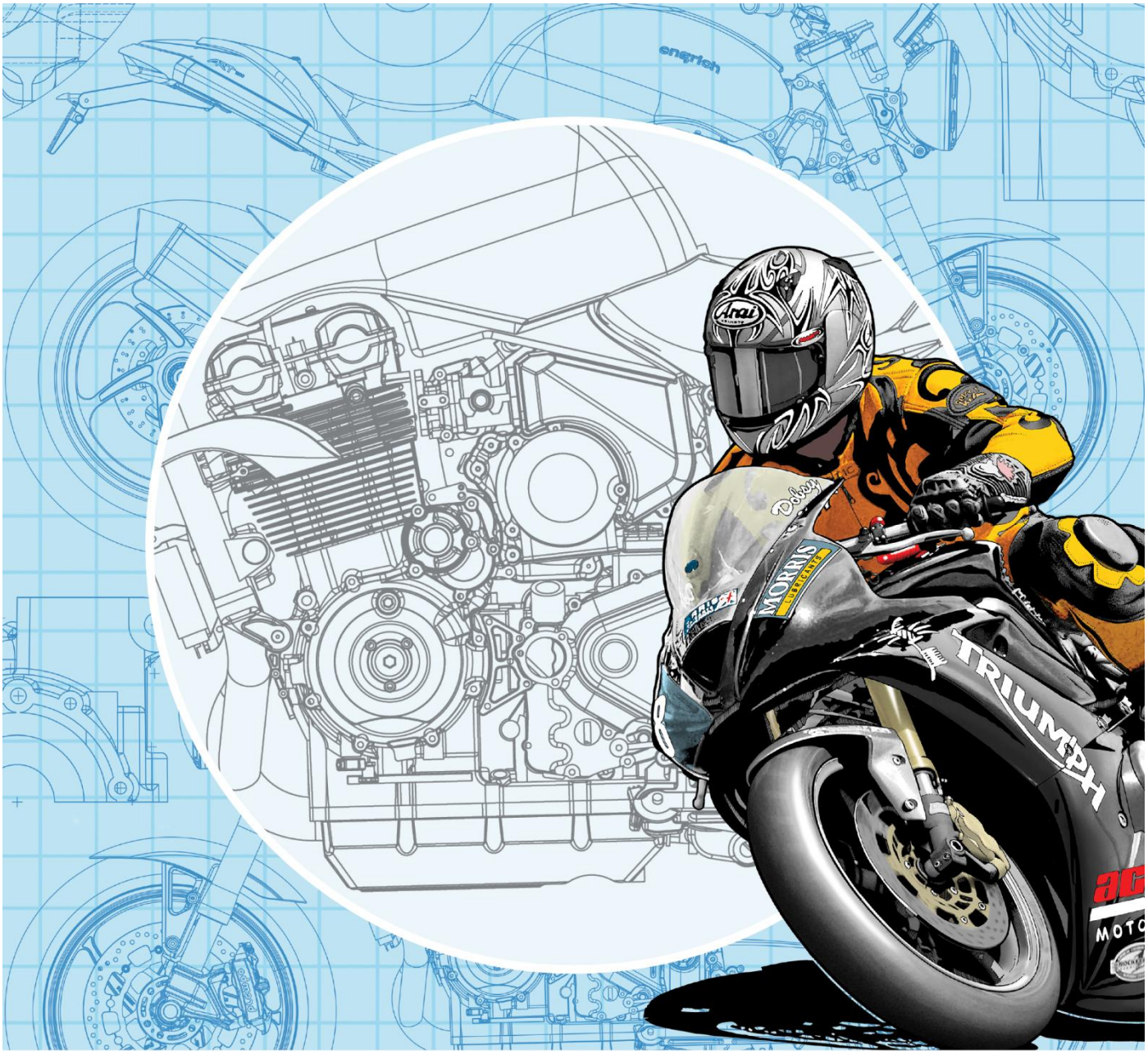
Low Volume Vehicle Technical Association (inc)

Helping New Zealanders Build & Modify Safe Vehicles

New Zealand Motorcycle Construction Manual

Chapter 9
Engine & Drive-train

Version 1 | Effective from 1 January 2026



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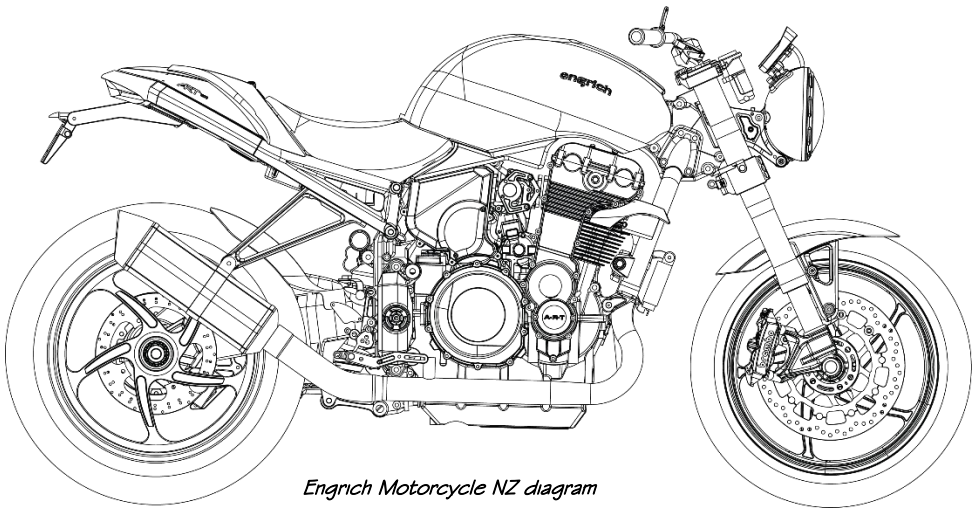

Engrich Motorcycle NZ diagram

Approval Record

Signed in accordance with clause 1.3(5) of the *Low Volume Vehicle Code* of the LVVTA	
On (date)..... on behalf of	
New Zealand Transport Agency	Low Volume Vehicle Technical Association .....

Amendment Record

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About Motorcycle Construction Manual Chapters

NZ Motorcycle Construction Manual Chapters (the chapters) provide the necessary detailed technical requirements, and helpful information, to enable a modified or scratch-built motorcycle to comply with the corresponding low volume vehicle standards (LVV standards). The chapters provide modifiers and constructors with the same information that an LVV Certifier will use when inspecting a modified or scratch-built motorcycle which requires LVV certification.

Author, Publisher, & Owner

This chapter is authored, published, and owned by the Low Volume Vehicle Technical Association Incorporated (LVVTA). LVVTA is an incorporated society established in 1992, that represents a group of specialist automotive organisations (in turn representing approximately 150,000 members) who are dedicated to ensuring that motor vehicles, when scratch-built or modified, meet the highest practicable safety standards.

The information in this chapter has stemmed from work undertaken by LVVTA founding member organisations that commenced in 1989 and has been progressively developed as an integral part of the New Zealand Government's land transport regulatory system, by agreement and in consultation with the New Zealand Transport Agency (NZTA).

As a result, the considerable experience in applied safety engineering built up by LVVTA and its specialist automotive member groups over the past several decades can be of benefit to members of the New Zealand public who also wish to build or modify motor vehicles.

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Availability & Current Version

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Users' Feedback

This chapter is constantly undergoing an evolutionary development process in order to keep pace with changing trends and technology. To assist in this, LVVTA invites users of this chapter to engage in an ongoing consultation process with us by making submissions for any changes, additions, or clarifications which might improve the chapter, at any time.

Any submissions made via this rolling consultation process will be thoroughly considered, and incorporated, where appropriate, at the next available amendment opportunity.

Submissions should be made to submission@lvvta.org.nz, with the name of this chapter in the Subject line.

Supporting Information

This chapter may be supported by other documents (referred to as 'supporting information') on the same subject, which could be helpful to someone using this chapter. Supporting information, if available, can be found at www.lvvta.org.nz/nzmcm and is all free of charge.

Legal Status & Copyright

This chapter supports *LVV Standard 145-35: Engine & Drive-train - Motorcycles*, which is incorporated within the *Low Volume Vehicle Code* (*LVV Code*). The *LVV Code* is, in turn, incorporated by reference within *Land Transport Rule: Vehicle Standards Compliance 2002*.

Disclaimer

LVVTA has made all reasonable efforts to provide sound and correct advice, based on the historical knowledge and best practice experiences of all parties involved in the development and production of this chapter.

However, no responsibility or liability is accepted by LVVTA for any error or omission, or any loss suffered by any person relying directly or indirectly on this chapter. Any person who builds or modifies a motor vehicle accepts that there may be some associated risks, and does so in the full knowledge of this, and accepts full responsibility for their own actions.

Credits

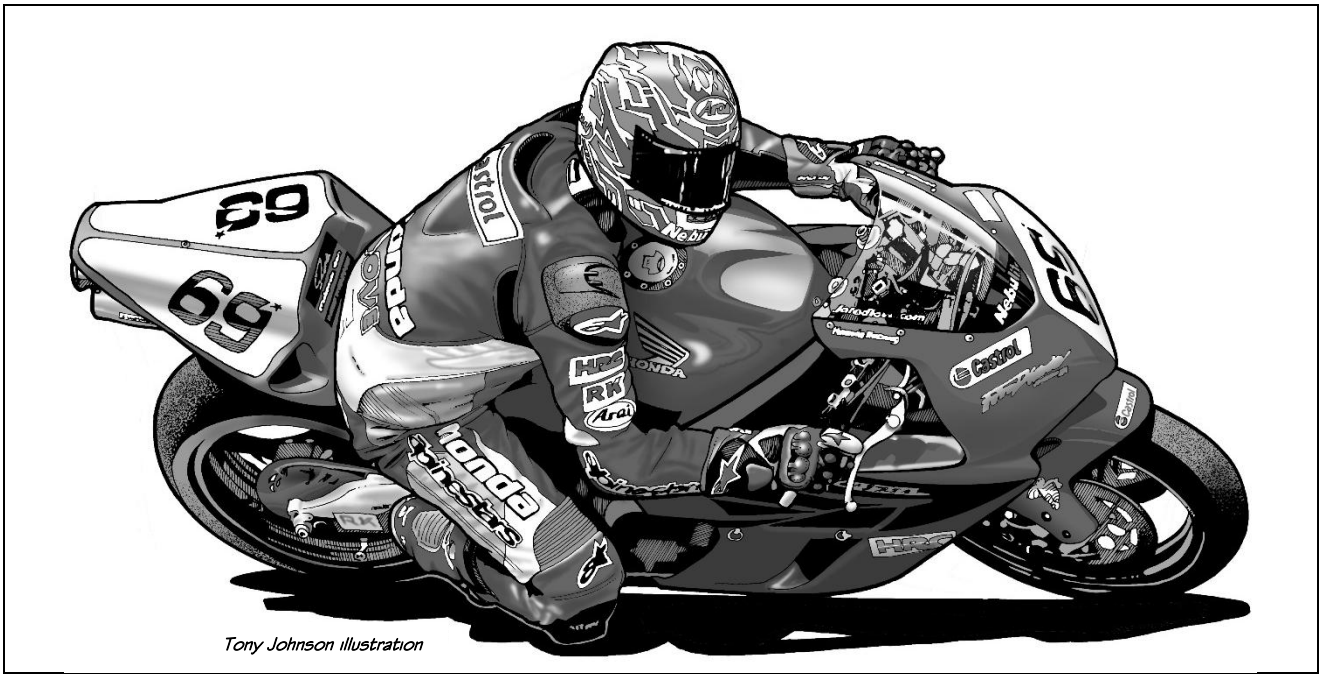
LVVTA acknowledges the following contributors for their assistance in the development of this chapter:

- Technical content: Kiwi Trikers' Social Club (Inc), LVVTA Technical Advisory Committee, LVVTA technical staff
- Cover & page 2 CAD diagram: Engrich Motorcycle New Zealand
- Motorcycle illustrations on the cover, and on pages 4 and 6: Tony Johnson

Type Key (For full details of Type Key, refer to Chapter 2 – About this Manual)

Normal type:	Provisions of the NZ Motorcycle Construction Manual for all motorcycles.
Italicised type:	Used when referencing external documents that are not part of this chapter.
Normal type in shaded box:	Special provisions of the NZ Motorcycle Construction Manual for motorcycles built or modified before specified dates.
Script type:	Helpful hints, tips, explanations, clarifications, and interpretations.
Grey shaded text & grey vertical stroke in margin:	Latest amendments since previous version. Note that text which is highlit in grey shows amendments that have been made since the document's previous version, and a grey vertical stroke to the left of the text denotes new or changed information which is important (rather than just a grammatical, formatting, or numbering change).

Chapter 9 Contents



CHAPTER 9: ENGINE & DRIVE-TRAIN

Introduction

The purpose of this chapter is to specify sound practical engineering principles and procedures relating to the conversion of engines and drive-trains to motorcycles, to ensure that such conversions are as safe as practicable, having regard to their effect on inter-related components and systems, especially those relating to braking and steering control.

The engine and drive-train is the heart and soul of any modified or scratch-built motorcycle, and the installation and attachment of the engine and drive-train components is full of pitfalls for the unwary or inexperienced enthusiast. Getting this part right not only has safety pay-offs, but will improve your motorcycle in terms of noise, vibration, and harshness, and perhaps best of all, will help the long-term reliability of your ride.

Note that where a production motorcycle is fitted with its original un-modified engine and drive-train components in their original location, the requirements in this chapter do not apply.

Italics are used throughout this chapter when referencing '*external documents*' that are not part of this chapter.

For conciseness, all references to 'motorcycle' in this chapter mean a motorcycle that, due to being modified or scratch-built, is legally classified as a low volume vehicle.

General Safety Requirements

9.0 Requirements Applicable to all Motorcycles

9.0.1

A motorcycle must:

(a) be designed and constructed using materials and components that are fit for their purpose; and

(b) be safe to be operated on the road.

9.0.1

This is from *2.3* of *Part 2* of the *LVV Code* (slightly amended for clarity), which makes it clear that, regardless of what technical requirements are or are not in place, every vehicle certified to the *LVV Code* must be fit for its purpose, and must be safe.

9.0.2

A steering system on a motorcycle, and associated systems and components that could directly or indirectly affect the directional control of the motorcycle, must:

(a) be sound and in good condition and must provide the motorcycle with safe, efficient, convenient, and sensitive control; and

(b) be strong, durable and fit for its purpose.

9.0.2

These are the applicable general safety requirements from the *Land Transport Rule 32003/1 Steering Systems* (slightly amended for clarity), which are required as part of this chapter, and are reproduced here in the interest of convenience.

9.0.3

A braking system on a motorcycle must:

(a) operate in a controlled and progressive manner; and

(b) provide stable and efficient braking without adverse effect on the directional control of the vehicle; and

(c) be easily adjustable to compensate for wear and must be maintained in good condition and efficient working order.

9.0.3

These are the applicable general safety requirements from the *Land Transport Rule 32014 Light Vehicle Brakes* (slightly amended for clarity), which are required as part of this chapter, and are reproduced here in the interest of convenience.

Engine Conversion Requirements

9.1 Engine Design

9.1.1

An engine fitted to a motorcycle, if used as a stressed member, must be designed to be used in such an application.

9.2 Engine Mount Design and Construction

9.2.1

An engine mount fitted to a motorcycle must be designed and constructed in such a way that:

(a) it is able to withstand all fore and aft, side, rotational, and vertical loads and dynamic forces that may be imposed on it, taking into consideration engine weight and torque output; and

(b) its design will not reduce the life of any flexible mount from cyclic loading.

9.3 Engine Positioning

9.3.1

An engine fitted to a motorcycle must be positioned:

(a) within the wheelbase so as to provide optimum fore-aft and side-to-side balance; and

9.3.1 (a)

'Optimum' in this instance can be considered to be the best positioning possible given the constraints of frame design, engine mounting points, and ancillary equipment needs.

(b) to provide the lowest practicable overall centre of gravity.

9.4 Engine Attachment

9.4.1

When mounting an engine to a motorcycle frame necessitates bolting through a tubular section, the fastener must pass through a tubular steel reinforcing crush-tube that:

(a) is manufactured of a material with a wall thickness of not less than 3 mm; and

(b) is of an inside diameter that provides a close tolerance fit for the fastener; and

(c) is inserted within the tubular section through a hole that provides a close tolerance fit for the reinforcing crush-tube, on the face opposite to that which the component is positioned against; and

(d) is fully welded to the face of the tubular section opposite to that which the component is positioned against.

9.4.1

A crush-tube prevents crushing and collapsing of the tubular section, which in turn prevents the fastening system from loosening.

See the '*Cross-member, bracket, and component attachment*' section of *CCM Chapter 5: Chassis Modification & Construction* for diagrams which will aid an understanding of the correct process.

9.4.2

Attachment of an engine mount to the engine, and an engine mount to the frame section of a motorcycle, must either:

(a) in the case of a modified production motorcycle, incorporate fasteners of a quantity, size, type, and grade of equal or greater specification than that used by the original engine manufacturer; or

(b) in the case of a scratch-built motorcycle, incorporate fasteners of a quantity, size, type, and grade suitable for:

(i) the weight of the engine; and

(ii) the rotational or other dynamic loads the engine is capable of applying.

9.4.2

See MCM Chapter 18: Attachment Systems for more information about fastener requirements, including grading and thread-locking.

9.5 Engine Weight

9.5.1

A motorcycle must be assessed for general suitability, structural integrity, and safety, taking into consideration all potential flow-on effects, in the case of an engine that is fitted, which is either:

(a) substantially heavier than the original engine fitted to the motorcycle; or

(b) of a configuration never intended by the original motorcycle manufacturer for fitment to the motorcycle in question.

Engine Equipment & System Requirements

9.6 Nitrous Oxide Systems

9.6.1

A nitrous oxide injection system fitted to an engine in a motorcycle must:

(a) incorporate hoses and fittings which are purpose-designed for automotive applications; and

(b) have all hoses safely routed; and

(c) be fitted with a fail-safe arming switch to prevent unintentional activation of the system.

9.6.1

Ideally, if the NOS tank is mounted out of sight, a motorcycle using NOS should incorporate some form of prominent labelling similar to that used on LPG and CNG equipped vehicles, to warn emergency services of the NOS's presence.

9.6.2

A bottle used within a nitrous oxide injection system fitted to a motorcycle must:

(a) be securely mounted; and

(b) have a current test mark applied by the cylinder manufacturer or an approved test facility; and

(c) be specifically designed and manufactured:

(i) for the carriage of nitrous oxide; and

(ii) as a high-pressure vessel, incorporating a high-pressure safety blow-off valve.

9.7 Fuel Systems

9.7.1

A motorcycle must comply with the relevant fuel system requirements specified in *MCM Chapter 10: Fuel Systems*.

9.8 Fluid Transfer Systems

9.8.1

A system fitted to a motorcycle used for the circulation of hot fluids which operate under pressure must incorporate hoses which:

(a) meet an appropriate standard for the type, pressure, and temperature range of the fluids being circulated; and

(b) are secured at intervals of not more than 300 mm; and

9.8.1

Fluid transfer systems include transmission fluid hoses used for the cooling of automatic transmissions in the case of a motorcycle powered by a car engine and transmission.

(c) are positioned and protected such that the hoses cannot rupture as a result of rubbing or chafing against any hard objects or sharp edges; and

(d) are protected from damage by jacking or lifting, or from a rider or passenger; and

(e) incorporate sufficient slack to allow for movement of any components as a result of a flexible engine and transmission mounting system.

9.9 Throttle Systems

9.9.1

A fabricated or modified throttle system on a motorcycle must:

(a) incorporate a throttle return mechanism on the engine to ensure against the throttle becoming jammed in the open position; and

(b) incorporate linkages that:

(i) move freely and give good return response without interference from any other part of the motorcycle; and

(ii) are designed and positioned in such a way that they cannot jam over-centre;

and

(c) have an effective end stop for the twist grip to prevent cable stretch at maximum travel.

9.9.1

A supplementary throttle return spring may be situated at the twist grip, but there must be a mechanism on the engine to return the throttle in the event that the cable breaks.

9.9.2

In the case of a motorcycle that is factory-fitted with two throttle return springs, or push-pull cables, both return mechanisms must be retained to ensure throttle return.

9.9.3

A motorcycle fitted with an electronic drive-by-wire throttle must incorporate a fail-safe system to prevent unintended acceleration.

9.9.3

A drive-by-wire throttle system has no physical connection between the twist grip and the engine, other than wiring. Depending on the type of system, this could be a dual-reference accelerator position system to provide redundancy, or something as simple as a switch on the brake or clutch levers to cause the throttle body to return to its default (or closed) position in the event of a fault.

9.10 Exhaust Systems

9.10.1

An exhaust system fitted to a motorcycle must:

(a) be in good condition; and

(b) be of a good design using materials suitable for the purpose; and

(c) be securely attached to the motorcycle, using a mounting system that enables all necessary engine movement without stressing the exhaust system; and

(d) terminate in a position where the outer end of the exhaust pipe:

(i) directs exhaust fumes and heat away from the rider and passenger; and

(ii) does not protrude significantly beyond the general perimeter of the motorcycle;

and

(e) have a radius of no less than 3 mm on any sections facing toward the front of the motorcycle; and

(f) have any sections contactable from the rider and passenger's seated position adequately heat-shielded.

9.10.1(c)

Generally considered good practice with exhaust system attachment on a motorcycle is, where the total length of the exhaust system exceeds 450 mm, to use three mounts.

9.10.2

A component fitted to a motorcycle which may be susceptible to damage from exhaust heat, such as a fuel or brake pipe or hose, or rubber or fabric steering component, or plastic fuel tank, must either:

(a) be protected from any exhaust heat by the inter-positioning of a suitably fabricated and mounted heat-shield; or

(b) be provided with no less clearance from the exhaust system than that designed by the vehicle manufacturer; or

(c) be positioned so that there is a minimum clearance between the component and the exhaust system of 50 mm.

9.11 Exhaust Noise

9.11.1

An exhaust system fitted to a motorcycle must be designed, constructed, and fitted in such a way that:

(a) the exhaust system, or components within the exhaust system, cannot be removed, altered, or readily interfered with, without the use of hand tools; or

(b) the performance or operation of the exhaust system cannot be altered whilst the motorcycle is in motion, unless the exhaust noise output is less than or similar to the noise output the motorcycle, or a motorcycle of a similar type, would have produced when it was manufactured with its original exhaust system.

9.11.1(b)

Exhaust noise output is an operational issue, and not a safety one, however an LVV Certifier should ensure that a modified production motorcycle undergoing LVV certification has an exhaust system that meets Warrant of Fitness requirements.

9.11.1(b) and 9.11.2

A motorcycle of a 'similar type' means a motorcycle of similar age, size, engine size and power output, and may be of a different make and model.

9.11.2

The noise output of an exhaust system fitted to a motorcycle must either:

(a) in the case of a scratch-built motorcycle, be tested and meet the noise output requirements specified in *LVV Standard 145-45: Exhaust Noise Emissions - Motorcycles*; or

(b) in the case of any motorcycle other than a scratch-built motorcycle, be less than or similar to the noise output the motorcycle, or a motorcycle of a similar type, would have produced when it was manufactured with its original exhaust system.

9.11.2

LVV Standard 145-45: Exhaust Noise Emissions - Motorcycles will refer to *MCM Chapter 11 (Part 1): Exhaust Noise & Gas Emissions - Motorcycles* to explain how the requirements of *LVV Standard 145-45* are met.

9.12 Electrical Systems

9.12.1

Electrical wiring within a motorcycle must:

(a) be tidily clipped and securely attached to the frame; and

(b) protected from damage or chafing; and

(c) positioned at a safe distance away from moving components and exhaust heat; and

(d) incorporate fail-safe measures such as fuses or fusible links that open-circuit the battery in case of a short circuit; and

(e) where the engine is flexibly mounted, incorporate an effective earthing strap between the engine and the frame.

9.12.1(e)

Without an earthing cable, often the control cables are the only earthing link for the engine block. This could provide shocking consequences for the rider.

9.12.2

Wiring which extends from the frame or other parts of a motorcycle to the engine and gearbox must incorporate sufficient slack to allow for full engine rotational or other movement on its mounts.

9.12.3

A battery fitted to a motorcycle must:

(a) be secured by, or enclosed in, a device or structure, appropriate for the weight and load of the battery used, to prevent it from shifting during braking, cornering, acceleration, or impact; and

(b) incorporate some method of preventing acid spills from contacting the rider or passenger during an accident.

9.12.3(a)

Even if enclosed, a battery must not be able to move within the enclosure. If the enclosure is larger in any direction than the battery, the battery must also be secured.

Note also, that if a battery is secured within an enclosed container, provision must be made for the venting of the battery.

9.12.3(b)

This requirement does not apply where a 'dry' battery, such as an absorbent glass mat (AGM) battery, is fitted.

9.13 Exposed Rotating Components

9.13.1

An exposed engine cooling fan, pulley, drivebelt, or other rotating component fitted to a motorcycle that could be easily contacted and cause injury, must be fitted with some form of protective cover to minimise the likelihood of contact.

9.13.1

Conversion of the primary drive from a covered chain-drive to an exposed wide belt-drive can present a contact risk so any sections of the belt that could be contacted by the rider or passenger must be covered.

Drive-train Requirements

9.14 Chain-drives and Belt-drives

9.14.1

A chain or belt-drive system fitted to a motorcycle must be of an appropriate size, width, and configuration for the weight and performance potential of the motorcycle.

9.14.2

A chain or belt-drive transmission fitted to a motorcycle must incorporate:

(a) an effective guard to prevent contact between moving drive components and a rider or passenger; and

(b) correct alignment of the front and rear sprockets or pulleys; and

(c) an effective retaining device for each sprocket or pulley; and

(d) an initial chain or belt tension adjusting device; and

(e) where the chain or belt tension varies due to rear suspension movement, a variable chain or belt tension adjusting device; and

(f) in the case of a chain system, chain-joints comprising either:

(i) a maximum of two correctly oriented joiner-links; or

(ii) in the case of a riveted joint, a correctly fitted riveted link;

and

(g) sufficient clearance between the chain or belt and bodywork to allow for whip when the chain or belt is unloaded.

9.14.2

A chain-drive transmission fitted with swinging arm suspension may incorporate chain rub plates or chain guides. These could be required for extended swing-arms, or where chain length is greater than normal.

9.14.2(b)

See the Useful Information section at the back of this chapter for an explanation of the importance of proper rear sprocket/pulley and swing-arm geometry.

9.15 Gearboxes

9.15.1

A gear-shift mechanism in a motorcycle must:

(a) operate easily, smoothly, correctly, and logically; and

(b) operate without any binding, or interference caused by the shift mechanism touching the frame or any components; and

(c) in the case of an automatic transmission, provide to the rider a visible and accurate indication of the selected gear.

9.15.1(c)

An automatic transmission must incorporate a device to show the selected gear position to the rider. Note that a gear pattern indicator (such as that typically engraved into a gear knob) is insufficient as it does not indicate the selected gear.

9.15.2

A motorcycle fitted with an automatic transmission must incorporate an operative inhibitor switch, to enable engine starting only in neutral and park positions.

9.16 Drive-shafts

9.16.1

A drive-shaft fitted to a motorcycle, other than one that is original to and integral with the engine fitted, must:

(a) if able to be easily contacted and cause injury to a rider or pillion passenger, be fitted with some form of protective cover to minimise the likelihood of contact; and

(b) follow generally accepted time-proven design and construction methods and material specifications applicable to motorcycles; and

(c) meet any applicable requirements specified for drive-shaft modification and construction in *CCM Chapter 9: Engine & Drive-train*.

Other Requirements

9.17 Fasteners

9.17.1

All fasteners incorporated within the attachment of an engine and drive-train in a motorcycle must meet all fastening requirements specified from *18.2* to *18.6* in *MCM Chapter 18: Attachment Systems*.

9.18 Welding

9.18.1

All welding incorporated within the attachment of an engine and drive-train in a motorcycle must meet all welding requirements specified in *18.7* and *18.8* in *MCM Chapter 18: Attachment Systems*.

Welding of engine and drive-train mounting carried out before 1 January 2026 is not required to comply with 9.18.1, provided that after thorough inspection, no fatigue cracking or fracturing is evident. Specific investigation must be carried out, with removal of paint if necessary to assist the inspection process.

9.19 Steering System Modifications

9.19.1

A motorcycle that has undergone an engine conversion that results in steering system modifications, or that may affect the performance of the steering system, must comply with the applicable requirements specified in *MCM Chapter 7: Steering Systems.*

9.20 Braking System Modifications

9.20.1

A motorcycle that has undergone an engine conversion that results in braking system modifications, or that may affect the performance of the braking system, must comply with the applicable requirements specified in *MCM Chapter 8: Braking Systems.*

9.20.1

See the Useful Information section at the back of this chapter for an explanation about brake fade resistance.

Exclusions

No exclusions apply to this chapter.

Useful Information

Chain and Sprocket (and Belt & Pulley) Geometry

A commonly overlooked aspect of a motorcycle's drive-train is the relationship between the chain and sprocket (or belt and pulley), and the rear swing-arm travel path. This is critical in ensuring the proper life of the drive mechanism components and rear wheel bearings, and preventing excessive tension, and thus wear, as the swing-arm moves throughout its arc of travel.

The best way of avoiding undue wear on drive-train components is to make sure that the drive sprocket, swing-arm pivot, and rear axle shaft are in a straight line halfway through the suspension travel. This means that the length and tension of the chain or belt is correct at the furthest point of travel – unless all of these components move in the same arc, the relative distances between the sprockets and swing-arm pivot will change as the suspension moves throughout its travel range. Failure to ensure this will shorten the life of the chain or belt, because as the wheel sprocket moves to its furthest point in relation to the gearbox drive sprocket, this can cause excessive tension on the chain or belt.

Brake Fade Resistance

The braking performance of a motorcycle may need to be improved in situations where the motorcycle's power output and therefore acceleration performance has increased as a result of engine modifications or an engine conversion. This is because of the reduced 'cool-down' time available to the motorcycle's braking components between braking cycles resulting from the increased performance.

Reduced cool-down time applied to a given size braking component will result in greater braking temperatures, which in turn will result in 'brake-fade' and a loss of braking performance. The greater the rate of acceleration of any given motorcycle, the larger the braking components – in particular disc and caliper size - will be required.

Terms & Definitions for Chapter 9

Aftermarket	means a component or system made by a manufacturer, other than a high-volume motor vehicle manufacturer, who produces catalogued components or systems on a production-run basis for the mass-market.
AGM (battery)	is an acronym for 'absorbent glass mat', which is a glass mat separator that is used to store the electrolyte in a battery.
Automatic transmission	means a type of gearbox, or transmission, that automatically varies the ratios between the input shaft and the output shaft to suit engine speeds automatically, without the driver having to physically select the gears.

CCM	(*NZ Car Construction Manual*) means LVVTA's detailed technical standards, incorporated by reference under the *LVV Code*, which must be met to enable an LVV to comply with applicable requirements. The *CCM* is referred to by the corresponding *LVV Standard*.
Crush-tube	means a section of non-compressible material that is positioned within a cavity, through which a fastener passes, to prevent collapsing of the material surrounding the cavity, and consequential loosening of the fastener.
Custom	means a component or system fabricated by an individual person or small company on a one-off or limited-run basis, and is not intended as a high volume catalogued aftermarket part.
Cyclic loading	means a load or force applied repeatedly to a component, causing fatigue.
Drive-shaft	means the assembly which transfers the power output from the gearbox to the differential.
Engine mounts	means the devices that fasten the engine onto the frame.
Fan-belt	means flexible drive-belts, which operate the engine-cooling fan, water, pump, alternator, and other accessory motors from the engine crankshaft pulley.
Gearbox	means the mechanical assembly used to convert engine speed to road speed through the use of a number of different gear ratios.
Gear-shift	means the device by which the different gear ratios in the gearbox are selected.
L-class	is an NZTA classification, which means, in very simple terms, a two-wheeled motorcycle or three-wheeled motor vehicle with a GVM of under 1 000 kg.
LVV	(Low Volume Vehicle) means, in simple terms, LVVs which are modified or scratch-built in small numbers, and includes individually modified or scratch-built LVVs. The full definition of an LVV is contained in the *LVV Code*.
LVV Code	(*Low Volume Vehicle Code* or the *Code*) means an LVVTA document which is incorporated by reference into the *Land Transport Rule: Vehicle Standards Compliance 2002*, and all applicable individual *Land Transport equipment rules*, that provides the legal framework to enable the LVV certification of modified and scratch-built LVVs in New Zealand.
LVV Certifier	(Low Volume Vehicle Certifier) means a person appointed by NZTA under the provisions of *Land Transport Rule: Vehicle Standards Compliance 2002*, to carry out low volume vehicle certification of modified and scratch-built LVVs, as specified by *Part 2* of the *LVV Code*.
LVV Certification	(Low Volume Vehicle Certification) means the process specified by the *LVV Code*, by which the design of an LVV is determined to comply with any applicable requirements, and, in recognition of which, an LVV EDP is affixed.
LVV Certify	(Low Volume Vehicle Certify) means the same as LVV certification.
LVV EDP	(Low Volume Vehicle Electronic Data Plate) is an RFID tag, in use from February 2021, fitted to an LVV upon completion of the LVV certification process, which when scanned by an NFC-capable device, displays details and photographs of the modifications and construction features on the LVV to which it is affixed.

LVV Standards	(*Low Volume Vehicle Standards*) means LVVTA's technical standards, incorporated by reference under the *LVV Code*, that set out the legal requirements which vehicles that are modified and scratch-built vehicles in New Zealand must meet. Each *LVV Standard* refers to a corresponding *CCM chapter* or *MCM chapter* for detailed technical requirements.
LVVTA	(Low Volume Vehicle Technical Association) is an incorporated society comprised of specialist vehicle associations. Established in 1992, its objectives are to represent the interests of vehicle modifiers and builders in New Zealand, and to ensure high safety standards for modified and scratch-built LVVs. The LVVTA owns and administers the *LVV Code*.
Mass-produced (motorcycle)	(also known as production vehicle, or high-volume vehicle) means a vehicle which is manufactured in quantities of more than 500 at any one location in any one year for the mass market.
MCM	(*NZ Motorcycle Construction Manual*) means LVVTA's detailed technical standards, incorporated by reference under the *LVV Code*, which must be met to enable an LVV to comply with applicable requirements. The *MCM* is referred to by the corresponding *LVV Standard*.
Modification	is defined in *Land Transport Rule: Vehicle Standards Compliance 2002* to change a vehicle from its original state by altering, substituting, adding or removing any structure, system, component or equipment, but does not include repair. 'Modified' and 'modification' have corresponding meanings.
Modified Production (LVV)	means, in simple terms, a vehicle which, while modified, maintains a sufficient percentage of body or chassis from one primary mass-produced vehicle that it can still be considered to be that vehicle. The full legal definition of a Modified Production LVV is complex and currently under review, and will be incorporated within the *LVV Code* once revised.
Motorcycle	means a vehicle of Table-A class LA, LB, LC, LD, and LE, as defined in *Land Transport Rule: Vehicle Standards Compliance 2002*.
NOS	(Nitrous Oxide) means a liquid chemical composition of one part of nitrogen and two parts of oxygen, which when introduced with the fuel mixture entering an internal combustion engine, converts to a gas and may increase the oxygen content in the combustion chamber producing a momentary increase in power output.
NZTA	(New Zealand Transport Agency) is a Crown entity responsible for managing New Zealand's land transport system.
Scratch-built (LVV)	means, in simple terms, an LVV which has been individually constructed from unrelated components, or a mass-produced vehicle which has been modified to such an extent that it can no longer be considered to be a modified mass-produced vehicle. The full legal definition of a scratch-built LVV is currently under review, and will be incorporated within the *LVV Code* once revised.
Stressed member	is a type of engine mounting system where the engine forms part of the structure of the motorcycle, and carries frame stresses.
Wheelbase	means the distance between the centre points of the front and rear wheels.