



Australian Government

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

Release: 1

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Modification History

Release 1: New unit

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 other applicable reference documents to perform engine repair or replacement
- checking engine for conformance and removing the engine and top-end components and dismantling block assembly
- undertaking calculation and numerical operations to calculate bearing clearances
- checking parts for abnormal wear or defects and identifying components for reuse or replacement
- testing of cylinder head, spring tensions, valves and guides for conformance to specifications
- replacement of worn or faulty parts
- cleaning parts using appropriate solutions and safety precautions and rack and setting out engine parts according to their original position in readiness for reassembly
- obtaining and recording measurements and interpreting readings for replacement or reuse as being under or over size
- reassembling engine bottom-end components using appropriate tools, equipment and techniques.

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)
- characteristics of surface finishes and wear patterns as applied to crankshaft and piston assemblies
- specifications of crankshaft and piston assemblies
- reasons for identifying the components for reuse or replacement
- procedures for:
 - dismantling the block assembly and removing the engine from the plant
 - removing the top-end from the engine

- cleaning engine parts and solution to be applied
- racking and/or setting out of parts in readiness for reassembly
- recording engine measurements
- removing ridges, gaps, tapers, ovality and protrusions
- assembling engine bottom-ends and precautions to be taken
- determining bearing clearances and methods to be applied
- tools, techniques and equipment to be used and reasons for selection
- action to be taken when abnormal wear or defects are observed in the engine components
- measuring instruments to be used to measure engine components
- concept of under/over size of replacement parts and the reasons for identifying replacement parts as under or over size
- tools, techniques and equipment required to correct faults.

Assessment Conditions

- Assessors must:
 - have vocational competency in diagnosing, repairing, removing and replacing diesel engines in stationary and mobile plant 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>