Title	**Demonstrate knowledge of disassembling, inspecting, and reassembling an engine short block**		
Level	**3**	**Credits**	**2**

Purpose	This theory-based unit standard is intended for people in the automotive repair industry. People credited with this unit standard are able to demonstrate knowledge of: disassembling and inspecting an engine short block; and reassembling an engine short block.

Classification	Motor Industry > Engines

Available grade	Achieved

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 Performance of the outcomes of this unit standard must comply with the following:
Health and Safety at Work Act 2015;
Land Transport Rule: Vehicle Repair 1998.

3 Any new, amended or replacement Acts, regulations, standards, codes of practice, guidelines, or authority requirements or conditions affecting this unit standard will take precedence for assessment purposes, pending review of this unit standard.

4 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 refers to technical information for a vehicle, machine, or product detailing operation; installation and servicing procedures; manufacturer instructions; technical terms and descriptions; and detailed illustrations.
Suitable tools and equipment refer to industry approved tools and equipment that are recognised within the industry as being the most suited to complete the task in a professional and competent manner with due regard to safe working practices.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of disassembling and inspecting an engine short block.

Performance criteria

1.1 Precautions to be observed when disassembling and inspecting an engine short block are identified.

Range personal safety, safety of others, vehicle or machine safety, workshop safety, environmental safety, tools and equipment safety.

1.2 Suitable tools and equipment for the cylinder block to be disassembled and inspected are identified.

1.3 Procedures for disassembling the cylinder block and cleaning components prior to inspection are described.

1.4 Procedures for inspecting the pistons and piston rings are described.

Range includes but is not limited to – damage, wear, fit of the gudgeon pin into the piston.

1.5 Procedures for inspecting the connecting rods and crankshaft are described.

Range includes but is not limited to – bend, bow, twist, bearing and journal wear.

1.6 Procedures for inspecting the timing gears or drive, water pump, and oil pump for signs of damage and wear are described.

1.7 Procedures for inspecting the flywheel are described.

Range includes but is not limited to – run-out of machined surfaces, ring gear, running surface, mounting, wearable components; rigid type, dual mass type, flexible type.

1.8 Procedures for inspecting the cylinder block are described.

Range bore and sleeve wear; flatness and damage to machined surfaces; corrosion, erosion, electrolysis, and cavitation of water jackets, passages, and components.

1.9 Inspection of wet and dry sleeves is described.

Range wear and damage to machined surfaces and damage by corrosion, erosion, electrolysis, and cavitation; protrusion; fit.

1.10 Inspection of core plugs, studs, and threaded holes for signs of leakage, damage, clogging, and breakage are described.

Outcome 2

Demonstrate knowledge of reassembling an engine short block.

Performance criteria

2.1 Precautions to be observed when reassembling an engine short block are identified.

Range personal safety, safety of others, vehicle or machine safety, workshop safety, environmental safety, tools and equipment safety.

2.2 Suitable tools and equipment for the cylinder block to be reassembled are identified.

2.3 The method of reassembling pistons and piston rings is described.

2.4 The method of assembling wet sleeves is described.

Range sleeve protrusion, sealing.

2.5 Reassembly of connecting rods, camshaft, timing gears or drive, and oil pump is described.

2.6 The method of replacing core plugs is described.

2.7 The methods of cleaning out clogged threads, and replacing broken studs are described.

2.8 Procedures for reassembling the short block and carrying out adjustments are described.

Range piston ring clearances, bearing clearances, sleeve protrusion, end float, torque settings, piston protrusion, selection and suitability of piston crown shape, selective head gasket thickness.

Planned review date	31 December 2025

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 January 2008	31 December 2022
Review	2	29 April 2021	N/A

Consent and Moderation Requirements (CMR) reference	0014

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

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