

<b>Title</b>	<b>Demonstrate knowledge of heavy vehicle suspension systems and identifying suspension failure</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>3</b>

<b>Purpose</b>	This theory-based unit standard is for people in the automotive heavy repair industry. People credited with this unit standard are able to demonstrate knowledge of heavy vehicle suspension systems, and identifying heavy vehicle suspension system failure.
----------------	--

<b>Classification</b>	Motor Industry > Vehicle Steering and Suspension
-----------------------	--

<b>Available grade</b>	Achieved
------------------------	----------

---

### Guidance Information

- 1 Legislation and publications relevant to this unit standard include but are not limited to – Health and Safety in Employment Act 1992; Land Transport Rules: Heavy Vehicles 2004, Rule 31002; Vehicle Repair 1998, Rule 34001; *Vehicle Inspection Requirements Manual (VIRM) – In-service Certification*.
- 2 Land Transport Rules are produced for the Minister of Transport by Land Transport New Zealand. These rules are available online at <http://www.landtransport.govt.nz/rules/>.  
The VIRM is published by Land Transport New Zealand and is available online at <http://www.landtransport.govt.nz/certifiers/virm-in-service/index.html>.
- 3 Definitions  
*Heavy vehicle* refers to a motor vehicle that is of Class MD3, MD4, ME, NB, NC, TC or TD; or has a gross vehicle mass that exceeds 3500 kg and is not of a class specified in the Table of vehicle classes as listed from Land Transport New Zealand website <http://www.landtransport.govt.nz/publications/infosheets/infosheet-1-10.html#classes>.  
*Service information* may include but is not limited to – technical information of a vehicle, machine, or product detailing operation; installation and servicing procedures; manufacturer instructions and specifications; technical terms and descriptions; and detailed illustrations. This can be accessed in hard copy or electronic format and is normally sourced from the manufacturer.

---

### Outcomes and performance criteria

#### Outcome 1

Demonstrate knowledge of heavy vehicle suspension systems.

**Performance criteria**

- 1.1 Single and tandem axle suspension systems on heavy vehicles are described in accordance with service information.
- Range includes but is not limited to – sprung and unsprung weights, leaf springs, coil springs, rubber and hydro-pneumatic springs, torsion bars, reactive and non-reactive suspension.
- 1.2 Heavy vehicle air suspension systems are described in accordance with service information.
- Range includes but is not limited to – air bellows (bags), manual and automatic levelling, air supply, reaction control, height control and equalising valves.
- 1.3 Suspension characteristics are described in accordance with service information.
- Range includes but is not limited to – torque reaction, spring rate, ride quality, load distribution.
- 1.4 The relationship between the suspension and vehicle steering is described in accordance with service information.
- Range includes but is not limited to – suspension component wear, sag, misalignment, steering component wear, steering angles.
- 1.5 Suspension damping and roll control are described in accordance with service information.
- Range includes but is not limited to – spring oscillation, shock absorbers, anti-roll bars, rollover and active stability control.

**Outcome 2**

Demonstrate knowledge of identifying heavy vehicle suspension system failure.

**Performance criteria**

- 2.1 Procedures for identifying faulty components in the suspension system are identified in accordance with service information.
- Range includes but is not limited to – springs, mountings, struts, ball joints, bushes, bolts, rivets, pins; wear, cracks, fractures, bends, sag, security; road test for handling – noise, ride quality, suspension reaction control.

2.2 Probable causes of suspension failure are described in accordance with service information.

Range includes but is not limited to – overloading, improper loading or weight distribution, improper handling, contributing mechanical causes.

<b>Replacement information</b>	<p>This unit standard and unit standard 16112 were replaced by unit standard 31231.</p> <p>This unit standard and unit standard 24433 replaced unit standard 2315.</p>
--------------------------------	--

**This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.**

**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	25 January 2008	31 December 2020
Review	2	26 July 2018	31 December 2020

<b>Consent and Moderation Requirements (CMR) reference</b>	0014
--	------

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