

Title	Demonstrate knowledge of motorcycle and all-terrain vehicle (ATV) wheel assemblies, tyres, and puncture repairs		
Level	3	Credits	3

Purpose	This theory-based unit standard is for people in motorcycle workshops and tyre fitting bays. People credited with this unit standard are able to demonstrate knowledge of: motorcycle and ATV wheel assemblies; motorcycle and ATV tyres; and repairing punctures on motorcycles and ATVs.
----------------	--

Classification	Motor Industry > Vehicle Steering and Suspension
-----------------------	--

Available grade	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 Rule: Tyres and Wheels 2001, Rule 32013; *Vehicle Inspection Requirements Manual (VIRM) In-service Certification, Motorcycle section 10 Tyres, wheels and hubs*; *Health and Safety Guidelines for Tyre Fitters*, (Wellington: Occupational Safety and Health Service, Department of Labour, 2001).
- 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>.
Health and Safety Guidelines for Tyre Fitters is available online from the Department of Labour website <http://www.osh.govt.nz/order/catalogue/106.shtml>.
- 3 **Definition**
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 motorcycle and ATV wheel assemblies.

Performance criteria

- 1.1 Warrant of Fitness Regulations as they apply to wheel assemblies are described in accordance with the VIRM requirements.
- Range front and rear wheel bearings, front and rear wheel springing, worn components that affect steering, security of assembly, alignment.
- 1.2 Lateral and radial run-out tolerances are described in relation to wheel assemblies.
- 1.3 The various rim and wheel types and sizes are described in accordance with manufacturer specifications.
- Range composite construction, pressed, spoked, cast.
- 1.4 Spoke patterns, types, and threads are identified in relation to spoked wheel assemblies in accordance with manufacturer specifications.
- 1.5 Wheel offset in relation to hubs is described in accordance with service information.
- 1.6 The inspection and servicing of wheel assemblies are described in accordance with service information.
- Range truing, balancing, bearing and seal replacement, sprocket drive assemblies, bushings, rims.
- 1.7 Legislative requirements when repairing wheels are described in accordance with Land Transport Rule: Tyres and Wheels and the VIRM requirements.
- 1.8 Procedures for repairing wheels are described in accordance with manufacturer and legislative requirements.
- Range spoked – respoking, tensioning, truing; composite.

Outcome 2

Demonstrate knowledge of motorcycle and ATV tyres.

Performance criteria

- 2.1 Tyre types, sizes, and applications are described in accordance with tyre manufacturer specifications.
- Range includes but is not limited to – tubed, tubeless (including low pressure type); crossply, radial; applications include road and off-road use.

- 2.2 Side wall markings are described in accordance with tyre manufacturer specifications.
- Range load rating, speed rating, date of manufacture, size, manufacturer, tyre type.
- 2.3 Types of tyre tread patterns, compounds, and their uses are described in accordance with tyre manufacturer specifications.
- Range pattern direction – angle of pattern, length of pattern; pattern design – standard, asymmetrical, directional.
- 2.4 Dynamic rolling circumference characteristics are described in accordance with tyre manufacturer specifications.
- Range tyre circumferences, tyre profiles, air pressure, tyre section width, tyre to rim match, aspect ratio, overall diameters, static loaded radius.
- 2.5 Tyre valve types are described in accordance with tyre manufacturer specifications.
- Range rubber, metal, tube, tubeless.
- 2.6 Causes of abnormal tyre wear are described in accordance with manufacturer specifications.
- Range includes but is not limited to – under-inflation, over-inflation, wheel alignment and suspension geometry, suspension condition, accident damage, tyre size, tyre fitting, tyre rotation, tyre not to specification, tyre damage, handling, mechanical characteristics of the machine, suspension loading.
- 2.7 The effects tyres can have on machine handling are identified in accordance with manufacturer specifications.
- Range includes but is not limited to – air pressures relating to load and tyre manufacturer specifications, non-matching tyres, tyre defects, foreign objects lodged in treads, radial tyre pull, uneven wear, tread depth, ply rating, type of tyre; oversteer, understeer, straight ahead driving, slip angle.

Outcome 3

Demonstrate knowledge of repairing punctures on motorcycles and ATVs.

Performance criteria

3.1 Procedures for repairing punctures on motorcycles are described in accordance with puncture repair instructions, the publication Health and Safety Guidelines for Tyre Fitters, and legislative requirements.

Range tube and tubeless tyre;
demounting, mounting, inspection, testing, balancing.

3.2 Safety precautions when demounting and mounting motorcycle tyres are described in accordance with tyre machine operating instructions and motorcycle service information.

Range using compressed air, tyre and tube inflation, wheel support, using a tyre changing machine, using hand tools and tyre tools.

3.3 Wheel and tyre handling precautions are described in accordance with tyre manufacturer instructions.

Range prevention of damage to wheel rims and tyre beads, valve positioning, inner liner, avoidance of tube pinching and folding, seating of tyre beads, rim locks, cleaning, inspection, lubricating wheel assemblies.

Replacement information	This unit standard, unit standard 24404, and unit standard 24405 replaced unit standard 2327 and unit standard 15472.
--------------------------------	---

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 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>.