

Title	Demonstrate knowledge of automotive engine block reconditioning practices		
Level	4	Credits	10

Purpose	People credited with this unit standard are able to demonstrate knowledge of automotive engine block reconditioning practices.
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Classification	Motor Industry > Engines
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Available grade	Achieved
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Guidance Information

- 1 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable service information, and company requirements and legislative requirements. This includes the knowledge and use of suitable tools and equipment.
- 2 Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the current version of the Health and Safety at Work Act 2015; and any subsequent amendments and replacements.
- 3 Definitions
Company requirements refer to instructions to staff on policy and procedures that are available in the workplace. These requirements may include – company policies and procedures, work instructions, product quality specifications and legislative requirements.
Service information may include – technical information for a vehicle, machine, or product detailing operation; installation and servicing procedures; manufacturer instructions; technical terms and descriptions; and detailed illustrations.
- 4 It is recommended that people first hold credit for Unit 32320, *Demonstrate knowledge of manually operated machines and tools for automotive machining*, before being assessed against this unit standard.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of automotive engine block reconditioning practices.

Performance criteria

- 1.1 Engine block machining and cylinder sleeving procedures are described.
- Range cylinder boring machines (portable bar, overhead boring machine), block resurfacing, align boring main tunnels, measuring bore sizes and determining amount of metal to be removed, tool sharpening and setting, setting up and machining the bores, honing the cylinder bore, fitting cylinder liners and sleeves (dry liners with interference fit, slip-in wet and dry flanged sleeves, sealing rings, adjusting protrusion height), repairing stud and bolt threaded holes.
- 1.2 Piston assembly reconditioning procedures are described.
- Range piston finishing practices, piston skirt profiles and shape (hot and cold), piston ring land clearance, piston stability and noise, gudgeon pin off-set, piston skirt finish, oversize replacement pistons, machining ring grooves, re-ringing, piston clearances, gudgeon pin location, gudgeon pin clearance and fits, rebushing, machining and honing small-ends, fitting rods to pistons, fitting rings to pistons.
- 1.3 Connecting rod reconditioning procedures are described.
- Range big-end inspection (bolts or screws, rough threads, stretching, cap and rod flat surfaces for burrs and roughness, measuring bearing housing diameter for ovality and taper,), big-end re-sizing, small-end resizing, aligning connecting rods.
- 1.4 Crankshaft re-grinding procedures are described.
- Range determining crankshaft wear and damage by visual examination and measurement, checking for straightness, crack testing, regrinding machines, re-grinding of crankpins and mains, fillet rolling, radius specifications, reclamation of damaged journals, hardening, journal finish, oil hole chamfers, polishing.
- 1.5 Engine bearing technology and fitting procedures are described.
- Range big end and main bearing types (precision inserts, needle rollers, semi-finished), bearing material, bearing crush, free spread, locating lugs, parting line relief, oil holes and grooves, thrust bearings and washers, camshaft bearings; bearing clearances, bearing fitting procedures.
- 1.6 Engine component balancing requirements are described.
- Range static balance, dynamic balance, typical balancing procedures.

Planned review date	31 December 2025
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 February 2021	N/A

Consent and Moderation Requirements (CMR) reference	0014
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact the MITO New Zealand Incorporated info@mito.org.nz if you wish to suggest changes to the content of this unit standard.