



Australian Government

MEM27032 Service combustion engines

Release: 1

MEM27032 Service combustion engines

Modification History

Release 1. Supersedes and is equivalent to MEM18025B Service combustion engines

Application

This unit of competency defines the skills and knowledge required to check and assess engine consumable fluids and components for serviceability, perform the service procedures and report what has been carried out.

Servicing activities include obtaining and dispatching samples for spectrographic or laboratory analysis.

Where interpretation of technical drawings is required unit MEM09002 Interpret technical drawing should also be selected.

Where the selection and use of engineering measurement is required unit MEM12023 Perform engineering measurements should also be selected.

Where the selection and use of power tools/hand held operations is required unit MEM18002 Use power tools/hand held operations should also be selected.

This unit should not be selected if unit MEM18055 Dismantle, replace and assemble engineering components has already been selected.

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

Band: A

Unit Weight: 2

Pre-requisite Unit

MEM11011	Undertake manual handling
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information
MEM18001	Use hand tools

Competency Field

Maintenance and diagnostics

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 | 1.1 | Follow standard operating procedures (SOPs) |
| | | 1.2 | Comply with work health and safety (WHS) requirements at all times |
| | | 1.3 | Use appropriate personal protective equipment (PPE) in accordance with SOPs |
| | | 1.4 | Identify job requirements from specifications, job sheets or work instructions |
| 2 | Check and assess items for serviceability | 2.1 | Assess engine consumable fluids and components for correct condition |
| | | 2.2 | Identify replacement fluids/items using manufacturers' data |
| | | 2.3 | Identify abnormal appearance/condition of engine consumables fluids and components and report to appropriate authority |
| | | 2.4 | Apply lubricant, cooling system additives and filtering principles in checking and assessing items for serviceability |
| 3 | Perform servicing procedures | 3.1 | Drain, flush and replace engine fluids with correct fluid and/or additives to the correct level/concentration according to manufacturer recommendations |
| | | 3.2 | Remove engine consumable components and replace according to manufacturer recommended procedures |
| | | 3.3 | Ensure engine is free of lubricant, water and air leaks after servicing work |
| | | 3.4 | Secure hoses, wiring and ducts and keep clear of moving parts after servicing work, where required |
| | | 3.5 | Make minor running adjustments to specification |
| | | 3.6 | Obtain test samples of fluids from system as determined by SOPs |
| | | 3.7 | Record servicing activities on report sheet/proforma, or provide accurate oral report |

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.

- Engine consumable fluids and components include one (1) or more of the following:**
- filters
 - coolants
 - lubricants
 - hydraulic and other fluids
 - additives
 - simple drive belts
 - coolant hoses

- Running adjustments include one (1) or more of the following:**
- belt tensions
 - shroud clearances

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM18025B Service combustion engines

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM27032 Service combustion engines

Modification History

Release 1. Supersedes and is equivalent to MEM18025B Service combustion engines

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- assessing engine consumable fluids and components for levels and serviceability and identifying replacement consumables and components using manufacturers' data
- identifying and reporting on fluids and items which have abnormal appearance and flushing and cleaning engine of any residual fluids according to procedures
- undertaking numerical operations and calculations for servicing combustion engines
- removing/replacing engine fluids with correct fluids and/or additives to correct levels
- checking engine for leaks after servicing and, where required, securing all wiring, hoses and ducts free of moving parts
- carrying out minor running adjustments
- obtaining test samples of fluids for further testing
- recording and reporting service activities in accordance with SOPs.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- common defects that can be identified from the appearance of fluids and items
- procedures for:
 - reporting items/fluids with abnormal appearance
 - draining and flushing fluids from the engine, including the reasons for ensuring any residual/spilt fluids are removed from the engine
 - removing/replacing engine consumable fluids and components
 - checking serviced engines for leaks
 - taking test samples
 - reporting service activities
- principles of operation of the lubrication and cooling systems
- function of filters

- purpose of a range of additives and correct proportions to be used
- spilt containment and spilt kits
- appropriate grade and type of replacement fluid
- methods of fastening/securing wires, hoses and ducts
- specifications and procedures for undertaking minor running adjustments.

Assessment Conditions

- Assessors must:
 - have vocational competency in servicing combustion engines at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications
- 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.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>