Title	**Describe heavy vehicle suspension systems, analyse suspension failure, and repair components**		
Level	**4**	**Credits**	**8**

Purpose	This unit standard is for people in the automotive repair industry. People credited with this unit standard are able to demonstrate knowledge of heavy vehicle suspension systems, and identify, analyse, and repair heavy vehicle suspension system failure.

Classification	Motor Industry > Vehicle Steering and Suspension

Available grade	Achieved

Entry information	
Critical health and safety prerequisites	Appropriate driver's licence for the vehicle being driven.

Explanatory notes

1 The following legislation, regulations, publication, and their amendments are required to be consulted and followed where applicable:
- Health and Safety in Employment Act, 1992
- Traffic Regulations, 1976
- Transport (Vehicle Standards) Regulations, 1990
- New Zealand Road Code, Land Transport Safety Authority.

2 Reference to *suitable tools and equipment* means industry approved tools and equipment that are recognised within the industry as being the most suited to complete the task to a professional and competent manner with due regard to safe working practices.

3 Because of the particular nature of this unit standard, it is essential that the practical assessment evidence is obtained from commercial jobs in the workplace under normal workplace conditions.

Outcomes and evidence requirements

Outcome 1

Demonstrate knowledge of heavy vehicle suspension systems.

Evidence requirements

1.1 Single and tandem axle suspension systems on heavy vehicles are described according to manufacturer's specifications.

Range 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 according to manufacturer's specifications.

Range air bellows, manual and automatic levelling, air supply, reaction control.

1.3 Suspension characteristics are described according to manufacturer's specifications.

Range torque reaction, spring rate, ride quality, load distribution.

1.4 The relationship between the suspension and vehicle steering is described according to manufacturer's specifications.

Range suspension component wear, sag, misalignment, steering component wear, steering angles.

1.5 Suspension damping and roll control are described according to manufacturer's specifications.

Range spring oscillation, shock absorbers, anti-roll bars.

Outcome 2

Identify and analyse heavy vehicle suspension system failure, and repair components.

Evidence requirements

2.1 Safe working practices are observed throughout the task.

Range personal safety, safety of others, equipment and vehicle safety.

2.2 Suitable tools and equipment are selected and used that enable faults to be diagnosed and repaired.

2.3 The vehicle is road tested in compliance with the Road Code and any suspension faults observed are noted.

Range handling, noise, ride quality, suspension reaction control.

2.4 Faulty components in the suspension system are identified.

Range springs, mountings, struts, ball joints, bushes, bolts, rivets, pins; wear, cracks, fractures, bends, sag, security.

2.5 From the condition of the faulty components, an analysis of the likely cause(s) is (are) made and the conclusions are recorded.

Range overloading, improper loading, improper handling, contributing mechanical causes.

2.6 The faulty component(s) is (are) returned to full serviceability following the manufacturer's specified procedures and a recommendation is made to remedy any contributing causes.

Range replace with approved replacement parts, repair, adjust.

2.7 The suspension is checked in its loaded and unloaded condition and any remaining faults are rectified.

2.8 Where replacement components may alter steering geometry, arrangements are made for steering angles to be checked and/or adjusted.

Replacement information	This unit standard has been replaced by unit standard 24432 and unit standard 24433.

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	28 September 1994	31 December 2016
Review	2	21 February 1999	31 December 2016
Review	3	25 January 2008	31 December 2016
Rollover	4	19 November 2010	31 December 2016
Rollover	5	18 February 2016	31 December 2020

Consent and Moderation Requirements (CMR) reference	0014

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

Please note
Providers must be granted consent to assess against standards (accredited) by NZQA, or an inter-institutional body with delegated authority for quality assurance, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Consent requirements and an outline of the moderation system that applies to this standard are outlined in the Conesnt and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.