

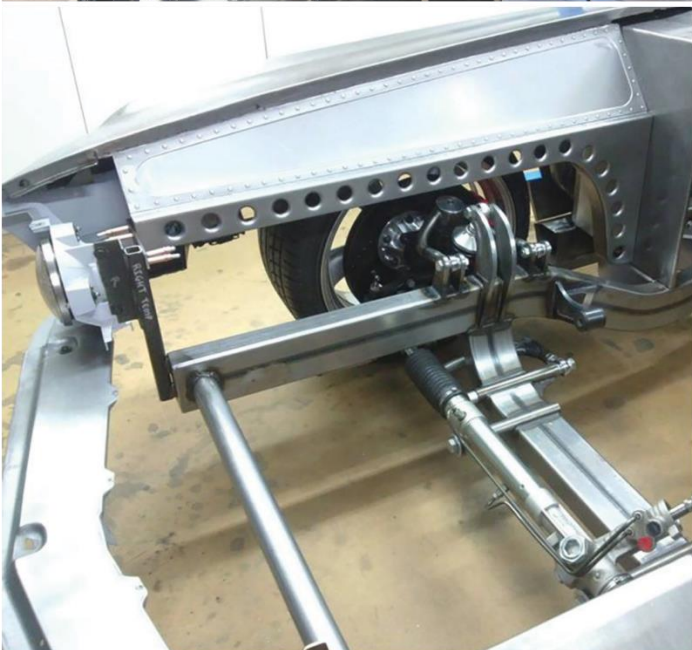


Helping New Zealanders Build & Modify Safe Vehicles



LVV Operating Requirements Schedule

Chapter 3 LVV Certification Categories

11th Amendment | Effective from 1 October 2024



Approval

LVV ORS Chapter 3 Approval			
Signed in accordance with clause 1.3(5) of the Low Volume Vehicle Code, on... 27 September 2024by:			
on behalf of the New Zealand Transport Agency:		on behalf of Low Volume Vehicle Technical Association:	
Name Jim Anderson	Signature 	Name Kenneth McAdam	Signature 

Amendments

LVV ORS Chapter 3 Amendment Record			
Amendment Details	Amendment #	Issue date	Effect date
• Original issue		2001	2001
• Establishment of new LVV Certifier Categories	1 st Amendment	August 2003	October 2003
• Introduction of new procedural requirements including plate affixing, road-testing, and remedial work	2 nd Amendment	March 2005	April 2005
• Introduction of documentation use & self-certification	3 rd Amendment	February 2006	April 2006
• Introduction of procedures for return of unaffixed plates, and delegation of plate affixing	4 th Amendment	May 2007	July 2007
• Introduction of procedures for plate pre-ordering, and establishment of scratch-built sub-categories	5 th Amendment	March 2008	April 2008
• Major review of the LVV ORS, new sections for service & communication requirements, conduct & complaints	6 th Amendment	January 2010	February 2010
• Minor review for miscellaneous changes and additions	7 th Amendment	March 2011	April 2011
• Review to incorporate various detail changes and additions relating to TAC, category extensions, training, and Technical Decision Review Committee	8 th Amendment	July 2016	July 2016
• Introduction of Commercial Sub-committee of the TAC	9 th Amendment	October 2016	October 2016
• Review to provide for LVCM Certifiers	10 th Amendment	June 2017	June 2017
• Complete redevelopment, conversion to individual chapters	11 th Amendment	October 2024	October 2024
<p>Note 1 The first ten amendment processes to the LVV ORS (Amendment #s 1-10), carried out between August 2003 and June 2017, were made to the complete LVV ORS document. From Amendment # 11, amendments are carried out to individual chapters at various times.</p> <p>Note 2 Text highlighted in grey shows amendments that have been made subsequent to this chapter’s previous version, and a grey vertical stroke to the left of the text denotes new or changed information which is important and needs to be understood.</p> <p>Note 3 Printed or saved copies of LVV ORS chapters may become out of date – visit www.lvvtta.org.nz to check this chapter is the latest version before relying on the enclosed information.</p>			

Associated Information

Background
<p>The LVV Operating Requirements Schedule (LVV ORS) sets out the operational systems and processes which enable the LVV certification system to function effectively. Whereas the <i>Low Volume Vehicle Code</i> provides the legal platform for the LVV certification system, the LVV ORS enables the provision of robust operational systems and processes over the LVV certification system to ensure that LVV certification outcomes are consistent, fair, transparent, and of a high quality.</p> <p>The information in the LVV ORS stems from work undertaken by the Low Volume Vehicle Technical Association Incorporated (LVVTA) founding member organisations that commenced in 1989, and has been progressively developed as an integral part of the NZ Government’s land transport regulatory system by agreement with the New Zealand Transport Agency (NZTA).</p>

Publisher & Owner
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Chapter 3

LVV Certification Categories

Purpose of this Chapter

The purpose of this LVV Operating Requirements Schedule chapter (this chapter) is to explain the various LVV certification categories for which an LVV Certifier may be appointed to certify, and the technical limitations (by either modification or vehicle type) that apply to each of the different categories.

The LVV certification category structure is tiered, in recognition that very few (if any) LVV Certifiers will possess the necessary background to competently assess every type of motor vehicle modification and construction feature, and vehicle type, within the LVV certification environment. This tiered structure has been established to ensure all LVV Certifiers are operating within their field of knowledge and experience.

This chapter should be read in conjunction with *LVV ORS Chapter 4 – LVV Certifier Background Criteria* (which provides details of the knowledge and practical experience required in order to be appointed for each of the LVV certification categories), and *LVV ORS Chapter 5 – LVV Certifier Application & Appointment* (which provides details of the various processes involved in becoming appointed as an LVV Certifier).

The use of *italics* throughout this chapter is to enable readers to distinguish between ‘*explanatory information*’ and ‘*the requirements*’. *Italics* are also used when referencing ‘*external documents*’ which are not part of this chapter.

Section 1 LVV Certification Category Background Information

1.1 Introduction

Because of the complexity and diversity of the vehicle modification and construction industry, LVVTA has established a range of LVV certification categories that enable an LVV Certifier’s particular area of experience to be appropriately matched to specific LVV certification activities. This chapter lists the range of LVV certification categories for which an LVV Certifier may be appointed by the New Zealand Transport Agency (NZTA), together with the technical limitations of each of those categories.

1.2 Explanation of vehicle ‘classes’ referred to

The content of this chapter refers to specific ‘types’ of vehicles (as defined in NZTA’s ‘Table A vehicle classes’). The classes of vehicles applicable to LVV certification are defined as (in simplest terms):

- *Class M-group: normal passenger-carrying cars, station wagons, and vans.*
- *Class NA: Light goods-carrying utilities and vans.*
- *Class L-group: Motorcycles.*
- *Class LE: Motor-tricycles (Trikes).*

A full list and descriptions of NZTA’s Table A vehicle classes are provided in the Land Transport Rule: Vehicle Standards Compliance 2002, which is available from NZTA’s website.

1.3 General requirements

- 1.3(1) An LVV Certifier must LVV certify only those modifications and construction features relevant to the LVV certification category(s) for which they are appointed, as specified in section 2 to section 6.

1.3(2) The list of modifications and construction features which may be certified, and which must not be certified, by an LVV Certifier with a particular category, are specified in section 2 to section 6 of this chapter, which must be read together before determining the outcome on any given modification subject.

1.3(3) Where a modification or construction feature present on a low volume vehicle undergoing LVV certification is not listed, LVVTA will make a determination as to which LVV certification category is required to LVV certify the vehicle (see Note 1 below).

Note 1 LVVTA is in the unique position of continually overseeing all light vehicle modification work in New Zealand on an every-day basis, and is therefore able to make sound and consistent judgements relating to aligning an LVV Certifier's knowledge and practical experience with modification and vehicle types. In turn, this experience within LVVTA ensures consistency of decisions across all LVV Certifiers.

1.3(4) A previously LVV certified low volume vehicle being re-certified for a subsequent modification must be certified by an LVV Certifier who is authorised for the LVV certification category that would have been required for the original certification of the vehicle (see Note 1 below).

Note 1 The requirement specified in 1.3(4) is necessary to achieve the correct safety outcomes. For example, a scratch-built sports car (originally requiring LVV certification category LV1D) with a subsequent minor suspension modification, must be LVV certified by an LV1D Certifier, even though, if that same modification was performed on a modified production vehicle, that vehicle could be LVV certified by an LV1A Certifier.

This is because a comprehensive knowledge of the vehicle, and type of modifications in question, is required in order to identify and understand any potential flow-on influences of any subsequent modifications on inter-related aspects of the original vehicle's design.

Section 2 Category 1: Passenger & Light Goods Vehicles

2.1 Category LV1A Modified Production – Limited

2.1(1) An LVV Certifier appointed to certify under LVV certification category 'LV1A Modified Production - Limited' (an LV1A Certifier) is authorised to certify all Class M-group and Class NA modified production low volume vehicles to the extent specified in 2.1 as 'may be certified' (see Note 1 below).

Note 1 In relation to the vehicle classes referred to in 2.1(1), Class M-group means passenger-carrying cars, station wagons, and vans, and Class NA means light goods-carrying utilities and vans. A full list and descriptions of NZTA's Table A vehicle classes are provided in *Land Transport Rule: Vehicle Standards Compliance 2002*, which is available from NZTA's website.

Engine and drive-train

2.1(2) Engine and drive-train modifications and conversions which may be certified by an LV1A Certifier comprise those where:

- (a) the engine is in its original location; and
- (b) no significant structural modifications have been carried out to the chassis, sub-frame, or suspension cross-members (see Note 1 below); and
- (c) no significant structural modifications have been carried out to the firewall, floor, driveshaft or gearbox tunnel (see Note 2 below).

Note 1	A 'significant structural modification' as referred to in 2.1(2)(b) does not include: <ul style="list-style-type: none"> • the fabrication of typical mounts or mounting systems to attach an engine, gearbox, or differential; or • the substitution of a 'bolt-in' cross-member from the same vehicle make and model variant, or aftermarket equivalent, provided the vehicle's OEM steering and suspension geometry is maintained; or • minor trimming of the flanges of a chassis, sub-frame, or cross-member, provided that any strength removed by the trimming has been reinstated.
Note 2	The modifications specified in 2.1(2)(c) are particularly relevant in the case of a unitary-constructed vehicle.

2.1(3) Engine and drive-train modifications and conversions which must not be certified by an LV1A Certifier comprise those which are not listed in 2.1(2).

Braking systems

2.1(4) Braking system modifications and conversions which may be certified by an LV1A Certifier comprise, subject to 2.1(5):

- (a) substitution and adaptation of 'bolt-on' OEM or aftermarket braking components or systems; and
- (b) conversion of mechanical braking systems to hydraulic braking systems which use 'bolt-on' OEM components or systems; and
- (c) relocation and remounting of a master cylinder; and
- (d) conversion to an adjustable-bias twin single-circuit master cylinder system; and
- (e) disabling or removal of OEM anti-lock braking systems; and
- (f) 'bolt-on' OEM-type stub axle or hub conversions which change the pitch circle diameter of the hub.

2.1(5) Braking system modifications and conversions which must not be certified by an LV1A Certifier comprise:

- (a) modifications to stub axle housings or spindles; or
- (b) significant modifications to an OE brake pedal (see Note 1 below); or
- (c) aftermarket brake pedals; or
- (d) custom-built braking components or systems; or
- (e) those which are not listed in 2.1(4).

Note 1	The only modification to a brake pedal, as referred to in 2.1(5)(b), which would not be considered a 'significant modification', is the attachment of a bracket to accommodate a brake light switch, provided that the attachment of the bracket could not, in any way, affect the strength of the brake pedal.
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Steering systems

2.1(6) Steering system modifications and conversions which may be certified by an LV1A Certifier comprise, subject to 2.1(7):

- (a) substitution and adaptation of 'bolt-on' OEM or aftermarket steering components or systems; and

- (b) conversion of manual steering systems to power steering systems, and vice-versa, which use 'bolt-on' OEM components; and
 - (c) aftermarket 'bolt-on' HICAS lock-bars, specifically limited to the Nissan HICAS system only (see Note 1 below); and
 - (d) right-hand drive conversions, provided that:
 - (i) the vehicle was manufactured before 1980; and
 - (ii) the conversion incorporates OEM components; and
 - (iii) the conversion is of a direct 'mirror-image' nature; and
 - (iv) the vehicle manufacturer made provision during the manufacturing process for the vehicle to be assembled in either left-hand or right-hand drive form;
- and
- (e) modifications directly associated with a body-lift, which are limited to:
 - (i) the adjustment of the positioning of the splined section of the OEM steering intermediate shaft; or
 - (ii) a 'bolt-on' aftermarket component (which does not incorporate welding and that is catalogued for the make and model of vehicle) which is designed to lengthen the OEM steering intermediate shaft; or
 - (iii) the repositioning of a steering column support bracket.

Note 1 The HICAS lock-bar system referred to in 2.1(6)(c) is limited to aftermarket lock-bars fitted to disable the Nissan HICAS system, which feature welded mounting tabs that wrap around part of the bar's circumference. Lock-bars with mounting tabs that only butt-weld to the lock-bar must not be LVV certified by an LV1A Certifier.

2.1(7) Steering system modifications and conversions which must not be certified by an LV1A Certifier comprise:

- (a) with the exception of those listed in 2.1(6)(c) and (e), any modifications and conversions which change, substitute, or reposition any geometry-critical steering components or systems; or
- (b) modifications to any individual steering component or mounting system; or
- (c) aftermarket steering boxes or steering racks; or
- (d) custom-built steering components or systems; or
- (e) those which are not listed in 2.1(6).

Suspension systems

2.1(8) Suspension system modifications and conversions which may be certified by an LV1A Certifier comprise, subject to 2.1(9):

- (a) substitution and adaptation of 'bolt-on' OEM or aftermarket suspension components or systems; and

- (b) complete 'bolt-on' OEM suspension airbag to OEM coil spring conversions (and vice-versa), provided that no change to the suspension's load-path or geometry has occurred; and
- (c) repositioning of a non-load bearing shock absorber (see Note 1 below); and
- (d) 'bolt-on' aftermarket (loaded or unloaded) suspension arms; and
- (e) 'bolt-on' aftermarket (dropped spindle-type) stub axle conversions; and
- (f) 'bolt-on' OEM-type stub axle conversions that change the hub pitch circle diameter; and
- (g) 'bolt-on' aftermarket roll-centre adjusters; and
- (h) 'bolt-on' aftermarket drop-boxes (fitted for the purpose of correcting caster geometry).

Note 1 A 'non-load bearing shock absorber', as referred to in 2.1(8)(c) means a shock absorber that operates independently of a spring or a bump-stop.

2.1(9) Suspension system modifications and conversions which must not be certified by an LV1A Certifier comprise:

- (a) changes or modifications which could affect the relationship between the steering geometry and the suspension geometry; or
- (b) changes to the suspension configuration (see Note 1 below); or
- (c) changes or modifications which could affect the suspension load-path; or
- (d) custom-built suspension components or systems; or
- (e) complete suspension assembly changes; or
- (f) structural modifications to the suspension cross-members; or
- (g) airbag or hydraulic suspension conversions, other than those specified in 2.1(8)(b); or
- (h) those which are not listed in 2.1(8).

Note 1 An example of a change to the suspension configuration, as referred to in 2.1(9)(b), is a change from an OEM double wishbone system to a Macpherson strut system.

Wheels and tyres

2.1(10) All wheel and tyre modifications and changes may be certified by an LV1A Certifier.

Fuel systems

2.1(11) All fuel system modifications and conversions may be certified by an LV1A Certifier, including custom-built fuel tanks and systems.

Glazing and vision

2.1(12) All glazing and vision modifications and conversions may be certified by an LV1A Certifier, including windscreen wipe and wash systems.

Body modifications

- 2.1(13) Body modifications and conversions which may be certified by an LV1A Certifier comprise, subject to 2.1(14):
- (a) non-structural body modifications such as body-kits, spoilers, substituted or modified door opening systems, fuel filling systems, and intercooler installations; and
 - (b) a body-lift of up to 50mm on a four-wheel drive vehicle, including associated steering modifications limited to those specified in 2.1(6)(e); and
 - (c) modifications relating to external projection and field of vision; and
 - (d) lighting modifications and conversions.
- 2.1(14) Body modifications and conversions which must not be certified by an LV1A Certifier comprise:
- (a) structural body modifications and conversions; or
 - (b) substantial or complete body substitution; or
 - (c) substantial or complete custom body construction; or
 - (d) those which are not listed in 2.1(13).

Interior

- 2.1(15) Interior modifications and conversions which may be certified by an LV1A Certifier comprise, subject to 2.1(16):
- (a) non-structural interior modifications and conversions; and
 - (b) unstressed ‘bolt-in’ seating substitution.
- 2.1(16) Interior modifications and conversions which must not be certified by an LV1A Certifier comprise:
- (a) seatbelt anchorage installations; or
 - (b) seat modifications; or
 - (c) stressed seat changes or installations; or
 - (d) those which are not listed in 2.1(15).

2.2 Category LV1B Modified Production – Extended

- 2.2(1) An LVV Certifier appointed to certify under LVV certification category ‘LV1B Modified Production – Extended’ (an LV1B Certifier) is authorised to certify all Class M-group and Class NA modified production low volume vehicles to the extent specified in 2.2 as ‘may be certified’ (see Note 1 below).

<p>Note 1</p>	<p>In relation to the vehicle classes referred to in 2.2(1), Class M-group means passenger-carrying cars, station wagons, and vans, and Class NA means light goods-carrying utilities and vans. A full list and descriptions of NZTA’s Table A vehicle classes are provided in <i>Land Transport Rule: Vehicle Standards Compliance 2002</i>, which is available from NZTA’s website.</p>
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Seatbelt anchorages

2.2(2) All seatbelt anchorage installations may be certified by an LV1B Certifier.

Seat design and anchorages

2.2(3) All seat design, modification, construction, and installations, including stressed seats, may be certified by an LV1B Certifier.

Adaptive control systems

2.2(4) Adaptive control systems to enable a disabled driver to drive a motor vehicle which may be certified by an LV1B Certifier comprise, subject to 2.2(5):

- (a) mechanical adaptive hand controls; and
- (b) modifications to foot controls; and
- (c) power steering modifications which meet *LVV Information Sheet # 02-2007 - Power Steering Torsion Bar Modifications* (see Note 1 below).

Note 1 *LVV Information Sheet # 02-2007: Power Steering Torsion Bar Modifications*, as referred to in 2.2(4)(c), is available to the public electronically, free of charge, from the LVVTA website www.lvvtta.org.nz

2.2(5) Adaptive control systems to enable a disabled driver to drive a motor vehicle which must not be certified by an LV1B Certifier comprise:

- (a) electro-mechanical driver control systems; or
- (b) those which are not listed in 2.2(4).

Frontal impact systems

2.2(6) All modifications to, and which may affect, a frontal impact restraint system, may be certified by an LV1B Certifier (see Note 1 below).

Note 1 An LVV Certifier appointed to certify under LVV certification category ‘LV1B Modified Production – Extended’ is also authorised to issue *LVVTA FS012 Upper Seatbelt Anchorage Request Forms* for vehicles which can be excluded from the requirement to be retro-fitted with upper seatbelt anchorages.

2.3 Category LV1C Modified Production – Structures

2.3(1) An LVV Certifier appointed to certify under LVV Certifier category ‘LV1C Modified Production – Structures’ (an LV1C Certifier) is authorised to certify all Class M-group and Class NA modified production low volume vehicles to the extent specified in 2.3 as ‘may be certified’ (see Note 1 below).

Note 1 In relation to the vehicle classes referred to in 2.3(1), Class M-group means passenger-carrying cars, station wagons, and vans, and Class NA means light goods-carrying utilities and vans. A full list and descriptions of NZTA’s Table A vehicle classes are provided in *Land Transport Rule: Vehicle Standards Compliance 2002*, which is available from NZTA’s website.

Body structure

2.3(2) Body structure modifications and conversions which may be certified by an LV1C Certifier comprise, subject to 2.3(3):

- (a) all body modifications specified in 2.1(13); and
- (b) all structural body modifications and conversions, including restructuring and configuration changes, which retain the vehicle manufacturer’s occupant protection systems and structure forward of the A-pillars; and
- (c) complete (‘bolt-off/on’ OEM-type) body substitution.

2.3(3) Body structure modifications and conversions which must not be certified by an LV1C Certifier comprise:

- (a) modifications and conversions which do not retain the vehicle manufacturer’s occupant protection systems and structure forward of the A-pillars; or
- (b) substantial or complete custom body construction; or
- (c) those which are not listed in 2.3(2).

Chassis structure

2.3(4) Chassis structure modifications, conversions, and construction features which may be certified by an LV1C Certifier comprise, subject to 2.3(5):

- (a) modifications to OEM chassis rails or sub-frame rails rearward of the A-pillars; and
- (b) modifications to, or substitution or construction of, cross-members; and
- (c) modifications to body mounting outriggers for the purpose of providing tyre clearance.

2.3(5) Chassis structure modifications, conversions, and construction features which must not be certified by an LV1C Certifier comprise:

- (a) modifications made to OEM chassis rails or sub-frame rails forward of the A-pillars; or
- (b) complete chassis substitution or construction; or
- (c) complete rear half-chassis construction; or
- (d) complete sub-frame changes; or
- (e) those which are not listed in 2.3(4).

2.4 Category LV1D Advanced Modified Production & Scratch-built

2.4(1) An LVV Certifier appointed to certify under LVV certification category ‘LV1D Advanced Modified Production & Scratch-built’ (an LV1D Certifier) is authorised to certify all Class M-group and Class NA modified production and scratch-built low volume vehicles to the extent specified in 2.4 as ‘may be certified’ (see Note 1 below).

Note 1 In relation to the vehicle classes referred to in 2.4(1), Class M-group means passenger-carrying cars, station wagons, and vans, and Class NA means light goods-carrying utilities and vans. A full list and descriptions of NZTA’s Table A vehicle classes are provided in *Land Transport Rule: Vehicle Standards Compliance 2002*, which is available from NZTA’s website.

- 2.4(2) Modifications, conversions, and construction features which may be certified by an LV1D Certifier comprise:
- (a) all modifications and conversions specified as ‘may be certified’ in 2.1, 2.2, and 2.3; and
 - (b) all engine and drive-train conversions; and
 - (c) all suspension modifications, conversions, and construction features, including the design and construction of custom-built suspension components and systems, the relocation or substitution of major non-OEM suspension components and systems, and changes which could affect the suspension geometry or performance; and
 - (d) all steering modifications, conversions, and construction features, including the design and construction of custom-built steering components and systems, the relocation or substitution of major non-OEM steering components and systems, and changes which could affect the steering geometry or performance; and
 - (e) all braking modifications, conversions, and construction features, including the design and construction of custom-built braking components and systems, the relocation or substitution of major non-OEM braking components and systems, and changes which could affect brake balance or performance; and
 - (f) all modifications, conversions, construction, and installations of seats and seat anchorages, and seatbelt anchorages (see Note 1 below); and
 - (g) all body modifications, conversions, and construction features, including body restructuring, configuration changes, body type or style substitution, and complete body design and construction; and
 - (h) all chassis modifications, conversions, and construction features, including the design and construction of custom-built chassis and chassis elements, the substitution of major chassis and chassis elements, and changes which could affect the vehicle’s torsional and longitudinal rigidity; and
 - (i) all modifications, conversions, and construction features to vehicles of Class M-group and Class NA which have been issued with an individual approval from the LVVTA Technical Advisory Committee (see Note 2 below); and
 - (j) a low volume vehicle for which an LVV Authority Card issued by the New Zealand Hot Rod Association specifying ‘Fender Exemption’ has been issued (see Note 3 below).

Note 1	An LVV Certifier appointed to certify under LVV certification category ‘LV1D Advanced Modified Production & Scratch-built’ is also authorised to issue <i>LVVTA FS012 Upper Seatbelt Anchorage Request Forms</i> for vehicles which can be excluded from the requirement to be retro-fitted with upper seatbelt anchorages.
Note 2	<u>Only</u> an LV1D Certifier can LVV certify a Class M-group or Class NA low volume vehicle which features a component or system that has been issued with an individual approval from the LVVTA Technical Advisory Committee (TAC).
Note 3	<u>Only</u> an LV1D Certifier can LVV certify a low volume vehicle for which a New Zealand Hot Rod Association LVV Authority Card which specifies ‘Fender Exemption’ has been issued.

- 2.4(3) Modifications, conversions, and construction features which must not be certified by an LV1D Certifier comprise those not listed in 2.4(2).

Section 3 Category 2: Motorcycles & Trikes

3.1 Category LV2A Motorcycles - Modified Production

- 3.1(1) An LVV Certifier appointed to certify under LVV certification category 'LV2A Motorcycles - Modified Production' (an LV2A Certifier) is authorised to certify all Class LC modified production low volume motorcycles to the extent specified in 3.1 as 'may be certified' (see Note 1 below).

Note 1 In relation to the vehicle classes referred to in 3.1(1), Class LC means two-wheeled motorcycles. A full list and descriptions of NZTA's Table A vehicle classes are provided in *Land Transport Rule: Vehicle Standards Compliance 2002*, which is available from NZTA's website.

Engine and drive-train

- 3.1(2) All engine and drive-train modifications and conversions may be certified by an LV2A Certifier.

Braking systems

- 3.1(3) Braking system modifications and conversions which may be certified by an LV2A Certifier comprise, subject to 3.1(4):

- (a) substitution and adaptation of 'bolt-on' OEM or aftermarket braking components and systems; and
- (b) modification and adaptation of hand and foot control systems.

- 3.1(4) Braking system modifications and conversions which must not be certified by an LV2A Certifier comprise:

- (a) custom-built braking components or systems; or
- (b) those which are not listed in 3.1(3).

Steering systems

- 3.1(5) Steering system modifications and conversions which may be certified by an LV2A Certifier comprise, subject to 3.1(6), the substitution and adaptation of 'bolt-on' OEM or aftermarket steering components and systems.

- 3.1(6) Steering system modifications and conversions which must not be certified by an LV2A Certifier comprise:

- (a) custom-fabricated steering components or systems; or
- (b) complete steering head adaptations; or
- (c) those which are not listed in 3.1(5).

Suspension systems

- 3.1(7) Suspension system modifications and conversions which may be certified by an LV2A Certifier comprise, subject to 3.1(8):

- (a) a hard-tail conversion (see Note 1 below); and
- (b) the substitution or adaptation of 'bolt-on' OEM or aftermarket suspension components and systems.

Note 1 A conversion to a 'hard-tail' rear end on a motorcycle replaces the rear swing-arm and the rear suspension assembly, so the ability for an LV2A Certifier to LVV certify a hard-tail conversion is not subject to the requirements of 3.1(8)(a) or (b).

3.1(8) Suspension system modifications and conversions which must not be certified by an LV2A Certifier comprise:

- (a) custom-fabricated suspension components or systems; or
- (b) custom-fabricated rear swing-arms; or
- (c) those which are not listed in 3.1(7).

Wheels and tyres

3.1(9) All wheel and tyre modifications and changes may be certified by an LV2A Certifier.

Fuel systems

3.1(10) All fuel system modifications and conversions may be certified by an LV2A Certifier, including custom-built fuel tanks and systems.

Frame and bodywork

3.1(11) Frame and bodywork modifications and conversions which may be certified by an LV2A Certifier comprise, subject to 3.1(12):

- (a) bodywork modification and substitution; and
- (b) minor frame modifications (see Note 1 below).

Note 1 'Minor frame modifications' referred to in 3.1(11)(b) can include modifications to engine and drive-train mounting systems, seat mounts, and mounting systems for sidecar attachment.

3.1(12) Frame and bodywork modifications and conversions which must not be certified by an LV2A Certifier comprise:

- (a) custom-built frames; or
- (b) those which are not listed in 3.1(11).

Sidecars

3.1(13) All side-car modifications and conversions may be certified by an LV2A Certifier.

3.2 Category LV2B Motorcycles – Advanced Modified Production & Scratch-built

3.2(1) An LVV Certifier appointed to certify under LVV certification category 'LV2B Motorcycles – Advanced Modified Production & Scratch-built' (an LV2B Certifier) is authorised to certify all Class LC modified production and scratch-built low volume motorcycles to the extent specified in 3.2 as 'may be certified' (see Note 1 below).

Note 1 In relation to the vehicle classes referred to in 3.2(1), Class LC means two-wheeled motorcycles. A full list and descriptions of NZTA's Table A vehicle classes are provided in *Land Transport Rule: Vehicle Standards Compliance 2002*, which is available from NZTA's website.

- 3.2(2) Modifications, conversions, and construction features which may be certified by an LV2B Certifier comprise:
- (a) all modifications and conversions specified as 'may be certified' in 3.1; and
 - (b) all braking modifications, conversions, and construction features, including the design and construction of custom-built braking components and systems, the relocation or substitution of major non-OEM braking components and systems, and changes which could affect brake balance or performance; and
 - (c) all steering modifications, conversions, and construction features, including the design and construction of custom-built steering components and systems (in particular steering head adaptations), the relocation or substitution of major non-OEM steering components and systems, and changes which could affect the steering geometry or performance; and
 - (d) all suspension modifications, conversions, and construction features, including the design and construction of custom-built suspension components and systems (in particular front ends and swing-arm assemblies), the relocation or substitution of major non-OEM suspension components and systems, and changes which could affect the suspension geometry or performance; and
 - (e) all body and frame modifications, conversions, and construction features, including the design and construction of custom-built frames and frame elements, the substitution of major frame and frame elements, and changes which could affect the motorcycle's torsional and longitudinal rigidity; and
 - (f) all modifications, conversions, and construction features to vehicles of Class L-group (except for Class LE) which have been individually approved by the LVVTA Technical Advisory Committee (see Note 1 below).

Note 1 Only an LV2B Certifier can LVV certify a Class L-group (but not Class LE) low volume vehicle which features a component or system that has been issued with an individual approval from the LVVTA Technical Advisory Committee (TAC).

- 3.2(3) Modifications, conversions, and construction features which must not be certified by an LV2B Certifier comprise those not listed in 3.2(2).

3.3 Category LV2C Trikes – Advanced Modified Production & Scratch-built

- 3.3(1) An LVV Certifier appointed to certify under LVV certification category 'LV2C Trikes – Advanced Modified Production & Scratch-built' (an LV2C Certifier) is authorised to certify all Class LE and Class MA modified production and scratch-built low volume trikes to the extent specified in 3.2 as 'may be certified' (see Notes 1 and 2 below).

Note 1 In relation to the vehicle classes referred to in 3.3(1), Class LE means a trike (motor-tricycle or three-wheeled motor vehicle). Some 'heavy' trikes cannot be certified as Class LE vehicles, and therefore must be treated as Class MA passenger vehicles (cars). A full list and descriptions of NZTA's Table A vehicle classes are provided in *Land Transport Rule: Vehicle Standards Compliance 2002*, which is available from NZTA's website.

Note 2 Only an LV2C Certifier can LVV certify a Class LE or Class MA low volume trike which features a component or system that has been issued with an individual approval from the LVVTA Technical Advisory Committee (TAC).

3.3(2) Modifications, conversions, and construction features which must not be certified by an LV2C Certifier comprise those not referred to in 3.3(1).

Section 4 Category 3: Disability Adaptation & Transportation

4.1 Category LV3A Disability Adaptation – Limited

4.1(1) An LVV Certifier appointed to certify under LVV certification category ‘LV3A Disability Adaptation - Limited’ (an LV3A Certifier) is authorised to certify all Class M-group and Class NA modified production low volume vehicles to the extent specified in 4.1 as ‘may be certified’ (see Note 1 below).

Note 1 In relation to the vehicle classes referred to in 4.1(1), Class M-group means passenger-carrying cars, station wagons, and vans, and Class NA means light goods-carrying utilities and vans. A full list and descriptions of NZTA’s Table A vehicle classes are provided in *Land Transport Rule: Vehicle Standards Compliance 2002*, which is available from NZTA’s website.

4.1(2) Modifications and conversions which may be certified by an LV3A Certifier comprise, subject to 4.1(3), modifications and conversions carried out for the purpose of:

- (a) enabling a person with a disability, and a caregiver or attendant, to enter or exit a vehicle; and
- (b) enabling a person with a disability to be seated and restrained within a vehicle.

4.1(3) Disability adaptation modifications and conversions which must not be certified by an LV3A Certifier comprise those not listed in 4.1(2).

4.2 Category LV3B Disability Adaptation – Structures

4.2(1) An LVV Certifier appointed to certify under LVV certification category ‘LV3B Disability Adaptation – Structures (an LV3B Certifier) is authorised to certify Class M-group and Class NA modified production low volume vehicles to the extent specified in 4.2 as ‘may be certified’ (see Note 1 below).

Note 1 In relation to the vehicle classes referred to in 4.2(1), Class M-group means passenger-carrying cars, station wagons, and vans, and Class NA means light goods-carrying utilities and vans. A full list and descriptions of NZTA’s Table A vehicle classes are provided in *Land Transport Rule: Vehicle Standards Compliance 2002*, which is available from NZTA’s website.

4.2(2) Modifications and conversions which may be certified by an LV3B Certifier comprise, subject to 4.2(3):

- (a) all modifications, conversions, and construction features specified as ‘may be certified’ in 4.1; and
- (b) electro-mechanical driver control systems; and
- (c) advanced steering, braking, or other driver control systems which feature an unusually high level of complexity, such as those that do not incorporate a mechanical connection; and
- (d) modifications carried out for the purpose of disability transportation that affect the integrity and rigidity of the permanent vehicle structure, including restructuring and configuration changes rearward of the A-pillars.

- 4.2(3) Structural modifications and conversions which must not be certified by an LV3B Certifier comprise:
- (a) those which affect the vehicle manufacturer’s occupant protection systems and structure forward of the A-pillars; or
 - (b) those which are not listed in 4.2(2).

Section 5 Category 4: Electric & Hybrid Vehicles

5.1 Category LV4 - Electric & Hybrid Vehicles

- 5.1(1) An LVV Certifier appointed to certify under LVV certification category ‘LV4 – Electric & Hybrid Vehicles’ (an LV4 Certifier) is authorised to certify Class M-group, Class NA, and Class L-group modified production and scratch-built low volume vehicles which are converted to, or constructed, using electric or hybrid motive power, to the extent specified in 5.1 as ‘may be certified’ (see Note 1 below).

Note 1 In relation to the vehicle classes referred to in 5.1(1), Class M-group means passenger-carrying cars, station wagons, and vans, Class NA means light goods-carrying utilities and vans, and Class L-group means motorcycles and trikes. A full list and descriptions of NZTA’s Table A vehicle classes are provided in *Land Transport Rule: Vehicle Standards Compliance 2002*, which is available from NZTA’s website.

- 5.1(2) Modifications and conversions which may be certified by an LV4 Certifier comprise, subject to 5.1(3):
- (a) the electrical aspects of the modified, converted, or constructed vehicle; and
 - (b) the battery box design and attachment; and
 - (c) a vacuum pump system provided to aid braking; and
 - (d) an electric power steering pump.
- 5.1(3) Modifications and conversions which must not be certified by an LV4 Certifier comprise:
- (a) any engine mounting systems; or
 - (b) any mechanical and engineering aspects of the modified, converted, or constructed vehicle which are not listed in 5.1(2) (see Notes 1 to 3 below).

Note 1 An LV4 Certifier is authorised to LVV certify only those aspects of a modified or scratch-built low volume vehicle which relate to the electric vehicle or hybrid conversion or construction features. All mechanical and engineering-related aspects of an electric vehicle conversion (or construction) must be LVV certified by an LV1A or LV1D Certifier, as appropriate.

Note 2 There may be some cases where an LVV Certifier who holds both LV1A (or LV1D), and LV4, is not available within a geographical region. In this case, if a vehicle owner doesn’t want to take the electric vehicle to a region where an LVV Certifier who holds both LV1A (or LV1D), and LV4, is available, two LVV Certifiers (one with LV1A or LV1D, and one with LV4) may need to be engaged to jointly certify the electric vehicle.

Note 3 The reason that the situation described in Note 2 above may exist is because very few LV4 Certifiers are appointed in New Zealand. This is because there is a high level of expertise required to LVV certify electric vehicles, but very little LVV certification activity happening - so it is not economic to have several LV4 Certifiers around the country all doing very little electric vehicle LVV certification work.

Section 6 Category 5: RHD Conversion, Exhaust, & Authority Cards

6.1 Category LVRH Modified Production – Right-hand Drive Conversions

- 6.1(1) An LVV Certifier appointed to certify under LVV certification category ‘LVRH Modified Production – Right-hand Drive Conversions’ (an LVRH Certifier) is authorised to certify all Class M-group and Class NA modified production low volume vehicles which have been converted from left-hand drive to right-hand drive, provided that the conversion is of a direct mirror-image nature (see Note 1 below).

Note 1 In relation to the vehicle classes referred to in 6.1(1), Class M-group means passenger-carrying cars, station wagons, and vans, and Class NA means light goods-carrying utilities and vans. A full list and descriptions of NZTA’s Table A vehicle classes are provided in *Land Transport Rule: Vehicle Standards Compliance 2002*, which is available from NZTA’s website.

6.2 Category LVEX – Exhaust Noise & Gas Emissions

- 6.2(1) An LVV Certifier appointed to certify under LVV certification category ‘LVEX – Exhaust Noise & Gas Emissions’ (an LVEX Certifier) is authorised to certify all Class M-group, Class NA, and Class L-group modified production and scratch-built low volume vehicles which require the testing of (see Note 1 below):

- (a) exhaust noise emissions; or
- (b) exhaust gas emissions.

Note 1 In relation to the vehicle classes referred to in 6.2(1), Class M-group means passenger-carrying cars, station wagons, and vans, Class NA means light goods-carrying utilities and vans, and Class L-group means motorcycles and trikes. A full list and descriptions of NZTA’s Table A vehicle classes are provided in *Land Transport Rule: Vehicle Standards Compliance 2002*, which is available from NZTA’s website.

6.3 Category LVAC - Authority Card

- 6.3(1) An LVV Certifier appointed to certify under LVV certification category ‘LVAC - Authority Card’ (an LVAC Certifier) is authorised to certify Class M-group and Class NA modified production low volume vehicles which must meet alternative occupant protection equipment requirements for sporting purposes, as provided for in 2.12 of the *Low Volume Vehicle Code* (see Note 1 below).

Note 1 The *Low Volume Vehicle Code*, as referred to in 6.3(1), is available to the public electronically, free of charge, from the LVVTA website www.lvvtta.org.nz

Section 7 Associated Information

7.1 Category Extensions

- 7.1(1) On a case-by-case basis, an LVV Certifier may certify a vehicle which is outside of the specified LVV certification category for which they are appointed, via a pre-approval process from LVVTA called a ‘Category Extension’ (see Note 1 below).

Note 1 LVV ‘Category Extensions’, as referred to in 7.1(1), are detailed in *LVV ORS Chapter 8 – LVV Certification Inspection Procedures*.

Terms & Definitions Chapter 3

Aftermarket	A manufacturer or supplier, other than a high-volume motor vehicle manufacturer, who produces components or systems on a production-run basis for the mass-market.
A-Pillar	The forward-most pillars that support the windscreen and the front of the roof, and from which the front doors are usually hinged.
Bump-stop	A compression spring, usually of rubber, that prevents contact, or reduces the severity of contact, between the vehicle structure and a suspension component, when the vehicle's suspension system encounters a bump that causes the suspension to fully compress.
Caster	The angle between the steering axis and the vertical axis of a vehicle, when viewed in side elevation.
Chassis	The supporting frame or platform of a motor vehicle to which the major mechanical components and body attach.
Custom	A component or system which is fabricated individually by a person or a small company on a one-off or limited-run basis, and is not intended as a high volume catalogued aftermarket part.
Disability adaptation	The modification of a vehicle to suit the specific needs of a person with one or more disabilities.
Drop-box	A bolt-on component used to lower the chassis-end radius arm mounts on a solid-axle four wheel-drive vehicle to improve suspension geometry.
Electric vehicle	A vehicle whose form of motive power is derived from electricity, rather than internal combustion.
Fender exemption	<p>A concession enabled by the issue of an LVVTA Authority Card, for owners of certain vehicle types to operate the vehicle without fenders (or mudguards).</p> <p>More information can be found in <i>LVV ORS Chapter 12 – LVV Certification Plates and labels</i>, which is available to the public electronically, free of charge, from the LVVTA website www.lvvta.org.nz</p>
Hard-tail	An assembly which solidly connects the rear suspension arms to the motorcycle or trike frame, with the associated removal of the rear suspension system and swing-arm assembly.
HICAS	An acronym for High Capacity Actively Controlled Steering.
High Capacity Actively Controlled Steering	A rear wheel (auxiliary) steering system fitted to some Nissan vehicles from approximately 1985 to 2010.
Hybrid vehicle	A vehicle that uses more than one type of propulsion system, typically combining an ICE with one or more electric motors which can recover energy through regenerative braking, that charges the battery during deceleration.
ICE	An acronym for Internal Combustion Engine.

Low Volume Vehicle Code	The Low Volume Vehicle Code of LVVTA, incorporated by reference into the <i>Land Transport Rule: Vehicle Standards Compliance 2002</i> , and all applicable individual Land Transport equipment rules.
LVV Code	An abbreviation for Low Volume Vehicle Code.
LVV Authority Card	An LVV certification document, issued under the delegated authority of NZTA, specifying alternative safety-related equipment required by a vehicle for special purposes.
Macpherson strut	A telescopic independently sprung suspension member incorporating a shock absorber, which is fixed at its upper end to the body shell or chassis, and has the lower end located by linkages which control transverse and fore and aft movement.
Modified Production (low volume vehicle)	<p>In simplest 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.</p> <p>See the full modified production (low volume vehicle) definition contained in the <i>LVV Code</i> (which is available to the public electronically, free of charge, from the LVVTA website www.lvvta.org.nz).</p>
New Zealand Hot Rod Association	The organisation that administers hot rodding within New Zealand, and is a founding member of the LVVTA.
OE	An acronym for original equipment.
OEM	An acronym for original equipment manufacturer.
Original equipment manufacturer	A company that produces parts, components, or equipment used in the assembly of a vehicle sold under the vehicle manufacturer's brand name. OEM is also used in reference to a high-volume vehicle manufacturer.
NoA	An acronym for Notice of Appointment.
Notice of Appointment	A document provided by NZTA to a person appointed as an LVV Certifier, outlining the terms and conditions of their appointment, and their obligations and responsibilities.
NZTA	An acronym for New Zealand Transport Agency.
Pitch Circle Diameter	In this context, the arrangement of a vehicle's wheel-mounting studs or bolts around an imaginary circle. For example, a vehicle with a pitch circle diameter of 5 x 114 would have 5 studs arranged equidistantly around a circle of 114 mm diameter.
Right-hand drive	A vehicle with its steering wheel and driving position to the right-hand side of its longitudinal centreline.
Scratch-built	A low volume vehicle that is not a 'modified production' low volume vehicle.
Stressed seat	A seat that has one or more seatbelt anchorages attached to the seat frame in such a way that any loading applied to the seatbelt anchorage would be transmitted through the seat structure to the seat anchorage.
Stub axle	The outer part of the suspension assembly, to which the brake and wheel assemblies attach, also known as an upright.

Structure	The elements of a motor vehicle which are critical to the strength, rigidity, steering and suspension geometry, and crashworthiness of the vehicle.
Sub-frame	A section of supporting frame or platform of a motor vehicle to which the major mechanical components and body attach, usually associated with a unitary constructed vehicle.
Unitary constructed	A type of vehicle construction that incorporates the vehicle body and chassis frame in one unit, as opposed to having a separate and removable chassis.
Unstressed seat	A seat that does not have any seatbelt anchorages attached to the seat frame.
Table A vehicle classes	NZTA classification of vehicle types that are defined in full within the <i>Land Transport Rule: Vehicle Standards Compliance 2002</i> , which is available from NZTA’s website.
TAC	An acronym for the LVVTA Technical Advisory Committee.
Technical Advisory Committee	The technical committee of LVVTA. More information can be found in <i>LVV ORS Chapter 15 – LVVTA Committees and Working Groups</i> , which is available to the public electronically, free of charge, from the LVVTA website www.lvvta.org.nz
Trike	Usually, a Class LE motor-tricycle (three-wheeled motor vehicle).
Wishbone arms	The top and bottom control arms in an independent suspension system.
Vehicle manufacturer	A company or entity responsible for designing, assembling, and distributing motor vehicles in high volumes (OEM components are often included in their products).
