inspecting resources, materials and components
- implementing legislation, industry standards, codes of practice and regulations
- interpreting manufacturers' specifications and manuals
- overhauling and maintaining internal combustion engine using maintenance and repair techniques
- performing isolations
- planning for internal combustion engine maintenance work
- recording data
- removing auxiliary systems using dismantling and reassembly techniques
- replacing auxiliary system
- using tools and measuring equipment
- utilising torquing, levelling and alignment techniques
- working with manufactured gaskets and seals

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
- dismantling and reassembly techniques
- gaskets and seals
- generation plant and equipment
- internal combustion engines
- isolations
- legislation, industry standards, codes of practice and regulations
- levelling and aligning techniques
- manufacturers' specifications and manuals
- permit to work system
- repair and installation
- tools and measuring equipment
- torquing techniques
- typical arrangements of power production plant
- WHS/OHS legislated requirements including:
 - emergency procedures
 - hazardous material identification
 - risk control measures
 - safe working practices
 - safety signs
- 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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