



Australian Government

Assessment Requirements for AURTTE005 Overhaul engines

Release: 1

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Modification History

Release	Comment
Release 1	New unit of competency.

Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standards defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- overhaul two different multi-cylinder engines, including one engine with cylinder sleeves.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS) and occupational health and safety (OHS) requirements relating to overhauling engines and associated components, including procedures for:
 - using personal protective equipment (PPE) when handling engines and using chemical cleaning agents
 - using slings, chains and other lifting equipment and machinery
 - using specialised equipment, including heating torches, ovens and presses
 - handling freezing substances, including liquid nitrogen
- environmental requirements, including procedures for trapping, storing and disposing of fluids released from engines
- types, characteristics and operating principles of engines and associated engine components
- engine overhaul procedures, including:
 - methods for cleaning and preparing engine for overhaul
 - engine dismantling procedures
 - engine and engine component inspection, measuring and evaluation procedures, including:
 - non-destructive testing procedures, including dye penetrant testing and magnetic particle testing
 - methods for measuring and calculating tolerances and clearances

- engine and engine component repair and adjustment procedures, including:
 - engine cylinder head and block machining
 - engine crankshaft and camshaft grinding
 - engine cylinder and engine sleeve fitting, boring and honing
 - engine bearing tunnel and connecting rod repair
 - engine component heat treating, straightening and reclamation
 - engine component balancing
- engine assembly procedures, including procedures for tolerance measuring and calculating and adjusting components, including:
 - piston to connecting rod big-end alignment
 - big-end bearing to crankshaft journal clearance
 - big-end bearing crush with bearing blue
 - piston ring end gap, back clearance and side clearance
 - main bearing to crankshaft journal clearance
 - main bearing crush with bearing blue
 - semi-flanged thrust bearings to crankshaft clearance
 - finished camshaft bearings to camshaft clearance
 - camshafts and cam followers
 - camshaft end float
 - crankshaft end float
 - gear backlash
 - oil pump sealing and pick-up oil piping
- component assembly procedures and processes, including:
 - welsh plugs and oil gallery plugs
 - piston and connecting rod assemblies
 - big-end bearings
 - piston rings to pistons
 - main bearings and thrust washers
 - semi-flanged thrust bearings
 - crankshafts, including protection measures for crankshaft journals, bearings, rings and bores
 - finished camshaft bearings
 - camshafts and cam followers
 - timing gears
 - chains and tensioners
 - oil pumps, oil squirters and oil pump pick-ups
 - balance shafts
 - fitting ancillary components, including covers and seals, housings, diesel fuel injection pumps, oil coolers, crankshaft pulleys, flywheels and bell housings
- post-overhaul testing procedures for engines.

Assessment Conditions

Assessors must satisfy NVR/AQTF assessor requirements.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.

Assessment must include direct observation of tasks.

Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the engines that they have worked on, e.g. repair orders.

Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.

The following resources must be made available:

- mechanical repair workplace or simulated workplace
- workplace instructions
- manufacturer engine specifications
- two different multi-cylinder engines requiring overhaul, including an engine with cylinder sleeves
- tools, equipment and materials appropriate for overhauling and adjusting engines.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>

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