



Australian Government

MEM27004 Maintain and repair engine lubrication systems

Release: 1

MEM27004 Maintain and repair engine lubrication systems

Modification History

Release 1. Supersedes and is equivalent to MEM18028B Maintain engine lubrication systems

Application

This unit of competency defines the skills and knowledge required to assess lubrication system operations and repair or replace faulty components.

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

Band: A

Unit Weight: 2

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.
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1	Determine job	1.1	Follow standard operating procedures (SOPs)
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Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
	requirements	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	Assess lubrication system operation	2.1	Identify lubrication system and lubricant specifications prior to any testing
		2.2	Undertake system checks safely and to prescribed procedures
		2.3	Assess lubrication system operation, including condition and appropriateness of lubricant fluid, integrity of lubrication system and condition of components
		2.4	Determine flows, pressures and temperatures and record
		2.5	Identify leaks and any sources of contamination
		2.6	Isolate faults to component level using test equipment and determine appropriate corrective action
		2.7	Evaluate results of spectrographic or laboratory analysis and make recommendations regarding adjustments to future maintenance activities
		2.8	Assess auxiliary lubrication systems for correct operation
3	Rectify faulty components	3.1	Determine component wear and clearances using appropriate test equipment and manufacturer recommendations
		3.2	Select replacement components using manufacturers' data
		3.3	Remove components and refit to engine
		3.4	Make final adjustments that bring system in line with specifications

Elements describe the essential outcomes.

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

3.5 Record test and rectification activities

3.6 Ensure engine is free of lubricant leaks after rectification work is carried out

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.

Faults include one (1) or more of the following:

- low or high pressure
- low or high temperature
- contamination
- excessive or too little consumption/flow
- leaks
- use of incorrect lubricant

Test equipment includes one (1) or more of the following:

- pressure/temperature gauges
- flow meters

Adjustments include setting one (1) or more of the following valves to specified pressures or flows:

- bypass
- regulating
- relief

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM18028B Maintain engine lubrication systems

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 MEM27004 Maintain and repair engine lubrication systems

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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 prior to any testing on engine lubrication systems
- conducting operational checks of engine lubrication system and determining and recording oil flows, pressures and temperature using appropriate test equipment
- identifying faults of engine lubrication system and determining corrective action
- obtaining and interpreting the results of lubricating oil tests and making recommendations to future maintenance activities
- checking auxiliary lubrication systems for correct operation in accordance with specifications
- undertaking calculations and numerical operations for maintaining engine lubrication systems
- checking lubrication system components for wear and clearances using appropriate test equipment to manufacturer specifications
- removing/refitting and adjusting lubrication system components and make final adjustments to bring system in line with specifications
- recording/reporting test and work activities.

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)
- operation of the lubrication system and procedures for testing/checking lubrication
- tests to be undertaken and equipment and techniques to be used to determine oil flows, pressures and temperatures
- procedures for:
 - recording lubrication system test results
 - analysing lubricating oil samples and reasons that apply
 - removing/replacing lubrication system components

- adjusting lubrication systems
- recording test and repair activities
- checking lubrication systems for leaks
- specifications of the lubrication system components and appropriate corrective action for faulty components
- characteristics of lubricants and application of a variety of lubricants
- likely causes of a range of out of specification test results and appropriate corrective action to be taken
- implications of out of specification test results on maintenance schedules and requirements
- reasons for installing auxiliary lubrication systems on diesel plant and equipment
- operation of the auxiliary lubrication system
- measuring equipment/techniques used to determine lubrication system component wear and clearances.

Assessment Conditions

- Assessors must:
 - have vocational competency in maintaining engine lubrication systems 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.

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