

# Low Volume Vehicle Technical Association Incorporated

## Low Volume Vehicle Standard 100-30(00) (External Projections)

*This Low Volume Vehicle Standard corresponds with:  
Land Transport Rule (32008): Vehicle Standards (External Projections)*

**Original version**

**effective from: 3 April 2000**

### ***Background***

*The Low Volume Vehicle Technical Association Incorporated (LVVTA) represents ten hobbyist and specialist groups who are dedicated to ensuring that their members' vehicles, when scratch-built or modified, meet the highest practicable safety standards.*

*The information in these standards has stemmed from work undertaken by founding member groups that commenced prior to 1990 and has been progressively developed as an integral part of NZ Government safety rules and regulations by agreement and in consultation with the Land Transport Safety Authority. As a result, the considerable experience in applied safety engineering built up by LVVTA members over the past ten years can be of benefit to members of the NZ public who also wish to build or modify light motor vehicles.*

### ***Availability of low volume vehicle standards***

*Low volume vehicle standards are prepared by the Low Volume Vehicle Technical Association (Inc.) in consultation with the Ministry of Transport and the Land Transport Safety Authority of New Zealand.*

*Low volume vehicle standards are printed and distributed by the Low Volume Vehicle Technical Association (Inc.). Information on the availability of the low volume vehicle standards and their amendments may be obtained by writing to the Low Volume Vehicle Technical Association (Inc.) at the address shown below.*

### ***Published by:***

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## External Projections

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**(100-30(00))**

### Purpose of this standard

The purpose of this low volume vehicle standard is to specify requirements for external projections on low volume vehicles in order to minimise the likelihood of injury to pedestrians or other road users in the event of an impact.

### Section 1 Application

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#### 1.1 Scope of the standard

This standard applies to all low volume vehicles of the classes specified in 1.2 which are fitted with external projections, except for those vehicles specified in *section 4* that are modified in such a way that certification to the *Low Volume Vehicle Code* is not required.

#### 1.2 Category, class, and date of application

1.2(1) Low volume vehicles of Classes MA, MB, MC, MD1, MD2, NA, and L-group must comply with 2.1 and 2.2.

1.2(2) Modified production low volume vehicles of Classes MA, MB, MC, MD1, and NA modified on or after 1 March 1998 in such a way as to directly or indirectly affect or introduce any external projections must, in addition to 1.2(1), comply with either:

(a) one or more of the approved standards, in the appropriate version, as specified in 2.3(4) of *Land Transport Rule 32008: Vehicle Standards (External Projections)*; or

(b) the low volume vehicle technical requirements specified in 2.3 and 2.4.

1.2(3) Scratch-built low volume vehicles of Classes MA, MB, MC, MD1, MD2, and NA manufactured on or after 1 March 1998 must, in addition to 1.2(1), comply with either:

(a) one or more of the approved standards, in the appropriate versions, as specified in 2.3(4) of *Land Transport Rule 32008: Vehicle Standards (External Projections)*; or

- (b) the low volume vehicle technical requirements specified in 2.3 and 2.4.

## **Section 2 Low volume vehicle general safety and technical requirements**

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### **2.1 Requirements for low volume vehicles with external projections**

Low volume vehicles with external projections must be certified in accordance with the procedures specified in *Chapter 2* of the *Low Volume Vehicle Code* and other applicable requirements in this section.

### **2.2 General safety requirements**

- 2.2(1) Low volume vehicles must be properly designed and constructed using materials and components that are fit for their purpose, and that comply with all legal requirements applicable to low volume vehicles that relate to the construction and equipment on a motor vehicle, and which make the vehicle safe to operate on roads.

**NOTE:** The requirement specified in 2.2(1) is the roadworthiness requirement from 2.1 of *Chapter 2* of the *Low Volume Vehicle Code* which is required as part of this low volume vehicle standard, and is reproduced here in the interest of convenience.

- 2.2(2) All low volume vehicles, except those specified in *section 3*, must comply with the following general safety requirements:
  - (a) ornamental objects and fittings must not protrude from the motor vehicle if they could injure any person; and
  - (b) protruding objects and fittings which have a functional purpose must, if installed and operated on vehicles that are used on any public road, be such that their risk of causing injury to any person is minimised; and
  - (c) protruding objects and fittings must not adversely affect driver vision or driver control; and
  - (d) components of the vehicles, including damaged or corroded body panels must be such that their risk of hooking any vehicle, or hooking or grazing any person is minimised.

NOTE: The requirements specified in 2.2(2) are the applicable general safety requirements from 2.2(1) of *Land Transport Rule 32008* which are required as part of this low volume vehicle standard, and are reproduced here in the interest of convenience.

## 2.3 Technical requirements for external projections

2.3(1) All external projections fitted to low volume vehicles, except those specified in *section 3*, must comply with the applicable requirements in 2.3 and 2.4.

### Non-functional items

2.3(2) Protruding external objects or fittings that do not have a functional purpose may not be fitted to low volume vehicles if they are likely to increase the risk of injury to any person, including the following three requirements for non-functional items:

- (a) ornamental hood emblems must be designed and attached in such a way that they will fold back or break off in the event of contact, without leaving any sharp edges; and
- (b) protruding bumper bars must have a radius on all edges and corners of no less than 3 mm; and
- (c) wheel hubs or centres which extend beyond the external line of the body of the vehicle must have a radius on any exposed edges of no less than 3 mm.

### Functional items

2.3(3) Protruding external objects or fittings that have a functional purpose, not including those items on the underside of the vehicle, may not be fitted to low volume vehicles unless their design, construction, condition, and manner in which they are affixed to the vehicle is such that the risk of causing injury to any person is minimised, including the following five requirements for functional items:

- (a) free-standing lamps must protrude no further from the vehicle body than is necessary for their effective operation; and
- (b) items such as door handles, engine hood latches, and fuel filler caps must protrude no further from the vehicle body than is necessary for their effective operation; and

- (c) engine hood scoops or engine components protruding beyond the original external line of the engine hood which are contactable by a 165 mm head-sphere, must have a radius on all such exposed contactable edges of no less than 3 mm; and
- (d) exposed moving mechanical objects including drive pulleys and belts must be protected by a guard or cover, and the guard or cover must have a radius on all edges and corners of no less than 3 mm; and
- (e) external exhaust systems which extend beyond the outer longitudinal extremity of the vehicle or the outer sidewall of the tyres, must:
  - (i) have a radius of no less than 3 mm on any sections facing toward the front of the vehicle; and
  - (ii) have any sections of exposed exhaust contactable from the front of the vehicle or adjacent to points of occupant entry and exit adequately heat-shielded.

### **Other requirements**

- 2.3(4) All contactable exterior sheet-metal edges must fold back by not less than 90 degrees.
- 2.3(5) Any contactable exterior cosmetic or aerodynamic attachments must not extend laterally beyond the widest part of the vehicle body.
- 2.3(6) A low volume vehicle required to comply with this standard must also comply with the requirements of the:
  - (a) *LVVTA Low Volume Vehicle Standard 110-00 (Glazing)*; and
  - (b) *LVVTA Low Volume Vehicle Standard 125-00 (Lighting and Signalling)*; and
  - (c) *LVVTA Low Volume Vehicle Standard 155-30 (Frontal Impact)*; and
  - (d) *LVVTA Low Volume Vehicle Standard 155-40 (Interior Impact)*; and

- (e) LVVTA Low Volume Vehicle Standard 200-30 (Rear View Mirrors).

## 2.4 Field of vision requirements

2.4(1) Cosmetic modifications must not be made to any windscreen fitted to a low volume vehicle, which effectively reduces the total area of visibility of the windscreen other than an anti-glare strip fitted to the upper edge.

2.4(2) Low volume vehicles must be designed and constructed so as to provide to the driver a clear view to the front and both sides of the vehicle from the normal driving position, and the following requirements must be complied with:

- (a) the front seats must be mounted in such a way so as to provide the driver as far as practicable with the best available view to the front and both sides of the vehicle; and
- (b) any roll-bar or roll-cage fitted to the vehicle must not have any bars positioned in such a way so as to restrict the driver's forward and side vision.

### Fixed-roof vehicles

2.4(3) A low volume vehicle which has a fixed roof must not have any components or fittings forward of the firewall which protrude above a straight line from the centre-point of the windscreen measured both vertically and horizontally to:

- (a) in the case of protrusions 250 mm or less in width, a point at ground level 15 metres forward of the front of the vehicle; or
- (b) in the case of protrusions between 250 mm and 400 mm in width, a point at ground level 12 metres forward of the front of the vehicle; or
- (c) in the case of protrusions 400 mm or more in width, a point at ground level 8 metres forward of the front of the vehicle.

### Open vehicles

- 2.4(4) A low volume vehicle which does not have a fixed roof must not have any components or fittings forward of the firewall which protrude above a straight line measured from a point on the vehicle's longitudinal centre-line 730 mm above and 270 mm forward of the junction of the uncompressed seat base and back, with the seat in its rear-most and lowest position, to:
- (a) in the case of protrusions 250 mm or less in width, a point at ground level 15 metres forward of the front of the vehicle; or
  - (b) in the case of protrusions between 250 mm and 400 mm in width, a point at ground level 12 metres forward of the front of the vehicle; or
  - (c) in the case of protrusions 400 mm or more in width, a point at ground level 8 metres forward of the front of the vehicle.

## **Section 3 Exclusions**

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### **3.1 Original equipment exclusions**

Modified production low volume vehicles originally manufactured prior to the introduction of the *Transport (Vehicle Standards) Regulations 1990* are not required to comply with 2.3(2) if fitted with either:

- (a) the original vehicle manufacturer's standard or optional equipment, or
- (b) authentic reproductions of the original vehicle manufacturer's standard or optional equipment which:
  - (i) meet the original vehicle manufacturer's specifications; and
  - (ii) are within the original vehicle manufacturer's operating limits.

## **Section 4 Modification criteria**

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### **4.1 Modifications not requiring certification**

A vehicle is not required to be certified to the *Low Volume Vehicle Code* where the only modification to the vehicle is the fitting of any one or more of the following items, provided that the safe performance of the vehicle is not compromised:

- (a) a roof-rack or trunk-rack provided that the rack is securely attached and does not protrude forward beyond a point measured vertically from the top centre of the windscreen; or
  - (b) engine hood pins provided that no edges of less than 3 mm radius project toward the front of the vehicle as a result; or
  - (c) cosmetic body kits or components provided that:
    - (i) no removal or modification of the existing bodywork has taken place which could weaken the body structure; and
    - (ii) the components are securely attached; and
    - (iii) no sharp edges project toward the front of the vehicle as a result; and
    - (iv) there is no effect on the forward visibility from the passenger compartment; and
    - (v) there is no effect on the performance or operation of any of the lamps.
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