



Australian Government

**Assessment Requirements for AURTTM002
Repair bearing tunnels and connecting rods
in engines**

Release: 1

Assessment Requirements for AURTTM002 Repair bearing tunnels and connecting rods in engines

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:

- set up the following multi-cylinder engine configurations on a line boring machine:
 - a V configured engine
 - an in-line configured engine
- line bore the main bearing tunnels of a cylinder block, including each of the following:
 - relocating a main bearing cap
 - fitting a semi-finished main bearing cap
 - sleeving a main bearing tunnel
- repair camshaft bearing tunnels of an overhead camshaft cylinder head
- repair full set of connecting rods
- repair one connecting rod with a stepped parting face.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS), and occupational health and safety (OHS) requirements relating to repairing bearing tunnels and connecting rods in engines, including:
 - procedures for:
 - selecting and using personal protective equipment (PPE), including safety glasses, ear protection and safety footwear
 - using hand tools and lifting equipment
 - operational risk assessment and treatments associated with:
 - electrical safety of line boring and honing machinery

- line boring and honing machinery movement and operation
- environmental requirements, including procedures for trapping, storing and disposing of cooling and lubricating fluids released during machining process
- types, characteristics and limitations of line boring and honing machines, including:
 - types and grades of boring tools
 - types and grades of honing stones
- tool sharpening and dressing methods, including:
 - maintaining sharpness of tools throughout boring operations
 - dressing procedures for stones
- line boring methods and procedures, including:
 - preparing line borer to accept engine block or cylinder head
 - setting engine block or cylinder head into line boring machine and aligning to centre line of boring bar
 - setting line boring tool to correct diameter and locking boring tool
 - welding and relocating main bearing caps
 - machining top and bottom of bearing caps
 - machining parting faces of cylinder head camshaft bearing
 - line boring cylinder head camshaft tunnels
 - line boring damaged tunnels to oversize to accept sleeving operation
 - machining parting faces of cylinder block
 - line boring cylinder block tunnels to accept oversized back bearings
 - line boring tunnels to leave a honing allowance
 - line boring rear main bearing areas and thrust bearing diameters to original size
 - machining and squaring thrust faces in engine blocks
 - line boring semi-finished camshaft bearings
- line honing methods and procedures, including:
 - procedures for setting diameter of honing stone
 - rotational and oscillating speeds of honing bar
- connecting rod repair methods and procedures, including:
 - removing rod eye bush and measuring rod eye bore
 - checking alignment of connecting rod and straightening connecting rod
 - boring rod eye for oversized bush
 - removing cap bolts and nuts and machining parting faces on connecting rod and big end cap, including cracked rods
 - resizing big end for standard and oversize back bearings
 - fitting new little end bushes and pin boring little ends
 - types and application of cleaning and lubricating agents
- requirements of Australian standards relevant to engine reconditioning, including:
 - AS 4182 Automotive repairs – Code of practice for reconditioning reciprocating spark ignition engines

- AS 4427 Automotive repairs – Code of practice for reconditioning reciprocating compression ignition engines
- post-repair operations, including rust protection of machined surfaces.

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 bearing tunnels and connecting rods in engines that they have repaired, 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:

- automotive repair workplace or simulated workplace
- workplace instructions
- manufacturer engine specifications
- AS 4182 Automotive repairs – Code of practice for reconditioning reciprocating spark ignition engines
- AS 4427 Automotive repairs – Code of practice for reconditioning reciprocating compression ignition engines
- multi-cylinder engine blocks and cylinder heads specified in the performance evidence
- engine line boring and honing machines
- precision measuring equipment, including:
 - dial bore gauges
 - dial indicators
 - inside and outside metric and imperial micrometers.

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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