

## Low Volume Vehicle Technical Association Incorporated

# Low Volume Vehicle Standard 185-40(00) (Head Restraints)

*This Low Volume Vehicle Standard corresponds with:  
Land Transport Rules Rule (32010) Vehicle Standards (Head Restraints)*

**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:***

*The Low Volume Vehicle Technical Association (Inc.)  
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# Head Restraints

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**(185-40(00))**

## Purpose of this standard

The purpose of this low volume vehicle standard is to specify requirements for the use of head restraints if fitted, in order to limit the severity of injury to occupants 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 head restraints, 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. However, this standard does not require low volume vehicles to be fitted with head restraints.

### 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, and MD1 modified on or after 1 December 1999 in such a way as to directly or indirectly affect any head restraints 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 Rules Rule 32010 Vehicle Standards (Head Restraints)*; or

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

1.2(3) Scratch-built low volume vehicles of Classes MA, MB, MC, MD1, MD2, and NA manufactured on or after 1 December 1999 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 Rules Rule 32010 Vehicle Standards (Head Restraints)*; or

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

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

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### 2.1 Requirements for low volume vehicles with head restraints

Low volume vehicles with head restraints 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 fitted with head restraints, except those specified in *section 3*, must comply with the following general safety requirements:

- (a) the external surfaces and padding of head restraints must not have deteriorated to the extent that the likelihood of injury to occupants is increased; and
- (b) adjustable head restraints must remain able to be adjusted and locked into position as designed by the manufacturer.

NOTE: The requirements specified in 2.2(2) are the applicable general safety requirements from 2.2(1) of *Land Transport Rule 32010* 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 head restraints

- 2.3(1) All low volume vehicles fitted with head restraints, except those specified in *section 3*, must comply with the applicable requirements in 2.3.

- 2.3(2) The lateral centre-line of each head restraint must correspond with the centre-line of the relevant seating position.
- 2.3(3) Head restraints fitted to low volume vehicles must be constructed and contoured so that in the event of an impact resulting in rearward head displacement, the restraints will:
- (a) reduce rearward horizontal movements of the head; and
  - (b) minimise any concentration of load upon the head.
- 2.3(4) Attachment of head restraints to seat structures fitted to low volume vehicles may be either:
- (a) incorporated as a permanently fixed part of the seat structure; or
  - (b) if the head restraints are an addition to the seat structure, removable without the use of tools.
- 2.3(5) Adjustment of head restraints fitted to low volume vehicles may be provided in:
- (a) the vertical direction; and
  - (b) forward from an effective rear-most position.
- 2.3(6) The width of head restraints fitted to low volume vehicles must be no less than:
- (a) 250 mm in the case of a bench seat; or
  - (b) 170 mm in the case of an individual seat.

**Head restraints from production vehicles**

- 2.3(7) Head restraints sourced from production motor vehicles may be used in low volume vehicles, provided that:
- (a) the head restraint is unmodified; and

- (b) the head restraints are mounted to seats in accordance with either the vehicle manufacturer's design, or the requirements of the *LVVTA Low Volume Vehicle Standard 185-00 (Seats and Seat Anchorages)*; and
- (c) the motor vehicle to which the head restraints were originally fitted were first registered in:
  - (i) the United States of America on or after January 1971; or
  - (ii) Europe or the United Kingdom on or after January 1978; or
  - (iii) Japan on or after January 1983; or
  - (iv) Australia on or after January 1988.

#### **After-market head restraints**

2.3(8) Head restraints fitted to seat assemblies sourced from after-market seat manufacturers may be used in low volume vehicles, provided that:

- (a) the head restraint and seat assembly is unmodified; and
- (b) the seats are mounted in accordance with either the seat manufacturer's design or the requirements of the *LVVTA Low Volume Vehicle Standard 185-00 (Seats and Seat Anchorages)*; and:
- (c) the after-market seats have been either:
  - (i) type approved to FIA specifications; or
  - (ii) approved for use in motor-sport events by the Low Volume Vehicle Technical Association (Inc).

#### **Head restraints from other sources**

2.3(9) Head restraints from sources other than those specified in 2.3(7) and 2.3(8) must:

- (a) be designed to withstand a load applied at the top of the head restraint structure, with any adjustable restraint in its highest position, of 1 kN in both a forward and rearward direction, with any displacement as a result of the load applied not exceeding 100 mm in any direction from the original position; and
- (b) have the area of the head restraint contactable by the occupant's head covered in a non-rigid material with a rating of not less than 50 shore-A.

### **Other requirements**

- 2.3(10) A low volume vehicle required to comply with this standard must also comply with the requirements of the *LVVTA Low Volume Vehicle Standard 185-00 (Seats and Seat Anchorages)*.

## **Section 3 Exclusions**

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No exclusions are applicable to this low volume vehicle standard.

## **Section 4 Modification criteria**

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

Seats originally fitted with head restraints by the original manufacturer which have the head restraints removed are not required to be certified to the *Low Volume Vehicle Code*, provided that the safe performance of the vehicle is not compromised.

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