

<b>Title</b>	<b>Rectify heavy vehicle engine cylinder head faults</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>4</b>

<b>Purpose</b>	<p>This unit standard is intended for people in the automotive repair industry.</p> <p>People credited with this unit standard are able to: disassemble and inspect a heavy vehicle engine cylinder head; rectify heavy vehicle cylinder head faults; and reassemble a heavy vehicle cylinder head.</p>
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<b>Classification</b>	Motor Industry > Engines
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 It is recommended that people hold credit for Unit 30888, *Remove, inspect and refit a cylinder head* before being assessed against this unit standard.
- 2 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.
- 3 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.
- 4 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.
- 5 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.  
*Heavy Vehicle* refers to classes MD3, MD4, ME, NB, TC and TD as specified in the Vehicle equipment standards classifications at <https://www.nzta.govt.nz/vehicles/vehicle-types/vehicle-classes-and-standards/vehicle-classes/>; or has a gross vehicle mass that exceeds 3500kg and is not of a class specified in the Vehicle equipment standards classifications.

*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.

- 6 Evidence for performance criteria 2.1 and 2.2 may include showing where faults were rectified by organising engine reconditioning outwork or via an exchange or refurbishment service.

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## Outcomes and performance criteria

### Outcome 1

Disassemble and inspect a heavy vehicle engine cylinder head.

#### Performance criteria

- 1.1 Cylinder head is disassembled in the manner and sequence prescribed by the manufacturer.
- 1.2 Components are cleaned of oil, dirt, and carbon to reveal their condition.
- 1.3 Valves, seat inserts, and guides are inspected for wear and pitting, and their condition noted.
- 1.4 Valve springs are inspected for squareness, tension, and free length, and the results are compared for compliance with manufacturer's specifications.
- 1.5 Core plugs are inspected for signs of leakage and their condition noted.
- 1.6 Components are inspected for wear and their condition noted.  
Range bearings, rockers, rocker shaft, pushrods.
- 1.7 Machined faces are checked for damage (visual), cracks, and flatness (straight edge and feeler gauge) and their condition noted.
- 1.8 Studs, bolts, and threaded holes are inspected for signs of damage, clogging and breakage and their condition noted.
- 1.9 Injector sleeves, and water distribution tubes and passages are inspected for faults and their condition noted.
- 1.10 A decision as to repair or replace the cylinder head and components is made based on relevant factors.  
Range relevant factors include but are not limited to – extent of damage, cost, availability of parts, warranty, non-useable parts.

**Outcome 2**

Rectify heavy vehicle cylinder head faults.

**Performance criteria**

- 2.1 Faults with valves and valve springs, and stem seals are rectified.
- 2.2 Valves and valve seats are restored.
- 2.3 Core plugs that show signs of leakage are removed and replaced.
- 2.4 Bearings, rockers, and rocker shaft faults are rectified.
- 2.5 Clogged threads are cleaned out, and broken studs are replaced.
- 2.6 Damage to a cylinder head is reported.
- Range            damaged threads, damage to the machined surfaces, warped surfaces.

**Outcome 3**

Reassemble a heavy vehicle cylinder head.

**Performance criteria**

- 3.1 Cylinder head is reassembled to restore full serviceability in the manner and sequence prescribed by the manufacturer.
- 3.2 Adjustments are carried out in the manner and sequence prescribed by the manufacturer.
- Range            torque settings, valve clearances.

<b>Planned review date</b>	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	27 February 1995	31 December 2022
Review	2	21 February 1999	31 December 2022
Review	3	25 January 2008	31 December 2022
Review	4	29 April 2021	N/A

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

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**Comments on this unit standard**

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