



Australian Government

MEM27019 Diagnose, repair and replace diesel engines in stationary and mobile plant

Release: 1

MEM27019 Diagnose, repair and replace diesel engines in stationary and mobile plant

Modification History

Release 1: New unit

Application

This unit of competency defines the skills and knowledge required to diagnose, repair and replace diesel engines used in mobile and stationary plant and equipment.

It covers the diagnosis of diesel engine operation to determine location and cause of faults and whether in situ repair, more specialist investigation or engine removal for off-site repair is required. It includes bottom and top end repair of engines and re-installing repaired or replacement engines into stationary and mobile plant.

Where repairs to fuel, coolant, electrical and starting, exhaust systems, as well as transmissions and accessories and their components are required, see the appropriate units.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Band: A

Unit Weight: 5

Pre-requisite Unit

MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information
MEM18001	Use hand tools
MEM18002	Use power tools/hand held operations
MEM18055	Dismantle, replace and assemble engineering components

Competency Field

Fixed and Mobile Plant

Elements and Performance Criteria

Elements describe the essential outcomes.

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

- | | |
|--|---|
| 1 Determine job requirements | <ul style="list-style-type: none">1.1 Follow standard operating procedures (SOPs)1.2 Comply with work health and safety (WHS) requirements at all times1.3 Use appropriate personal protective equipment (PPE) in accordance with SOPs1.4 Identify job requirements from specifications, drawings, job sheets or work instructions |
| 2 Check engine performance | <ul style="list-style-type: none">2.1 Determine normal engine performance parameters from manufacturer specifications and workplace records2.2 Perform appropriate diagnostic tests for engine and equipment type2.3 Identify faults from diagnostic test results2.4 Determine appropriate action to rectify faults |
| 3 Remove engine and engine assemblies | <ul style="list-style-type: none">3.1 Remove engine and ancillary components according to manufacturer specifications, workplace procedures and WHS and environmental requirements3.2 Tag and record engine and ancillary components according to workplace procedures3.3 Prepare engine and engine assemblies for repair |
| 4 Repair engines | <ul style="list-style-type: none">4.1 Interpret characteristics of surface finishes and wear patterns on top and bottom end components4.2 Assess components for abnormal wear or defects |

Elements describe the essential outcomes.

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

- | | | | |
|---|---|-----|--|
| | | 4.3 | Remove top-end components and dismantle block assembly according to manufacturer recommendations |
| | | 4.4 | Select appropriate cleaning solution and procedure, clean and store components not requiring repair ready for reassembly |
| | | 4.5 | Replace or repair faulty parts to manufacturer specification |
| | | 4.6 | Test engine and make any required post-repair adjustments |
| 5 | Install repaired or replacement engine | 5.1 | Locate and fix engine according to manufacturer specifications |
| | | 5.2 | Refit ancillary components and equipment systems |
| | | 5.3 | Check and adjust lubricants, coolant, fuel and other required fluids |
| | | 5.4 | Test engine and make any required post-installation adjustments |
| 6 | Undertake completion tasks | 6.1 | Clean work area and dispose of non-recyclable material according to workplace and environmental requirements |
| | | 6.2 | Collect and store recyclable material in appropriate containers |
| | | 6.3 | Check and store tools and equipment |
| | | 6.4 | Document and report engine repair or replacement according to workplace procedures |

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

- The large diesel engines covered by this unit are used in one or more of the following:**
- mobile plant
 - agriculture
 - forestry
 - rail
 - marine
 - other transport operations
 - power generation
 - air and gas compression
 - stand by power
 - other industry sectors using large combustion engines

- Actions to rectify faults include one (1) or more of the following:**
- on-site repair, including in an on-site workshop
 - installation of a new or reconditioned engine

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>