



## **Vehicle Standard (Australian Design Rule 3/01 – Seat Anchorages) 2006**

I, JAMES ERIC LLOYD, Minister for Local Government, Territories and Roads,  
determine this vehicle standard under subsection 7 (1) of the *Motor Vehicle Standards  
Act 1989*.

Dated                    31 July 2006

[SIGNED]

James Eric Lloyd

Minister for Local Government, Territories and Roads

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## **0. LEGISLATIVE PROVISIONS**

### **0.1. NAME OF STANDARD**

0.1.1. This Standard is the Vehicle Standard (Australian Design Rule 3/01 – Seat Anchorages) 2006.

0.1.1.1. This Standard may also be cited as Australian Design Rule 3/01 — Seat Anchorages.

### **0.1.2. COMMENCEMENT**

0.1.2.1. This Standard commences on the day after it is registered.

### **0.1.3. REPEAL**

0.1.3.1. This Standard repeals each vehicle standard with the name Australian Design Rule 3/01 — Seat Anchorages that is:

(a) made under section 7 of the Motor Vehicle Standards Act 1989; and

(b) in force at the commencement of this Standard.

0.1.3.2. This Standard also repeals each instrument made under section 7 of the Motor Vehicle Standards Act 1989 that creates a vehicle standard with the name Australian Design Rule 3/01 — Seat Anchorages, if there are no other vehicle standards created by that instrument, or amendments to vehicle standards made by that instrument, that are still in force at the commencement of this Standard.

## **PURPOSE AND SCOPE**

This Australian Design Rule (ADR) is part of the Australian motor vehicle standards system and is a national standard for the purposes of the Motor Vehicle Standards Act 1989.

The function of this Australian Design Rule is to specify requirements for ‘*Seats*’, their attachment assemblies, and their installation to minimise the possibility of occupant injury due to forces acting on the ‘*Seat*’ as a result of vehicle impact.

NOTE: The seat-anchorage is not to be used for any other purpose, e.g. securing loads etc.

## **APPLICABILITY**

This ADR applies to the design and construction of vehicles as set out in the table hereunder.

The /01 Rule differs from the /00 Rule in:

- (1) extending all /00 Rule to all ‘*Seats*’ of MD2 vehicles; and
- (2) extending the Rule to LE vehicles.

The Package 17 issue of /01 extends the Rule to all LEP and LEG vehicles and deletes its applicability to LEM vehicles.

Vehicles certified to the requirements of any of the "Acceptable Prior Rules" as shown below in the Applicability Table for a particular category are deemed to comply with this Rule.

Vehicle Category	ADR Category Code *	UNECE Category Code *	Manufactured on or After	Acceptable Prior Rules
Moped 2 wheels	LA	L1	Not Applicable	
Moped 3 wheels	LB	L2	Not Applicable	
Motor cycle	LC	L3	Not Applicable	
Motor cycle and sidecar	LD	L4	Not Applicable	
Motor tricycle	LE	L5		
	LEM		Not Applicable	
LEP and LEG enclosed vehicles only			1 March 1991	/00
LEP and LEG all vehicles			1 July 1992	/00
Passenger car	MA	M1	1 Jan 1991	/00
Forward-control passenger vehicle	MB	M1	1 Jan 1991	/00
Off-road passenger vehicle	MC	M1	1 Jan 1991	/00
Light omnibus	MD	M2		
up to 3.5 tonnes 'GVM' and up to 12 seats	MD1		1 July 1991	/00
up to 3.5 tonnes 'GVM' and more than 12 seats	MD2		1 July 1992	Nil
over 3.5 tonnes and up to 4.5 tonnes 'GVM'	MD3		Not Applicable	
over 4.5 tonnes and up to 5 tonnes 'GVM'	MD4		Not Applicable	
Heavy omnibus	ME	M3	Not Applicable	
Light goods vehicle	NA	N1	1 July 1991	/00
Medium goods vehicle	NB	N2		
over 3.5 tonnes up to 4.5 tonnes 'GVM'	NB1		1 July 1991	/00
over 4.5 tonnes up to 12 tonnes 'GVM'	NB2		Not Applicable	
Heavy goods vehicle	NC	N3	Not Applicable	
Very light trailer	TA	O1	Not Applicable	
Light trailer	TB	O2	Not Applicable	
Medium trailer	TC	O3	Not Applicable	
Heavy trailer	TD	O4	Not Applicable	

### 3.1. DEFINITIONS

3.1.0. Refer to Vehicle Standard (Australian Design Rule Definitions and Vehicle Categories) 2005.

### 3.2. REQUIREMENTS

3.2.0.1. Side-facing 'Seats' need not comply with the requirements of this Rule.

3.2.0.2. Any 'Head Restraint' proposed to be used shall be included in the 'Seat'.

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\* The category code may also be in the format L<sub>1</sub>, L<sub>A</sub> etc.

- 3.2.1. Each 'Seat' shall withstand the loads specified in Clauses 3.2.1.1; 3.2.1.2; and 3.2.1.3 and also meet the requirements in Clause 3.2.3.
- 3.2.1.1. The following loads shall be applied separately:
  - 3.2.1.1.1. Twenty times the weight of the entire 'Seat' in a 'Forward' longitudinal direction simultaneously with, if part or all of the 'Seat Belt Assembly' is directly attached to the 'Seat', the total load imposed on the 'Seat' by simultaneous application of loads required for seat-belt 'Anchorages' specified in ADR 5/... "Anchorages for Seat Belts and Child Restraints". When the 'Seat Belt Assembly' is attached to the 'Seat', the 'Seat' shall be located in the full 'Forward' and upward design position.
  - 3.2.1.1.1.1. An additional test, with the seat belt 'Anchorages' load applied, is required with the 'Seat' in the rearmost position to demonstrate compliance with the Australian Design Rule for "Anchorages for Seat Belts and Child Restraints".
  - 3.2.1.1.2. Twenty times the weight of the entire 'Seat' in a 'Forward' longitudinal direction simultaneously with, where the 'Child Restraint Anchorages' are located in or on the seat-back, or are located in the vehicle body structure more than 100 mm below a horizontal plane tangential to the point on the top of the seat-back longitudinally 'Forward' of the 'Child Restraint Anchorage', a total load of 3.4 kN for each, imposed on the 'Seat' by simultaneous application to each 'Anchorage' by a flexible connection which passes over the top of the seat-back to the 'Child Restraint Anchorage'. Each load shall be applied 'Forward' of the seat-back not more than 5° above or below the horizontal, and not more than 5° to left or right of the longitudinal axis of the vehicle.
- 3.2.1.2. A load equal to 20 times the weight of the entire 'Seat' shall be applied in a 'Rearward' longitudinal direction.
- 3.2.1.3. A load equal to a 370 N.m moment about the 'Seating Reference Point' for each occupant position for which the 'Seat' is designed shall be applied to the upper cross member in a 'Rearward' longitudinal direction, unless it is demonstrated that 'Seat' assemblies such as rear seat-backs are supported by a vehicle body member capable of withstanding the nominated load.
  - 3.2.1.3.1. Testing which meets the 370 N.m requirement by any one of the following 3 methods is acceptable:
    - 3.2.1.3.1.1. force applied horizontally;
    - 3.2.1.3.1.2. force applied normal to seat-back; or
    - 3.2.1.3.1.3. force applied longitudinally and 'Rearward' to the upper part of the seat-back frame through a component simulating the back of a 3-D manikin.
    - 3.2.1.3.1.4. If deflection of the seat-back causes the moment arm to change, the force should be adjusted to ensure that the moment value of 370 N.m is achieved.
- 3.2.2. The 'Seat Adjusters' need not be operable after the application of the loads specified in Clauses 3.2.1.1, 3.2.1.2 and 3.2.1.3.

### 3.2.3. **Restraining Device for Hinged ‘Seats’ or Seat-backs**

- 3.2.3.0. Except for a ‘Seat’ having a back that is adjustable only for the comfort of its occupants hinged ‘Seats’ or seat-backs shall be equipped with a self-locking device for restraining the hinged ‘Seat’ or seat-back and a release control for releasing that restraining device to preclude the possibility of impact forces acting on unrestrained hinged ‘Seats’ or seat-backs.
- 3.2.3.1. Where the ‘Seat’ must hinge to permit access to or egress from another seating position, the release control shall be readily accessible to the occupant of that ‘Seat’ and to the occupant of any ‘Seat’ immediately behind that ‘Seat’.
- 3.2.3.2. The restraining device (including the release control) shall be constructed to preclude inertial release when loaded longitudinally in each direction to 20 times the acceleration due to gravity.
- 3.2.3.3. The restraining device shall not release or fail when a ‘Forward’ longitudinal load equal to 20 times the mass of the entire seat-back is applied at the centre of gravity of the seat-back.
- 3.2.3.4. If non-self-locking auxiliary latches are provided they shall be unlatched during testing so that only the restraining device and hinges are taking the test loads.
- 3.2.3.5. Where ‘Seats’ are mounted on hinged covers, e.g. engine covers, and the ‘Seat’ assembly can withstand the test loads without tilting of the hinged cover and without any latches being latched, then the latches need not be self-locking.

## 3.3. **TEST PROCEDURE**

- 3.3.1. General
- 3.3.1.0. Static or dynamic testing techniques may be used.
- 3.3.1.1. The ‘Seat’ travel stops shall not take any part of the test load.
- 3.3.1.2. Hinged ‘Seats’, or ‘Seats’ with backs which are adjustable for passenger comfort only, shall be tested with the seat-back at the design ‘Seat Back Angle’.
- 3.3.2. Static Test Conditions
- 3.3.2.1. Static testing of ‘Seats’ shall be conducted in accordance with SAE document J879b "Motor Vehicle Seating Systems", July 1968 using the values specified in and the procedures applicable to this Rule.
- 3.3.2.2. Distributed loads may be replaced by concentrated loads at the loading centroid.
- 3.3.2.3. Specified loads shall be sustained for at least one second.
- 3.3.3. Dynamic Test Conditions
- 3.3.3.0. Dynamic testing shall be conducted at the vehicle ‘Manufacturer’s’ choice either to Clause 3.3.3.1 or 3.3.3.2.
- 3.3.3.1. Dynamic testing may be carried out in accordance with the dynamic test procedure of EEC Directive 74/408/EEC- "Strength of Seats and their

Anchorages" for front-facing '*Seats*' which are not '*Folding Seats*' - (i.e. auxiliary-seats intended for occasional use and normally folded) and which do not incorporate any built-in seat-belt '*Anchorages*'.

3.3.3.2. Alternatively, the following criteria shall be met:

3.3.3.2.1. The acceleration pulse applied shall be such that all the parts of the '*Seat*' and supporting structure which anchors it to the vehicle have at least an acceleration of 20 times the acceleration due to gravity simultaneously in the same direction; and

3.3.3.2.1.1. any additional forces due to the loading of seat-belt '*Anchorages*' or '*Child Restraint Anchorages*' shall be achieved simultaneously with the acceleration required in Clause 3.3.3.2.1 above.

3.3.3.3. Copies shall be kept of:

3.3.3.3.1. traces recorded for all acceleration and force measurements used during the test, with the scales shown thereon; and

3.3.3.3.2. photographs of the '*Seat*' and supporting structure (including restraining devices and release controls where fitted) before and after each dynamic test.

### **3.4. ALTERNATIVE STANDARDS**

The technical requirements of ECE R 17/02 or 17/03 "Seats and their Anchorages" together with, where applicable, the technical requirements of either Clause 3.2.1.1.1 or ECE R 14/02 "Safety Belt Anchorages" and of Clause 3.2.1.1.2 shall be deemed to be equivalent to the technical requirements of this Rule for front-facing '*Seats*' which are not '*Folding Seats*' - (i.e. auxiliary-seats intended for occasional use and normally folded).