Vehicle Standard (Australian Design Rule 34/00 – Child Restraint Anchorage and Child Restraint Anchor Fittings) 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 3 September 2006

[SIGNED]

James Eric Lloyd

Minister for Local Government, Territories and Roads

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34.0. LEGISLATIVE PROVISIONS

34.0.1. NAME OF STANDARD

34.0.1.1. This Standard is the Vehicle Standard (Australian Design Rule 34/00 – Child Restraint Anchorage and Child Restraint Anchor Fittings) 2006.

34.0.1.2. This Standard may also be cited as Australian Design Rule 34/00 — Child Restraint Anchorage and Child Restraint Anchor Fittings.

34.0.2. COMMENCEMENT

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

34.0.3. REPEAL

34.0.3.1. This Standard repeals each vehicle standard with the name Australian Design Rule 34/00 — Child Restraint Anchorage and Child Restraint Anchor Fittings that is:

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

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

34.0.3.2. 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 34/00 — Child Restraint Anchorage and Child Restraint Anchor Fittings, 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.

A. FUNCTION AND SCOPE

The function of this Australian Design Rule is to specify requirements for *'Child Restraint Anchorages'* and *'Child Restraint Anchor Fittings'* to provide for the connection of standard *'Attaching Clips'* so that *'Child Restraints'* may be adequately secured to the vehicle.

B. APPLICABILITY

B.1 This ADR applies to the design and construction of vehicles as set out in the table below.

B.3 This ADR replaced the *'Child Restraint Anchorage'* requirements in Section 5.11 of ADR 5/02. It aligns the requirements for *'Child Restraint Anchor Fittings', 'Attaching Clip'* and their respective mating surfaces with those in the revised Australian Standard AS 1754 - 1991.

B.3 # For MD3, MD4, and ME vehicles the circumstances under which *'Child Restraint Anchorages'* are mandatory are set out in ADR 68/.. .

C. APPLICABILITY TABLE

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		1 Jan 1993	Nil
	LEG		Not Applicable	
Passenger car	MA	M1	1 Jan 1993	Nil
Forward-control passenger vehicle	MB	M1	1 Jan 1993	Nil
Off-road passenger vehicle	MC	M1	1 Jan 1993	Nil
Light omnibus	MD	M2		
up to 3.5 tonnes *'GVM'* and up to 12 seats	MD1		1 July 1993	Nil
up to 3.5 tonnes *'GVM'* and more than 12 seats	MD2		Not Applicable	
over 3.5 tonnes and up to 4.5 tonnes *'GVM'*	MD3		1 July 1995 #	Nil
over 4.5 tonnes and up to 5 tonnes *'GVM'*	MD4		1 July 1995 #	Nil
Heavy omnibus	ME	M3	1 July 1994 #	Nil
Light goods vehicle	NA	N1	Not Applicable	
Medium goods vehicle	NB	N2		
over 3.5 tonnes up to 4.5 tonnes *'GVM'*	NB1		Not Applicable	
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	

* The category code may also be in the format L_1, L_A etc.

34.1. DEFINITIONS

34.1.1. Not used.

34.1.2. '*Attaching Clip*' - the device shown in Figure 1 which is part of the *'Child Restraint'*, and is designed to be attached to the '*Child Restraint Anchor Fitting*'.

34.1.3. *'Attachment Bolt'* - a standard 5/16 inch 18 UNC-2A hexagon headed bolt 30 mm in length. The length is to be measured from the underside of the head to the end of the threaded shank.

34.1.4. '*Child Restraint*' - a device to restrain a child passenger of a motor vehicle in the event of a vehicle impact and thus minimize the risk of bodily injury.

34.1.5. '*Child Restraint Anchor Fitting*' - the fitting which allows the attachment of the *'Attaching Clip'* to the vehicle, usually attached to the '*Child Restraint Anchorage*' using components in the '*Child Restraint Anchor Fitting Package'*. Details of the profile within which the '*Child Restraint Anchor Fitting*' must be contained are shown in Figure 2.

34.1.6. '*Child Restraint Anchor Fitting Package'* - a standard package of components to enable the installation of the *'Child Restraint Anchor Fitting'* onto the *'Child Restraint Anchorage'*. The package consists of:

one *'Attachment Bolt'*

one *'Child Restraint Anchor Fitting'*

one *'Lock Washer'* of 2.21 mm thickness max. one 'Spacer' of 5 mm thickness

one *'Spacer'* of 10 mm thickness

34.1.7. '*Design Line of Action'* - The centre line of the '*Child Restraint' 'Upper Anchorage Strap*', in side elevation and with '*Seat'* installed, from the '*Shoulder Reference Point'* to the '*Child Restraint Anchor Fitting' 'Interface Profile'*.

34.1.8. '*Interface Profile'* - interface of the '*Attaching Clip'* and '*Child Restraint Anchor Fitting'* shown in Figure 1 and Figure 2 respectively to ensure correct fitment.

34.1.9. '*Lock Washer'* - A Helical Spring Lock Washer of nominal size 8 mm as set out in Table 1 Clause 4.2 Washer Section in Australian Standard AS 1968-1976 "Helical Spring Lock Washers - Metric".

34.1.10. '*Manikin'* - the 2-dimensional manikin as specified in SAE Standard J826 APR80 - "Devices for Use in Defining and Measuring Vehicle Seating Accommodation".

34.1.11. '*Shoulder Reference Point'* - the point on the 2-dimensional '*Manikin'* where the '*Torso Line'* meets the shoulder.

34.1.12. '*Spacer*' - an annular block used to vary the position of the '*Child Restraint Anchor Fitting(s)*' shown in Figure 4 and 5.

34.1.13. '*Vehicle Rear Seat*' - any front-facing '*Seat*' which is to the rear of the seating positions of the driver or the front passenger(s).

34.1.14. *'Upper Anchorage Strap'* - the flexible component designed to restrain the top portion of the *'Child Restraint'*.

34.2. GENERAL REQUIREMENTS

34.2.1. Every vehicle shall provide the facility to attach an '*Attaching Clip*' to a '*Child Restraint Anchor Fitting'* for each seating position nominated in clause 34.3 by either :

34.2.1.1. using the '*Child Restraint Anchor Fitting Package'* ; or

34.2.1.2. using a '*Child Restraint Anchor Fitting'* and appropriate attaching hardware other than in the '*Child Restraint Anchor Fitting Package'*, in which case:

34.2.1.2.1. a 5/16 inch 18 UNC-2A hexagon headed bolt and appropriate *'Spacer'* shall be supplied for each different variation from the '*Attachment Bolt'* length and shall be placed in the vehicle's glovebox; or

34.2.1.3. a '*Child Restraint Anchor Fitting'* shall be installed for each nominated seating position, in which case:

34.2.1.3.1. the '*Child Restraint Anchor Fitting'* need only comply with Figure 2 in relation to the location and clearance of the '*Child Restraint Anchor Fitting'* '*Interface Profile'*.

34.2.2. Information including either a photograph or a diagram regarding the location of each '*Child Restraint Anchorage*' (if fitted), installation of *'Child Restraint Anchor Fittings'* (if applicable), and installation of *'Child Restraint' 'Attaching Clips'* shall be specified in the vehicle handbook or otherwise supplied with the vehicle. The information shall include:

34.2.2.1. WARNING: child restraint anchorages are designed to withstand only those loads imposed by correctly fitted child restraints. Under no circumstances are they to be used for adult seat belts, harnesses or for attaching other items or equipment to the vehicle."

34.2.2.2. details on the thickness (and number) of *'Spacers'* required at each *'Child Restraint Anchorage'* (as applicable), location and correct method of installation and orientation of *'Child Restraint Anchor Fitting(s)'* (as applicable), and method of attachment and orientation of *'Attaching Clip(s)'*. Orientation shall be shown relative to the front of the vehicle.

34.2.2.3. Details of the dedicated anchor fitting package in accordance with clause 34.2.1.2.1 and its location in the vehicle.

34.2.3. The '*Child Restraint Anchor Fitting*' shall be designed to avoid the possibility of inadvertent disengagement from a typical *'Attaching Clip*' (see Figures 1 and 5) when the '*Child Restraint Anchor Fitting*' is mounted as shown in Figure 5.

34.2.3.1. To test for this requirement bolt the *'Child Restraint Anchor Fitting'* to a flat, steel surface as in Figure 5, but without any spacers and with the *'Attaching Clip*' fully engaged into the anchor fitting. The '*Attaching*

Clip' shall not be capable of being disengaged from the *'Child Restraint Anchor Fitting'* without deliberate action by depressing the retention device on the *'Attaching Clip'* with the fingers.

34.2.3.2. To determine compliance with this requirement the following referenced *'Attaching Clips'* shall be used:

(1) a 10025 attaching clip manufactured by Nexus USA (Fastex Australia);

(2) 14585 clip, manufactured by Indiana Mills Manufacturing Inc. USA; and

(3) an FO 8954, attaching clip, manufactured by Indiana Mills Manufacturing Inc. USA.

34.2.4. The *'Child Restraint Anchor Fitting'* must be designed so that the *'Attaching Clip'* described in clause 34.2.3.2 shall be capable of engaging the *'Child Restraint Anchor Fitting' 'Interface Profile'* with the main body of the *'Attaching Clip'* aligned with the longitudinal centreline of the *'Child Restraint Anchor Fitting'* and parallel to the *'Child Restraint Anchor Fitting'* mounting surface.

34.3. NOMINATED SEATING POSITIONS

34.3.1. For LEP and MA vehicles:

34.3.1.1. Each seating position in the *'Second Row Seats'* equipped with an adult *'Seatbelt Assembly*', except for *'Folding Seats'* where a *'Child Restraint'* would bar access to the rear *'Seats'* and the middle seating position where the *'Seat'* back is divided into two or more sections which may be folded independently of each other, and the division between two sections lies substantially along the '*Seating Reference Plane*' of the middle seating position.

34.3.1.2. *'Child Restraint Anchorages'* or *'Child Restraint Anchor Fitting(s)'* may be installed in front seating positions other than the driver's *'Seat*'.

34.3.2. For MB, MC and MD1 vehicles:

34.3.2.1. For vehicles with less than three seating positions in '*Vehicle Rear Seat(s)*' each seating position in '*Vehicle Rear Seat(s)*' equipped with an adult '*Seatbelt Assembly*'.

34.3.2.2. For vehicles with three or more seating positions in '*Vehicle Rear Seat(s)*' any three seating positions in '*Vehicle Rear Seat(s)*' equipped with an adult '*Seatbelt Assembly*' except for *'Folding Seats'* where a *'Child Restraint'* would bar access to the rear *'Seats'* and except the middle seating position where the *'Seat'* back is divided into two or more sections which may be folded independently of each other, and the division between two sections lies substantially along the '*Seating Reference Plane*' of the middle seating position.

34.3.2.3. *'Child Restraint Anchorages'* or *'Child Restraint Anchor Fitting(s)'* may be installed in front seating positions other than the driver's *'Seat*'.

34.4. *'CHILD RESTRAINT ANCHORAGES'*

34.4.1. Each '*Child Restraint Anchorage*' provided in accordance with clauses 34.2.1.1 or 34.2.1.2 shall

34.4.1.1. provide clearance to enable the installation of the *'Child Restraint Anchor Fitting', 'Spacer(s)'* and attaching hardware. For guidance to vehicle manufacturers the clearance parameters shown in Figure 7 are sufficient to demonstrate compliance with this clause;

34.4.1.2. incorporate a 5/16 inch - 18 UNC - 2B internal thread which will provide sufficient engagement of the *'Attachment Bolt'* to meet the strength requirements of clause 34.7 when the *'Attachment Bolt'* is retaining a *'Child Restraint Anchor Fitting'* , '*Spacer(s)'* , attaching hardware and any trim or other material present;

34.4.1.3. be so designed and located that no items need to be removed to gain access to it for the installation of the *'Child Restraint Anchor Fitting'*, except closure plugs, or other items, removable with the use of simple hand tools.

34.5. LOCATION REQUIREMENTS

34.5.1. Each *'Child Restraint Anchorage'* and '*Child Restraint Anchor Fitting*' shall be located within the vehicle in a part of the body structure which would not normally be movable, or if movable would not cause any *'Upper Anchorage Strap'* to be stretched when moved.

34.5.2. In the vertical plane, the entire *'Interface Profile'* of each *'Child Restraint Anchor Fitting'* shall be located within the shaded area shown in Figure 6 with :

34.5.2.1. the *'Manikin'* to be positioned in the *'Seating Reference Plane'* when the *'Seat'* and the *'Seat'* back are in the design position;

34.5.2.2. the '*Manikin's'* 'H Point' at the '*Seating Reference Point'*; and

34.5.2.3. the *'Manikin's' 'Torso Reference Line'* at the same angle from the vertical as the '*Seat'* back.

34.5.3. In the horizontal plane, the centreline of the '*Interface Profile'* of each *'Child Restraint Anchor Fitting'* shall lie within 40 mm of the *'Seating Reference Plane*' of the seating position for which the '*Child Restraint Anchor Fitting*' is provided.

34.6. ACCESSIBILITY TO ENGAGE *'ATTACHING CLIP'*

34.6.1. Clearance shall be provided around each '*Child Restraint Anchor Fitting*' to allow latching and unlatching, without the use of tools, of the '*Attaching Clip*' to the '*Child Restraint Anchor Fitting*' when it is installed in the vehicle.

34.6.2. For guidance to vehicle manufacturers the clearance parameters shown in Figure 8 are sufficient to demonstrate compliance with this clause.

34.7. STRENGTH OF *'CHILD RESTRAINT ANCHORAGE(S)'*

34.7.1. For each '*Child Restraint Anchorage*', static or dynamic testing shall be conducted at the vehicle '*Manufacturer's*' choice either to clause 34.7.2 or clause 34.7.3 as applicable - using *'Child Restraint Anchor Fitting(s)'* provided in accordance with clause 34.2.

34.7.1.1. The static test load of 3.4 kN (clause 34.7.2) relates to the upper tether strap load of 7 kN in the dynamic test specified in Australian Standard AS 3629.3-1991 "Methods of Testing Child Restraints Part 3 Dynamic Testing of Upper Anchorage Components".

34.7.2. Static Testing - All '*Child Restraint Anchor Fittings*' shall be tested simultaneously when installed in the vehicle, and with the '*Seat*' or '*Seat'* back installed, by application of a test load of not less than 3.4 kN to each '*Child Restraint Anchor Fitting*'.

34.7.2.1. The direction of the test load shall be within 20° of the '*Design Line of Action*' of the '*Child Restraint Anchor Fitting*' and not more than 5° to the left or right of the direction of the longitudinal axis of the vehicle.

34.7.2.2. Where the '*Design Line of Action*' is determined by the '*Seat*' or '*Seat'* back, and the '*Child Restraint Anchor Fitting*' is located 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 Anchor Fitting*' then, with the '*Seat*' or '*Seat'* back installed, the load shall be applied '*Forward*' of the '*Seat'* back and not more than 5° above or below the horizontal and not more than 5° to the left or right of the direction of the longitudinal axis of the vehicle.

34.7.2.3. Each '*Child Restraint Anchorage'* and '*Child Restraint Anchor Fitting*' shall be capable of supporting the test load for a period of not less than one second.

34.7.3. Dynamic Testing - All '*Child Restraint Anchor Fittings*' shall be tested simultaneously when installed in the test vehicle body, including the complete '*Rear Seat*' assembly or '*Vehicle Rear Seat'* assembly and with test dummies restrained in each seating position for which a *'Child Restraint Anchor Fitting*' is provided.

34.7.3.1. The test dummies shall each have a mass of not less than 21.4 kg or shall comply with the requirements described in technical drawings produced by the TNO (Research Institute for Road Vehicles) - Netherlands [#] for a *'50th Percentile 6 Year Old Child*'.

34.7.3.2. The test dummies shall be restrained using suitable '*Child Restraints*' comprising of load bearing material having an elongation of not more than 25% when subjected to a load of 11 kN, and providing for pelvic and upper torso restraint. Each pelvic restraint portion shall be attached to the '*Lap Anchorages*' for the adult *'Seatbelt Assembly'* for the relevant '*Seat*'. The upper torso restraint portion shall be attached to the '*Child Restraint Anchor Fitting*'.

[#] TNO address: Schoemaker Straat, 97; 2628 VK Delft, Netherlands.

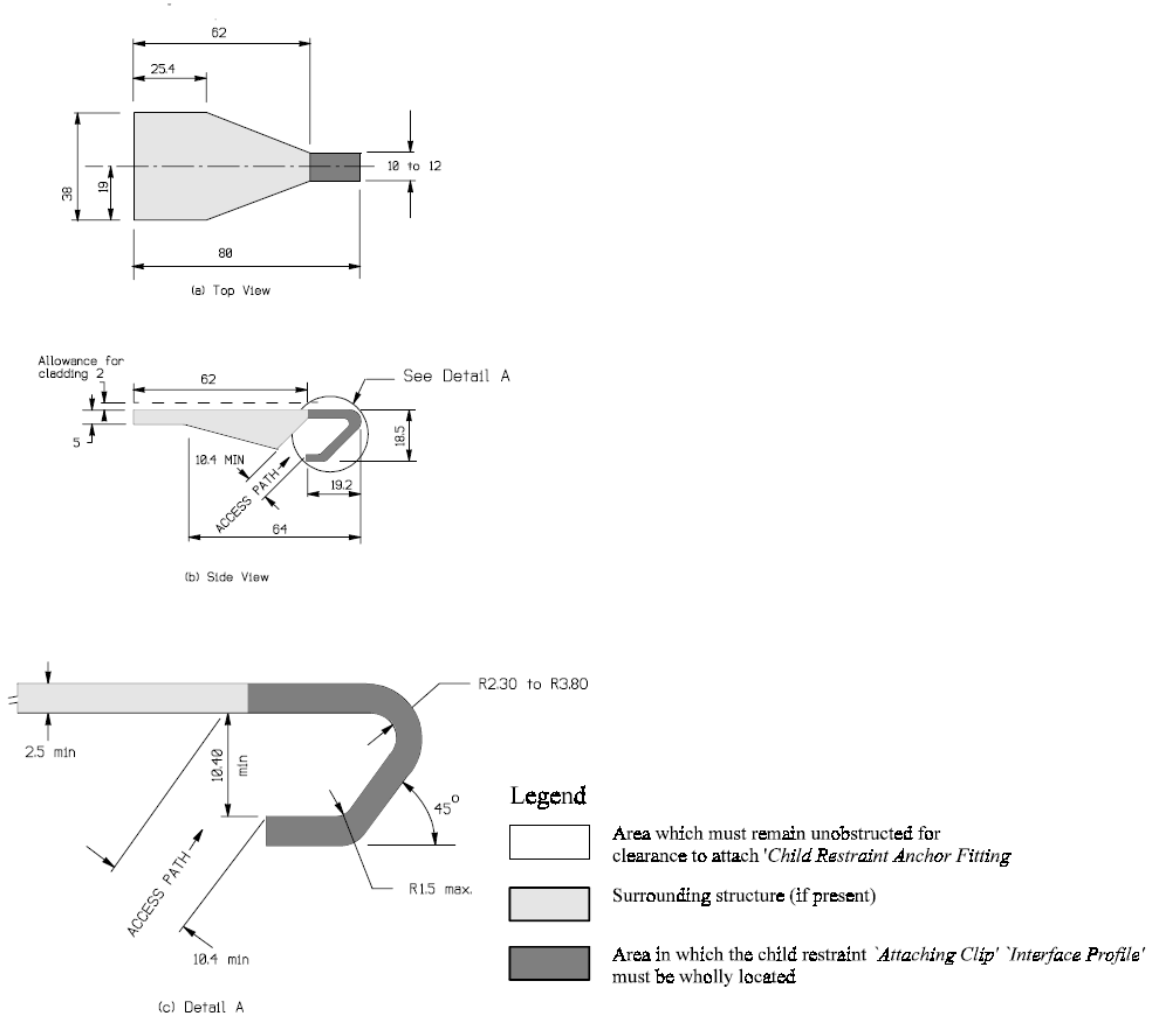
34.7.3.3. The pelvic and upper torso portions of the '*Child Restraints*' shall be adjusted to eliminate slack.

34.7.3.4. The test rig shall have a mass of not less than 380 kg and shall meet the requirements of clause 34.7.3.5 for test rig calibration. It shall comprise a trolley, the test vehicle body or part thereof, and the complete '*Vehicle Rear Seat*' assembly.

34.7.3.5. In the case of calibration prior to *'Child Restraint Anchor Fitting'* testing, the test rig, to which a mass of not less than 21.4 kg times the number of seating positions for which a '*Child Restraint Anchor Fitting*' is provided is rigidly attached, when subject to a velocity change of not less than 49 km/h, shall achieve within 30 milliseconds a forward deceleration measured in the vicinity of the corresponding '*Lap Anchorage*' within the range of 235 m/s2 to 335 m/s2 and shall maintain this deceleration, except for periods of less than one millisecond, for not less than 20 milliseconds.

34.7.3.6. For '*Child Restraint Anchor Fitting*' testing, the test rig shall be operated in a manner identical in all operational aspects to that specified in clause 34.7.3.5 for rig calibration except that in this case the test dummies replace the inert mass. The test dummies shall be restrained in accordance with the requirements of clause 34.7.3.2.

34.7.3.7. Each *'Child Restraint Anchorage'* and *'Child Restraint Anchor Fittings'* shall withstand the loads imposed when tested in accordance with the dynamic test requirements of clause 34.7.3.6.

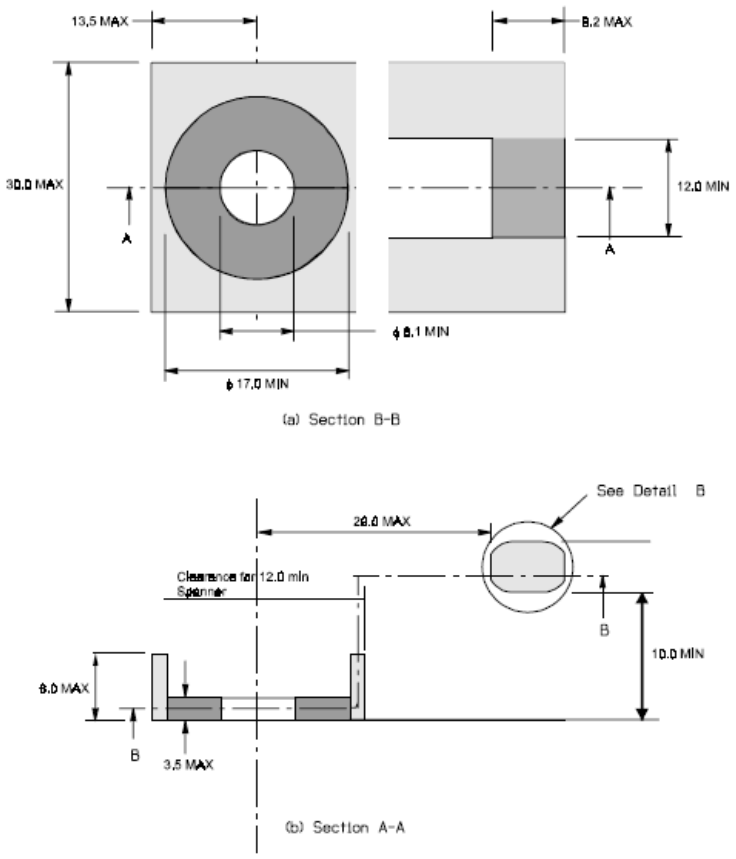


NOTES:

1. Retention device as shown in figure 5 does not need to remain within shaded area, however it must not extend more than 2.00 mm outside shaded area.

2. Retention devices may obstruct the access path provided they are readily movable in the process of latching

Figure 1: *'Attaching Clip'* profile



Legend

Surrounding structure (if present)

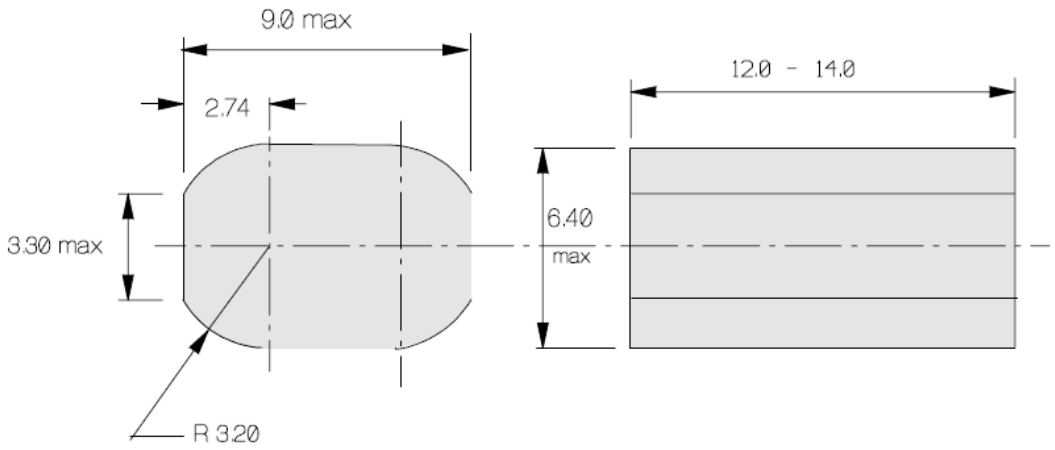
Area in which the *'Child Restraint Anchor Fitting'* 'Interface Profile' must be wholly located.

Area in which the mounting face must be wholly located

Dimensions in millimetres (not to scale)

Dimensions in millimetres (not to scale)

Figure 2: *'Child Restraint Anchor Fitting'* Profile



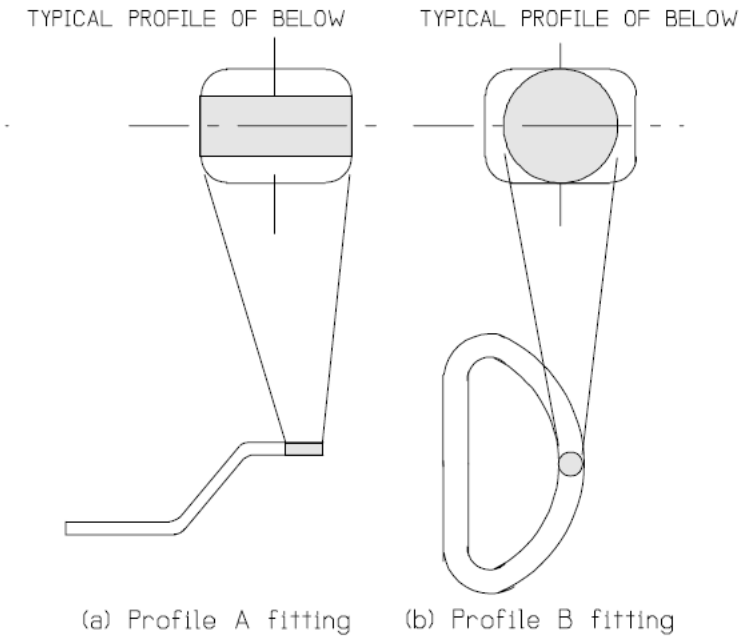
(c) Detail B

Note:

1. Profile may be round, oblong, or a combination of both providing it remains within the shaded areas shown.

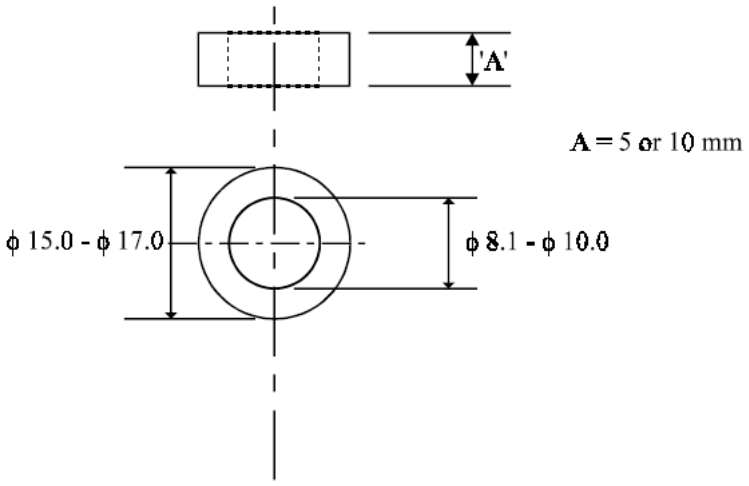
2. Detail B can be rotated about its longitudinal axis.

Figure 2 (c): Anchor Fitting *'Interface Profile'*



Dimensions in millimetres (not to scale)

Figure 3: Typical Anchor Fitting *'Interface Profiles'*



Dimensions in millimetres (not to scale)

Figure 4: 'Spacer'

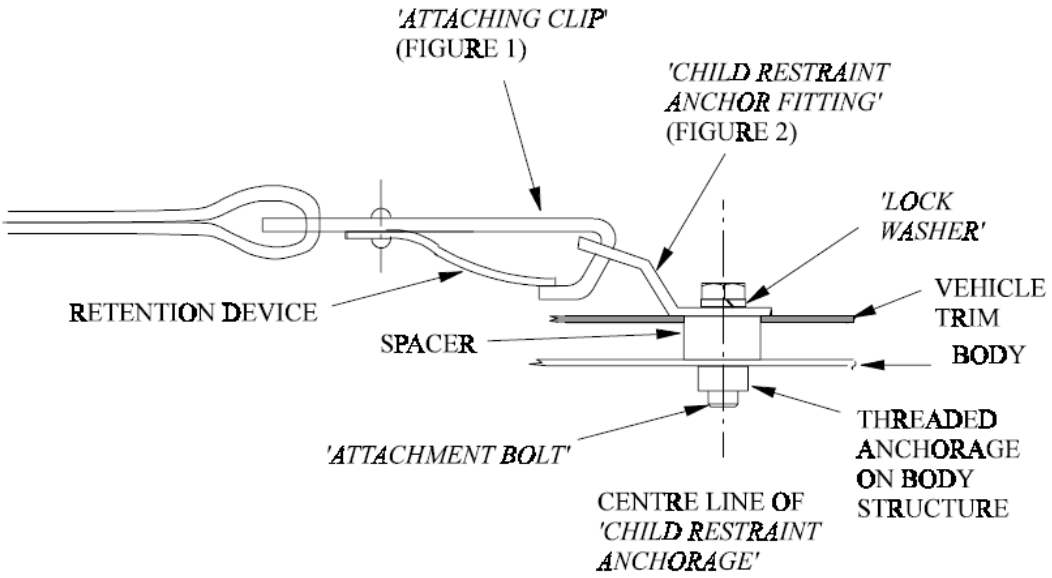
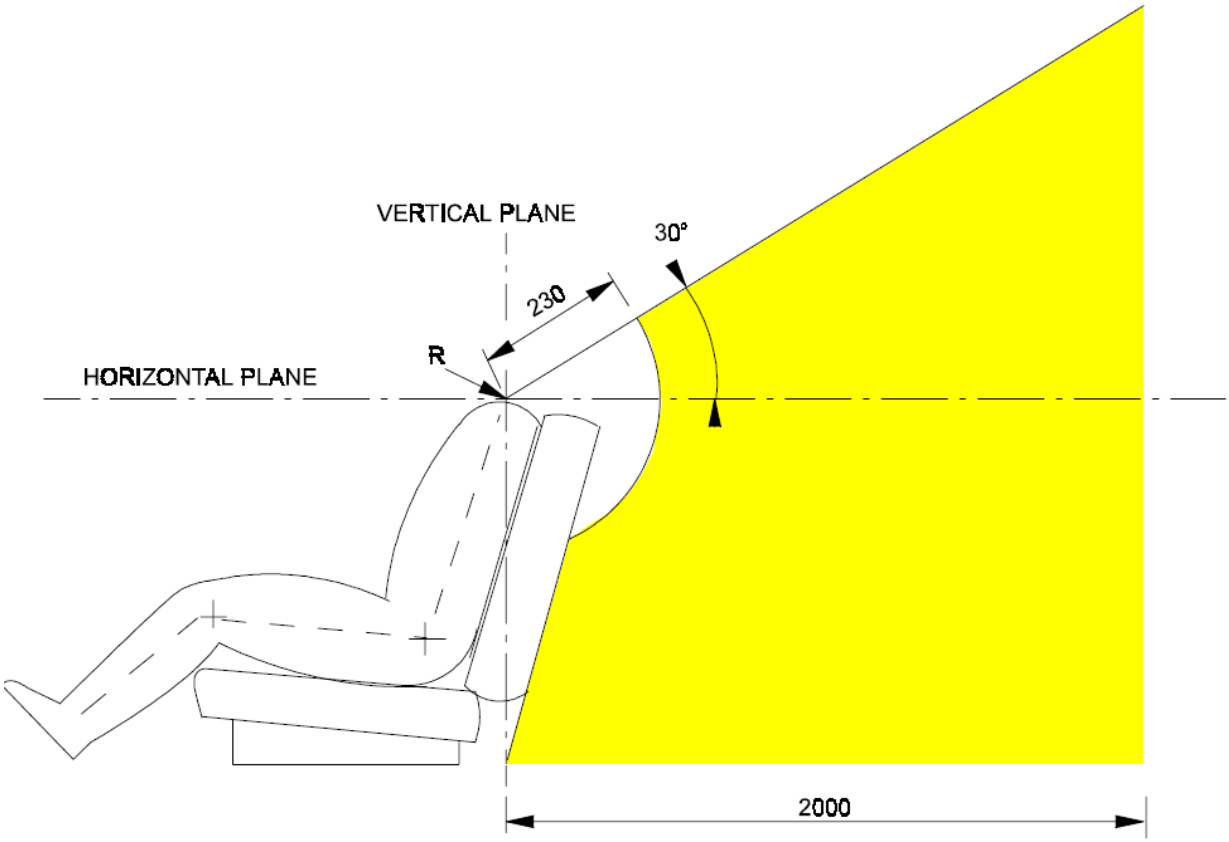


Figure 5: A Typical '*Child Restraint Anchorage*' Assembly In The Vehicle



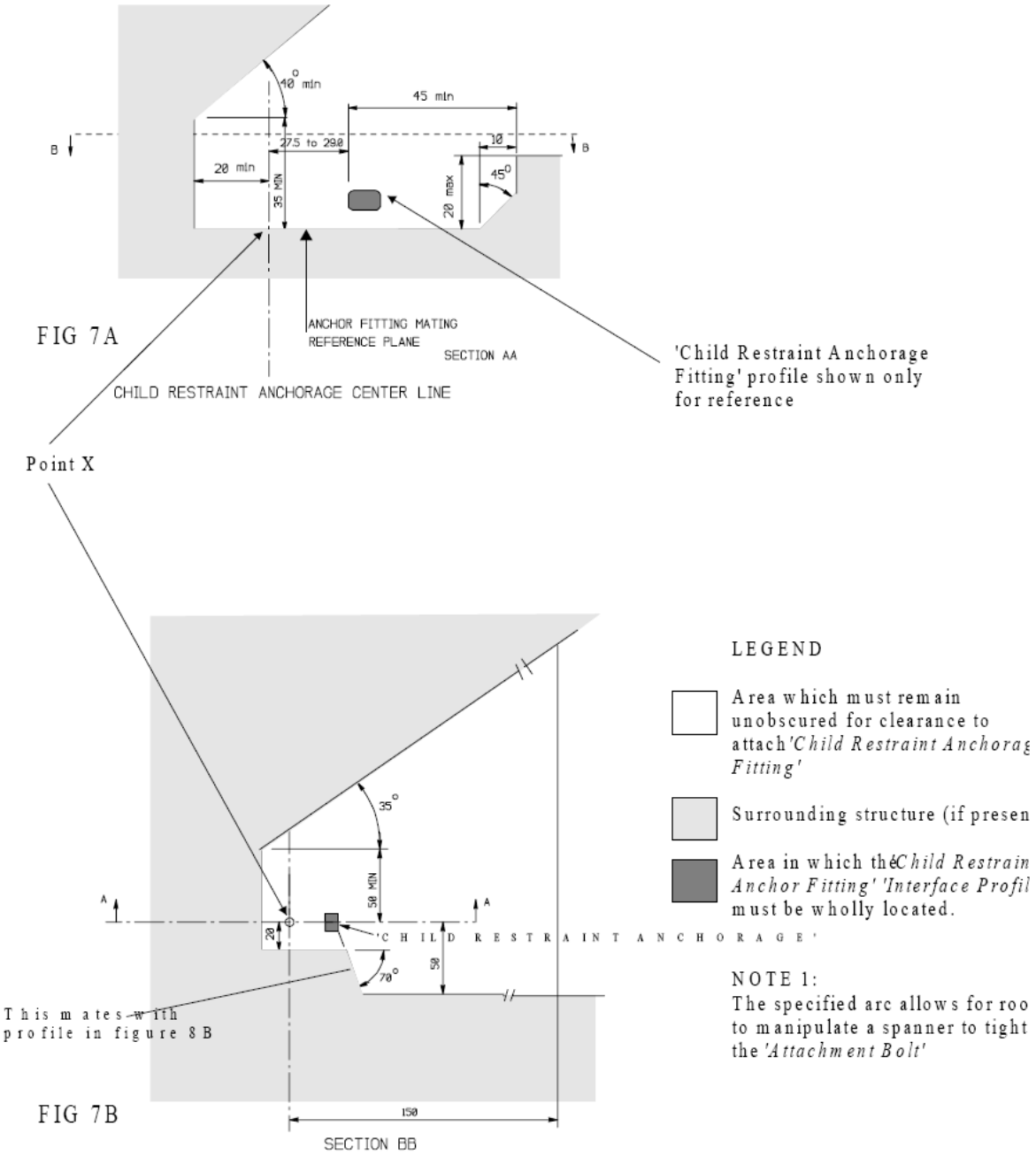
R = *'SHOULDER REFERENCE POINT'*

Dimensions in millimetres (not to scale)

NOTE:

'*Child Restraint Anchor Fitting'* profile to be located within shaded area

Figure 6: Side View - *'Child Restraint Anchor Fitting' 'Interface Profile'* Location



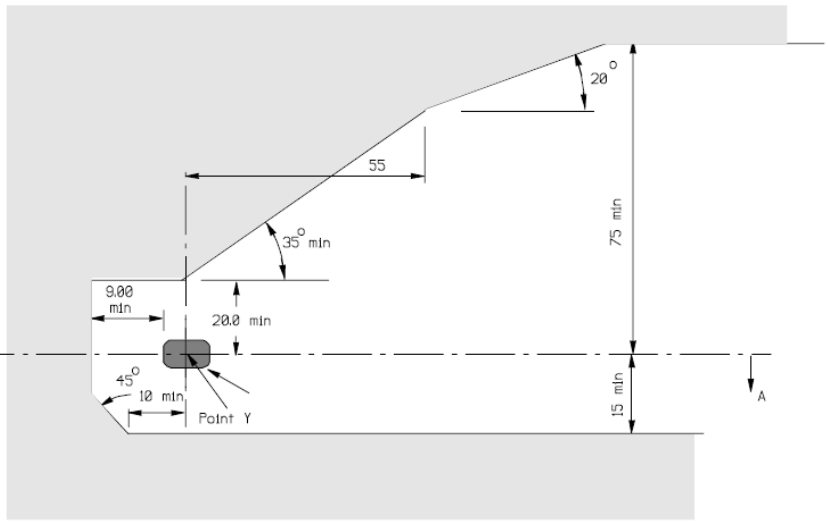
Note 2:

Each view can be rotated about an axis passing through point X and perpendicular to the page.

Dimensions in millimetres (not to scale)

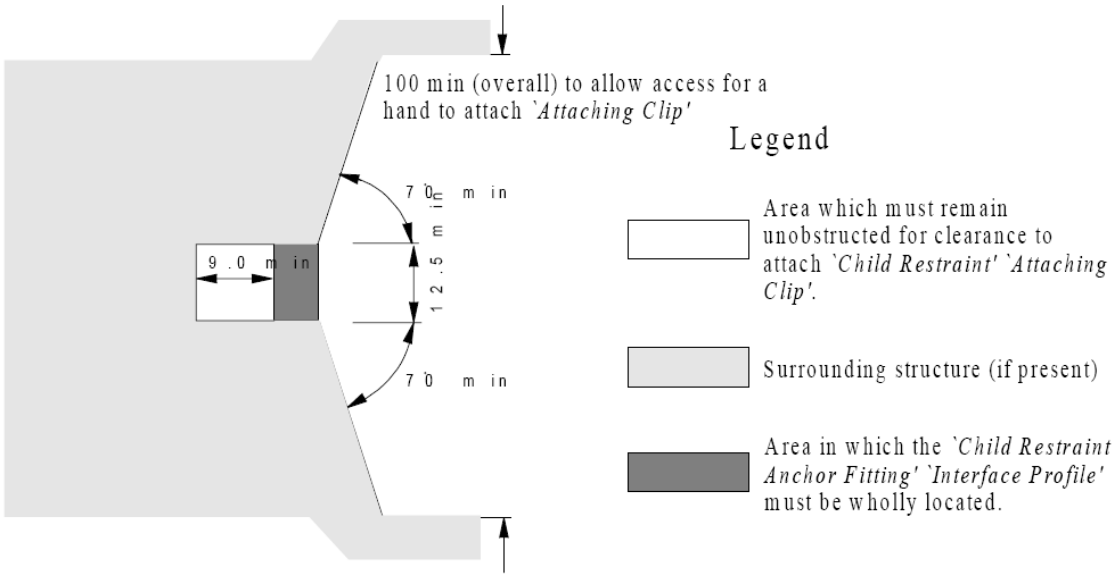
Figure 7: Clearance Space Required Where Anchorage Only Is Provided

FIG 8A



SIDE VIEW

FIG 8B



SECTION A A

NOTE:

1 Where the *'Child Restraint Anchor Fitting'* is adjustable it must comply with the requirements as shown in these illustrations at least in one position of adjustment.

2 If not adjustable, the side view may be rotated about an axis passing through Point Y and perpendicular to the page.

Dimensions in millimetres (not to scale)

Figure 8: Clearance Around *'Child Restraint Anchor Fittings'*