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| Title | Describe the primary systems and principal components of heavy motor vehicles | | |
| Level | 3 | Credits | 5 |

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| Purpose | People credited with this unit standard are able to describe the primary systems of a heavy motor vehicle; and the principal components of primary systems of a heavy motor vehicle. |
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| Classification | Commercial Road Transport > Commercial Road Transport Skills |
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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, 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:
 - Health and Safety at Work Act 2015;
 - Land Transport Act 1998;
 - Heavy Motor Vehicle Regulations 1974;
 - Land Transport (Driver Licensing) Rule 1999;
 - Land Transport (Driver Licensing) Amendment Rule 2006;
 - Land Transport Rule: Heavy Vehicles 2004;
 - Land Transport (Road User) Rule 2004;
 - and any subsequent amendments and replacements.
- 3 Definitions

ABS means anti-lock braking system.

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, industry standards, codes of practice, work instructions, product quality specifications and legislative requirements.

EBS means electronic braking system.

Hub and stub axle assembly includes front wheels and tyres.

Load sensing is a means (mechanical, electronic and/or pneumatic) of proportioning air pressure to heavy vehicle braking systems to reflect load mass over individual axles or axle groups.

Primary system means a system that is crucial to the operation of the vehicle.

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.

Stability control relates to the ability of an electronic braking system to sense excessive lateral acceleration and automatically apply brakes to counter that acceleration.

4 Reference material

Professional Skills for Driving Trucks, Wellington, 2009. Available from public libraries.

Outcomes and performance criteria

Outcome 1

Describe the primary systems of a heavy motor vehicle.

Performance criteria

1.1 Primary systems of a heavy motor vehicle are described.

Range engine, engine cooling system, fuel and air supply system, exhaust and emission control system, drivetrain, braking system, steering system, electrical system, suspension system.

1.2 Auxiliary braking systems are described.

Range exhaust brake, engine brake, driveline retarder.

1.3 Trailer coupling systems are described.

Range may include – turntable, ringfeder; locking function.

Outcome 2

Describe the principal components of primary systems of a heavy motor vehicle.

Performance criteria

2.1 Engine components and their function are described.

Range engine block, cylinder head, sump.

2.2 Engine cooling system components and their function are described.

Range water pump, radiator, hoses, fan assembly.

2.3 Fuel and air supply system components and their function are described.

Range fuel tank, fuel lines, fuel filters, injection system, electronic control module, air filter, intercooler, inlet manifold, turbo-charger.

- 2.4 Exhaust system components and their function are described.
Range exhaust manifold, exhaust pipes, emission control.
- 2.5 Drivetrain components and their function are described.
Range clutch, clutch brake, gearbox, drive shafts, differential, axles, wheels and wheel nuts, tyres, central tyre inflation, differential lock and power divider, transfer case.
- 2.6 Braking system components and their function are described.
Range brake lines, brake assemblies, park brake control, air compressor, brake chambers, spring brakes, air reservoirs, ABS, EBS, load sensing, stability control.
- 2.7 Steering system components and their function are described.
Range steering reservoir, steering column, steering box, steering linkages, steering pump and hoses, hub and stub axle assembly.
- 2.8 Electrical system components and their function are described.
Range batteries, alternator, starter motor, wiring loom, lighting, circuit protection, electronic control units.
- 2.9 Chassis components and their function are described.
- 2.10 Suspension system components and their function are described.
Range springs, air bags, suspension mounts, shock absorbers.

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| Planned review date | 31 December 2023 |
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Status information and last date for assessment for superseded versions

| Process | Version | Date | Last Date for Assessment |
|--------------|---------|------------------|--------------------------|
| Registration | 1 | 23 February 2000 | 31 December 2017 |
| Review | 2 | 22 March 2005 | 31 December 2017 |
| Review | 3 | 22 October 2010 | 31 December 2017 |
| Review | 4 | 16 April 2015 | 31 December 2020 |
| Review | 5 | 28 March 2019 | N/A |

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