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|--------------|----------------------------------------------------------------------------------------|----------------|----------|
| <b>Title</b> | <b>Demonstrate knowledge of fine tuning motorcycle steering, suspension, and frame</b> |                |          |
| <b>Level</b> | <b>5</b>                                                                               | <b>Credits</b> | <b>4</b> |

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| <b>Purpose</b> | People credited with this unit standard are able to demonstrate knowledge of the requirements for fine tuning motorcycle steering, suspension, and frame systems; and procedures to carry out fine tuning of a motorcycle. |
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|-----------------------|--------------------------------------------------|
| <b>Classification</b> | Motor Industry > Vehicle Steering and Suspension |
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|------------------------|----------|
| <b>Available grade</b> | Achieved |
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### Guidance Information

- 1 The following legislation must be consulted and followed where applicable:  
 Consumer Guarantees Act 1993;  
 Fair Trading Act 1986;  
 Health and Safety in Employment Act 1992;  
 Land Transport Rules;  
 Transport (Vehicle Standards) Regulations 1990.
- 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>.
- 3 Reference to *company work standards* means that the standard must comply with any policies, procedures, and requirements of the company involved, and the ethical codes of relevant professional management organisations.
- 4 Any modification or change to the motorcycle's specifications and/or original configuration may void manufacturer's warranty provisions. All changes from the original specifications are subject to the 'Low Volume Vehicle Code'.
- 5 The Low Volume Vehicle Code is developed and issued by the Low Volume Vehicle Technical Association Inc (LVVTA).  
 The Code is the legal framework leading to the LVVTA Standards that are used by Land Transport New Zealand Certifiers, and is referenced in the Vehicle Standards Regulations. This Code is available online at <http://www.lvvtta.org.nz>.

### Outcomes and performance criteria

#### Outcome 1

Demonstrate knowledge of the requirements for fine tuning motorcycle steering, suspension, and frame systems.

**Performance criteria**

- 1.1 The explanation identifies the reasons for fine tuning motorcycle systems in relation to the handling and stability of the machine.
- 1.2 The analysis of motorcycle and rider requirements identifies factors to consider when fine tuning steering, suspension, and frame systems.
- Range requirements include but are not limited to – rider weight, street or high performance riding, limitations of the machine, amount and type of adjustment allowable, tyre profile, spring rate, machine accessories, aerodynamics, load transfer, structural considerations.
- 1.3 Motorcycle handling definitions are described according to the manufacturers' specifications and/or textbook descriptions.
- Range definitions include but are not limited to – handling, road holding, stability, linear and angular motions (yaw, pitch, roll).
- 1.4 Geometric considerations to take into account when fine tuning motorcycle systems are described in terms of safety and stability.
- Range considerations include but are not limited to – steering axis, rake or caster angle, front and rear ground trail, centre of gravity.
- 1.5 Damping forces provided by shock absorbers are defined in terms of manufacturer's calibrations and component design.
- Range includes but is not limited to – shim-valving, charge pressures, oil viscosity, adjustable spring, electronic control (by-pass bleed).

**Outcome 2**

Demonstrate knowledge of the procedures to carry out fine tuning of a motorcycle.

**Performance criteria**

- 2.1 The analysis identifies the variance of tuning requirements dependent on different customer requirements.
- Range may include but is not limited to – intended use of machine, attachments, rider's personal handling requirements, loaded weight.
- 2.2 Inspecting and testing procedures on components and systems required to assess machine capabilities are described according to the machine manufacturers' specifications.
- Range steering, suspension, frame.

2.3 Requirements when testing machine's handling characteristics are described according to the machine manufacturers' recommendations.

Range on terrain suitable for intended use of the machine, safety, legal.

2.4 Procedure to complete the fine tuning is described according to the machine manufacturers' procedures and legislation.

Range may include but is not limited to – steering components and geometry, suspension spring and dampening rates, replacement forks and shock absorbers, frame alignment, ride height, tyres.

**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       | 16 December 2004 | 31 December 2020         |
| Review       | 2       | 26 April 2018    | 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>.