



Australian Government

MEM27003 Overhaul engine fuel system components

Release: 1

MEM27003 Overhaul engine fuel system components

Modification History

Release 1. Supersedes and is equivalent to MEM18027C Overhaul engine fuel system components

Application

This unit of competency defines the skills and knowledge required to recondition and reinstall fuel system components on large stationary or mobile diesel engines.

It includes removal and cleaning of fuel system components, assessing components for wear and defects, deciding whether a component should be reconditioned or replaced, reinstallation of reconditioned components in engines and testing of reconditioned components for effective operation.

Where breakdown testing and repair of compression ignition systems is required, unit MEM27002 Test and repair compression ignition systems should also be selected.

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

Band: A

Unit Weight: 8

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 | 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, drawings, job sheets or work instructions |
| | | | |
| 2 | Clean and assess parts | 2.1 | Disassemble components, including the use of specialised tools, according to manufacturer recommendations |
| | | 2.2 | Assess fuel system components visually for abnormal wear or defects |
| | | 2.3 | Interpret characteristics of surface finishes and wear patterns associated with fuel system components |
| | | 2.4 | Decide whether components should be reconditioned or discarded and replaced using knowledge of fuel system and control functions, characteristics and applications |
| | | 2.5 | Select appropriate cleaning method/solution and procedures |
| | | 2.6 | Make parts identifiable according to their original location in the pump/injector and protect and store as required for reassembly |
| | | 2.7 | Obtain and interpret measurements and part condition when determining reuse/replacement |
| | | | |
| 3 | Recondition and | 3.1 | Recondition and replace components identified as faulty |

Elements describe the essential outcomes.

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

set up equipment

- 3.2 Assemble components according to manufacturer specifications
- 3.3 Use test equipment to test components and set fuel system to specifications
- 3.4 Record reconditioning of components 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.

- Fuel system types include one (1) or more of the following:**
- port and helix
 - sleeve metering
 - unit injection
 - distributor
 - pressure/time

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM18027C Overhaul engine fuel system components

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 MEM27003 Overhaul engine fuel system components

Modification History

Release 1. Supersedes and is equivalent to MEM18027C Overhaul engine fuel system components

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
- identifying and interpreting specifications, charts, lists, drawings and service documents for overhauling engine fuel system components
- dismantling the engine fuel system components using specialised tools and test equipment and checking parts visually for abnormal wear or defects
- identifying parts according to their original location in the pump/injector and protecting and storing them as required for reassembly
- undertaking calculations and numerical operations for overhauling engine fuel system components
- measuring and recording fuel system components using appropriate measuring equipment
- assessing components and parts for serviceability or replacement
- reconditioning, assembling and replacing components according to manufacturer specifications
- testing operation of reconditioned components to specifications.

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)
- sequence for disassembling engine fuel components
- specialised tools required and their application
- common defects, examples and causes of abnormal wear
- characteristics of surface finishes and wear patterns for fuel system components
- method of cleaning fuel system components
- appropriate solvents for cleaning fuel systems
- procedures for:
 - cleaning, protecting and storing fuel system components
 - marking fuel system components in readiness for reassembly

- recording fuel system component measurements
- reconditioning and/or replacing faulty fuel system components
- assembling and testing fuel system components
- setting fuel system components
- measuring instruments to be used to measure fuel system components and reasons for selecting the chosen measuring instruments
- principles of operation of diesel fuel systems
- specifications of the fuel system components
- tools, techniques and equipment required to carry out fuel system component tests.

Assessment Conditions

- Assessors must:
 - have vocational competency in overhauling engine fuel system components 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>