



COMMONWEALTH OF AUSTRALIA

AUSTRALIAN DESIGN RULE 5A
FOR
SEAT BELT ANCHORAGE POINTS

As Endorsed by the
Australian Transport Advisory Council

The intention of this Australian Design Rule is to define standards for seat belt anchorage points so that seat belt assemblies may be firmly secured to the vehicle.

The Australian Transport Advisory Council has recommended to Commonwealth, State and Territory Governments that all motor vehicles specified below, shall be equipped with seat belt anchorage points complying with Australian Design Rule 5A - Seat Belt Anchorage Points.

VEHICLE CATEGORY	RULE		AMENDMENT
	MANUFACTURED ON OR AFTER		
	5A		
	Front Seat	Rear Seats	
Passenger Cars			
Forward Control Passenger Vehicles up to 8 seats	N/A	N/A	
9 seats	N/A	N/A	
Other Passenger Cars	1 Jan 1969	1 Jan 1971	
Passenger Car Derivatives	1 Jan 1969	1 Jan 1971	
Multi-Purpose Passenger Cars	1 Jan 1971	1 Jan 1971	
Omnibuses up to 3.5 tonnes GVM			
up to 12 seats	N/A	N/A	
over 12 seats	N/A	N/A	
up to 4.5 tonnes GVM	N/A	N/A	
over 4.5 tonnes GVM	N/A	N/A	
Motorcycles	N/A	N/A	
Mopeds	N/A	N/A	
Specially Constructed Vehicles	N/A	N/A	
Other Vehicles not listed above			
up to 4.5 tonnes GVM	1 Jan 1971	1 Jan 1971	
over 4.5 tonnes GVM	N/A	N/A	

N/A - Not Applicable
GROSS VEHICLE MASS - Abbreviated to 'GVM'

The Australian Transport Advisory Council has also recommended to Commonwealth, State and Territory Governments that motor vehicles which comply with the requirements of ADR 5B - Seat Belt Anchorages need not comply with the requirements of ADR 5A.

Issued By: Department of Transport
PO Box 594
CIVIC SQUARE ACT 2608
AUSTRALIA

Issued: February 1984

AUSTRALIAN DESIGN RULE NO. 5A - SEAT BELT ANCHORAGE POINTS

5.1 Definitions - For the purpose of this specification the following definitions shall apply:

5.1.1 Anchorage Point - A part of a vehicle designed to secure a seat belt anchor fitting to the vehicle.

5.1.2 Anchor Fitting - The part or parts of the seat belt designed to be attached to the anchor point or points provided in a vehicle.

5.1.3 Seat Belt Assembly - An arrangement of straps, anchor fittings, securing buckle and adjusting devices capable of being anchored to a motor vehicle and designed to lessen the risk of injury to the wearer in the event of collision. Devices for absorbing energy or for retracting the belt may be included in the assembly.

5.1.4 Floor - The lower part of the vehicle body work which may include door sills and the lower part of the door pillar.

5.2 Number of Seating Positions

5.2.1 Where individual seats are provided the number of seating positions shall equal the number of seats. In the case of bench seats however, the number of seating positions shall be the number of complete multiples of 16 inches measured on the transverse line through the seating reference point and extending between the internal side walls. However it shall not be necessary to provide for more than three seating positions for any bench seat.

5.3 Number of Anchorage Points

5.3.1 Multiple Anchorage Points - Any anchorage point may be used to secure the anchor fittings of any two adjacent seat belt assemblies.

5.3.2 Floor Anchorage Points - For each individual seating position two floor anchorage points shall be available.

5.3.3 Anchorage Points for Upper Torso Restraint - For at least each individual outboard seating position, a third anchorage point (hereafter called a side anchorage point) shall be provided in the vehicle in addition to the two floor anchorage points already specified.

5.3.4 Retractor Anchorage Points - When provision is to be made for a seat belt assembly designed so that the anchor fitting for the side anchorage point merely changes the direction of the belt then a further anchorage point shall be provided to secure the end fitting of the seat belt assembly.

5.4 Reference Point

5.4.1 The positions of the floor and side anchorage points are specified in relation to the seating reference point determined by the use of the 90th percentile three dimensional manikin specified in the Society of Automotive Engineers Standard J826 - Manikins for Use in Defining Vehicle Seating Accommodation, November 1962.

5.5 Location of Anchorage Points

5.5.1 Floor Anchorage Points - The following requirements shall be met for floor anchorage points:

5.5.1.1 Each floor anchorage point shall be so located that a line, through the seating reference point, in a vertical plane parallel with the longitudinal axis of the vehicle, and which intersects the horizontal transverse line through the anchorage point, shall be inclined to the horizontal at an angle within the range 15-90 degrees for all normal driving positions of the seat.

5.5.1.2 The transverse distance between anchor points shall be not less than 12 inches for outboard seating positions and not less than 6.5 inches for inboard seating positions except that where the structural layout of the vehicle requires a lesser dimension, it shall be permissible to provide a device which will ensure that the belt spacing of the device is not less than 12.0 inches. Where such a device is provided on an assembly, the device shall be fitted while carrying out the tests specified in Clause 5.9.

5.5.1.3 Anchorage points may be located in different horizontal and transverse planes.

5.5.2 Side Anchorage Points

The following requirements shall be met with the seat in its rearmost and lowest position.

5.5.2.1 Side anchorage points shall be so located that they are at least 4 inches rearward of a vertical transverse plane through the seating reference point and between horizontal planes located 15.75 and 28 inches respectively above the seating reference point.

O R

Side anchorage points shall be so located that they lie between two planes which intersect on a transverse line located 21.75 inches above and 4.75 inches rearward of the seating reference point and which extend rearwards from this line at inclinations of 40 degrees above and below the horizontal respectively.

5.6 Protection of Webbing

5.6.1 The anchorage points shall be located so that with the seat belts correctly installed, abrasion or cutting of the seat belt webbing is not likely to occur due to any part of the vehicle or seat structure during testing, normal use or in an accident.

5.7 General Design

5.7.1 The fitting at the anchorage point shall be so designed that seat belts may be readily replaced.

5.7.2 All anchorages and their interfaces shall be protected against corrosion with a zinc-rich primer or other method proved to be at least as effective.

5.8 Condition for Testing of Anchorage Point

5.8.1 Except where the vehicle is fitted with door latches and hinges complying with Australian Design Rule No. 2 - Door latches and Hinges, load tests shall be carried out with the vehicle doors open or removed.

5.8.2 The appropriate seats shall be installed for the tests and located in the rearmost position. Seats may be removed if the angle of the test load is more than 40 degrees. Seat backs may be removed provided the line of pull does not interfere with the seat back.

5.9 Testing Anchorage Points - The following tests shall be carried out on the same or different body shells. In all cases the test fitting used to load the anchorage point shall be representative of the seat belt anchorage fitting. If the vehicle is designed with retractor anchorage points then any test on a side anchorage point shall include the retractor anchorage point.

5.9.1 Floor Anchorages - Each pair of anchorage points for each seating position shall be tested simultaneously using attachments representative of each seat belt assembly provided. The attachments shall pass around appropriate body blocks to which test loads not less than 5,000 pounds force shall be applied in a forward direction each at an angle of between 5 and 50 degrees above the horizontal in a vertical plane parallel with the longitudinal axis of the vehicle. The test loads shall be applied over a period of not less than 0.5 seconds and sustained for a period of at least 1 second.

5.9.2 Side Anchorages - Each pair comprising a side anchorage point and the appropriate inboard floor anchorage point shall be tested simultaneously using attachments representative of each seat belt assembly provided. The attachment shall pass around appropriate body blocks to which test loads of not less than 4,000 pounds force shall be applied in a forward direction each at an angle between 0 and 20 degrees above the horizontal in a vertical plane parallel with the longitudinal axis of the vehicle. The point of loading of the body block shall be as near as practicable to the mean height of the anchorages. The test loads shall be applied over a period of not less than 0.5 seconds and sustained for a period of at least 1 second.

5.9.3 Alternative Testing for Two Seating Positions - When two seating positions, as determined by Clause 5.2.1, are provided, the tests required in Clauses 5.9.1 and 5.9.2 may be replaced by a simultaneous test of one pair of floor anchorage points and a pair comprising the side anchorage point and the appropriate inboard floor anchorage point of the other seating position. The necessary loads, angles of pull and period of loading shall be the same as in Clauses 5.9.1 and 5.9.2.

5.9.4 Alternative Testing for Three Seating Positions - Where three seating positions, as determined by Clause 5.2.1, are provided, the tests required in Clauses 5.9.1 and 5.9.2 may be replaced by the simultaneous testing on one pair consisting of a side anchorage point and its appropriate inboard anchorage points and the pairs of floor anchorage points for the other two seating positions except that if provision is made for upper torso restraint for the centre seating position an additional test, using the same or another body shell, shall be carried out on the pair consisting of the side anchorage point of the centre seating position and its appropriate floor anchorage point. The necessary loads, angles of pull and period of loading shall be the same as in Clauses 5.9.1 and 5.9.2.

5.10 Compliance

5.10.1 Seat belt anchorage points will comply with this Design Rule if they sustain the test loads for the required time. Permanent deformation of any anchorage point or its surrounding area shall not constitute a failure. Failure of a spacing device, if fitted, shall not be accepted.