

Title	Describe, diagnose, and rectify faults in motorcycle frames, suspension, and steering systems		
Level	4	Credits	6

Purpose	This unit standard is for people in the automotive repair industry. People credited with this unit standard are able to: demonstrate knowledge of motorcycle frame, suspension, and steering construction; diagnose steering, suspension, and frame faults and their causes; and rectify machine frame, suspension, and steering faults.
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Classification	Motor Industry > Vehicle Steering and Suspension
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Available grade	Achieved
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Entry information	
Critical health and safety prerequisites	Motorcycle driver's licence.

Explanatory notes

- 1 The following legislation, regulations, publication and their amendments are 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 motorcycle frame, suspension, and steering construction.

Evidence requirements

- 1.1 Types of frame construction and design are described according to machine manufacturer's specifications.
- Range construction – tubes, steel plates, pressed steel, alloys, composite;
design – diamond frame (engine stressed), cradle frame (single and double down tube), backbone frame (monocoque), underbone frame (scooters, mopeds, small displacement engines).
- 1.2 Frame components are identified and their features are described according to machine manufacturer's specifications.
- Range front-end steering head, fork clamp assembly, steering stem, handlebars, engine mounts, swing arm, mounting areas (footrests, rear brake, rear shocks, petrol tank, seat, fairing, air box, side plates).
- 1.3 Factors which affect suspension and handling characteristics are described according to machine manufacturer's specifications.
- Range sprung and unsprung weight, spring operation, spring rate, damping.
- 1.4 Rear suspension components are identified and their features are described according to machine manufacturer's specifications.
- Range swing arm, springs, shock absorbers (oil, gas, rubber).
- 1.5 Front suspension and steering components are identified and their features are described according to machine manufacturer's specifications.
- Range telescopic forks (oil and gas-oil), anti-dive, link type, All Terrain Vehicle (ATV) components.
- 1.6 Limitations of frame straightening are described according to legislation and machine manufacturer's specifications.

Outcome 2

Diagnose steering, suspension, and frame faults and their causes.

Evidence requirements

- 2.1 Safe working practices are observed throughout the task.
- Range personal safety, safety of others, equipment and machine safety.
- 2.2 Machine components are visually inspected for wear, damage, and security according to traffic regulation criteria and the machine's workshop manual.
- 2.3 Frame and/or swing arm alignment is checked according to the machine manufacturer's specifications.
- 2.4 The motorcycle is road tested to isolate any abnormal handling and riding characteristics.
- 2.5 The symptoms of faults found on the road test, and the conditions when they occur, are determined and noted.
- 2.6 The cause of the fault is identified by investigation and a report is given to the supervisor and/or customer.

Outcome 3

Rectify machine frame, suspension, and steering faults.

Evidence requirements

- 3.1 Safe working practices are observed throughout the task.
- Range personal safety, safety of others, equipment and machine safety.
- 3.2 Suitable tools and equipment are selected and used to enable faults to be rectified.
- 3.3 Worn, damaged, and weakened components are replaced to restore full serviceability, and in compliance with machine manufacturer's specifications and Traffic Regulations.
- 3.4 Suspension, steering, and frame components are adjusted and aligned in accordance with the machine manufacturer's workshop manual instructions and specifications.
- 3.5 The machine is test ridden to check if the fault is rectified and the findings are noted and reported to the supervisor.
- Range fault symptoms not rectified, fault symptoms no longer present as a result of repair work.

Replacement information	This unit standard has been replaced by unit standard 24429, unit standard 24430, and unit standard 24431.
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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	20 November 2015	31 December 2020

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>.

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 Consent 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.