

Child Restraint Anchorage Installation (K6)

Version 1.0

February 2014

Section 3 of the National Heavy Vehicle Regulator's Code of Practice for the Approval of Heavy Vehicle Modifications

Child Restraint Anchorage Installation

CODE K6

1. Scope

Code K6 provides for the installation of child restraint anchorage systems that have been tested or otherwise approved by Registration Authorities.

1.1 Modifications covered under code K6

The following is a summary of the modifications that may be certified under Code K6.

- The location and drilling of an anchor hole into vehicles;
- The installation of a child restraint anchor bar;
- The installation of a Vertical Post;
- The installation of a Universal Frame; and
- The installation of a Twin Cab Device.

1.2 Modifications not covered under code K6

The following modifications are not covered by Code K6:

- The installation of restraints that have not been tested or approved by Registration Authorities; and
- The installation of seatbelts (this is covered by Code K1).

2. Compliance with applicable vehicle standards

Modified vehicles must continue to comply with the ADRs to which they were originally constructed, except as allowed for in the *Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010* (the regulation). These modified vehicles must also comply with the applicable in-service requirements of the regulation.

Modified pre-ADR vehicles must continue to comply with the regulation.

Outlined below in Table 1 are areas of the vehicle that may be affected by the modifications and that may require re-certification, testing and/or data to show compliance for the modified vehicle. This is not an exhaustive list and other modifications may also affect ADR compliance.

Table 1 Summary of items that if modified, may detrimentally affect compliance with applicable ADRs

DETAIL	REQUIREMENTS
Seat Mountings	ADR 3x, 3/...
Seatbelt and Child Restraint Anchorages	ADR 5x, 5/..., ADR 34x, 34/...
Seatbelts	ADR 4x. 4/...

To determine the ADRs that apply to the vehicle in question, refer to the applicability tables in Section LO. Vehicles manufactured on or after 1 January 1969 and prior to 1 July 1988 need to comply with the Second Edition ADRs whilst vehicles manufactured after this date need to comply with the Third Edition ADRs. Section LO has separate applicability tables for each edition.

Alternatively, ADR applicability tables for individual vehicle categories may be referenced on the Department of Infrastructure and Transport *RVCS* website at the following address and under the section titled *ADR Applicability Tables*:

<http://rvcs.dotars.gov.au/>

The ADRs apply according to the vehicle's category and date of manufacture. It is the responsibility of the signatory to refer to the appropriate ADR applicable to the vehicle.

3. Specific requirements

Vehicles that do not have child restraint anchorage points may be modified to provide one or more child restraint anchorages.

The incorrect fitting of child restraint anchorages can result in the anchor point not having adequate strength to withstand the forces generated during a crash. This in turn means a child restrained in a child restraint utilising such an anchor point will not be offered sufficient occupant protection.

Child restraint anchorages can be fitted to a:

- parcel shelf of a sedan;
- Child Restraint Anchor Bar (CRAB Bar);
- Vertical Post;
- Universal Frame; or
- Twin Cab Device.

The following sections outline the minimum requirements for the installation of each of these restraint devices.

3.1 General

The drilling and location of anchor points in pre ADR 34 (July 1976) passenger vehicles must be in accordance with sub-section 2.0 of this Code.

The installation of specialised restraint anchorage equipment such as *CRAB Bars*, *Vertical Posts*, *Universal Frames*, or *Twin Cab Devices*, must be in accordance with the relevant clauses of this Code.

The installation and requirements for seatbelts must be in accordance with Code K1 of VSB 6.

Seatbelts used in conjunction with child restraints must be in a serviceable condition.

Only complying child restraints and restraint anchorage systems may be used.

All work performed must be in accordance with recognised engineering standards.

3.2 Rear parcel shelf anchorages

Child restraint anchorages may be installed in pre ADR 34 (July 1976) passenger vehicles by utilising a standard anchor bracket and anchor bolt kit. The kit requires a 9mm diameter hole to be drilled in the rear parcel shelf. It is essential that the hole is:

- drilled through a substantially flat, structurally sound, rust free section of metal;
- located more than 50mm from any existing hole in the metal and within 40mm of the longitudinal centreline of the seating position. (see Figure 1); and
- located in such a position so as to allow the top tether strap to be easily adjusted and to allow the easy engagement and disengagement of the anchorage fitting to the anchor bolt.

All components of the anchor bolt kit should be used; the spreader plate washer must be brought to bear on a flat surface on the underside of the parcel shelf.

Anchor bolt kits must not be used in pre-ADR 34 (1 Jan. 1977) vehicles, unless a report from a signatory is provided that confirms that the rear seats together with their attachments are able to withstand the forces generated during a crash. The rear seats of these vehicles may not be designed to resist the forces generated during a crash and as a consequence, rear seat-back failure may occur. Alternative mounting structures such as a *CRAB Bar* or *Vertical Posts* should be used in these cases.

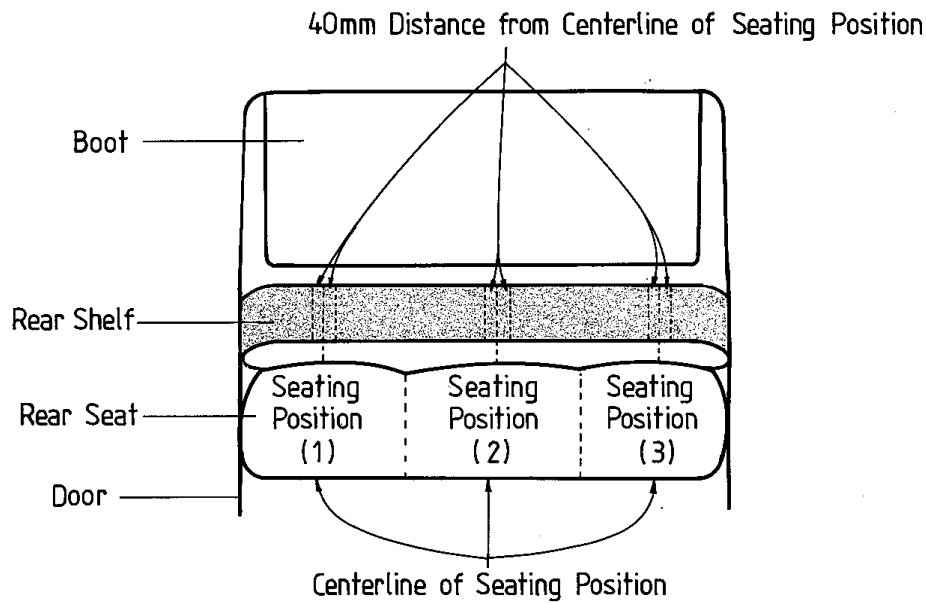


Figure 1 Anchorage Positions

3.3 Child restraint anchorage bar

In vehicles that do not have rear parcel shelves, (e.g. hatch-backs, station wagons, four wheel drive and forward control passenger vehicles) a device known as a *Child Restraint Anchorage Bar (CRAB Bar)* (Figure 2) may be installed.

The *CRAB Bar* can incorporate anchorage points for up to three children, who each do not have a body plus restraint mass exceeding 32.5kg. It is suitable for the restraint of child seats and child safety harnesses.

CRAB Bars are currently available in two telescopic sizes to suit the width of the vehicle to which they will be fitted - 1250mm to 1460mm width for small to medium size vehicles and 1460 to 1600 for larger vehicles. The 1250 to 1460mm bar can be shortened to suit small vehicles by cutting the *Main Tube* and re-drilling the *Pilot Hole* to suit. The *Main Tube* and *Pilot Hole* are shown in Figure 2. After shortening, the main tube must not have been reduced in length by more than 100mm of the distance between the proposed *CRAB Bar* anchor points.

The anchor bar must be installed in accordance with manufacturer's instructions.

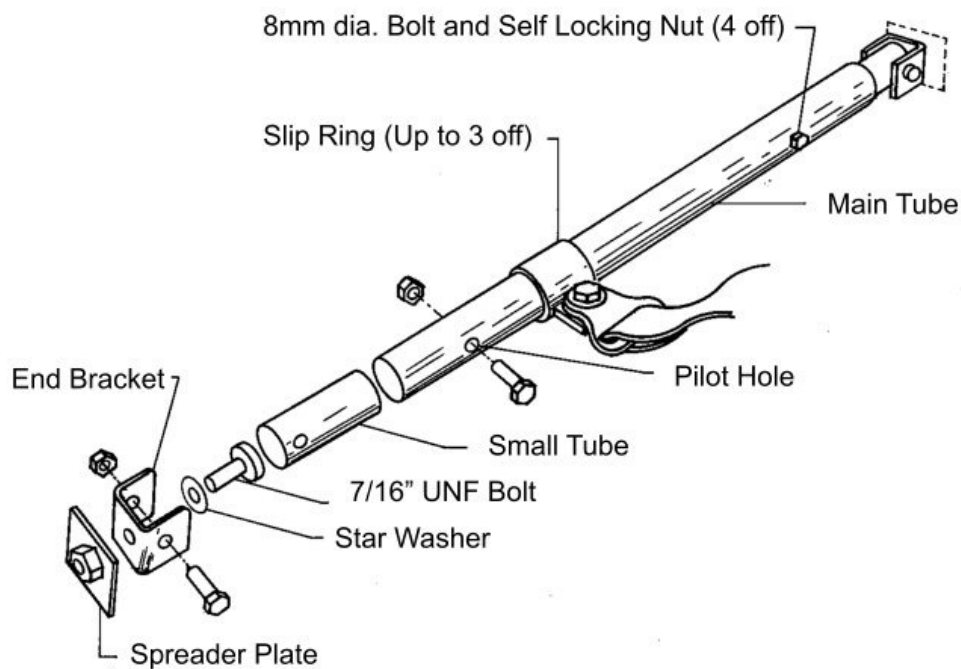


Figure 2 Child Restraint Anchorage Bar

The *CRAB Bar* must be fitted not less than 200mm behind and not more than 100mm below the top rear edge of the seat back. To meet this requirement, it is recommended that the *CRAB Bar* be installed at waist rail height in the cross hatched area shown in Figure 3.

Sufficient clearance must exist between the inner and outer body panels to accommodate the 7/16" UNF mounting bolt without it fouling the outer panels.

The spreader plate must have a flat surface on which to bear when positioned behind the panel. Failure to do this will result in distortion of the panel, which may lead to failure of the anchorage system in the event of a crash.

Drill a 12mm hole through inner body panel and install end bracket and spacer (if required) and spreader plate using 7/16" UNF bolt (refer to Figure 4).

Unless supported by an engineering report, the *CRAB Bar* must not be used in vehicles with aluminium or composite body panels. For these vehicles, a *Vertical Post* may be a suitable alternative.

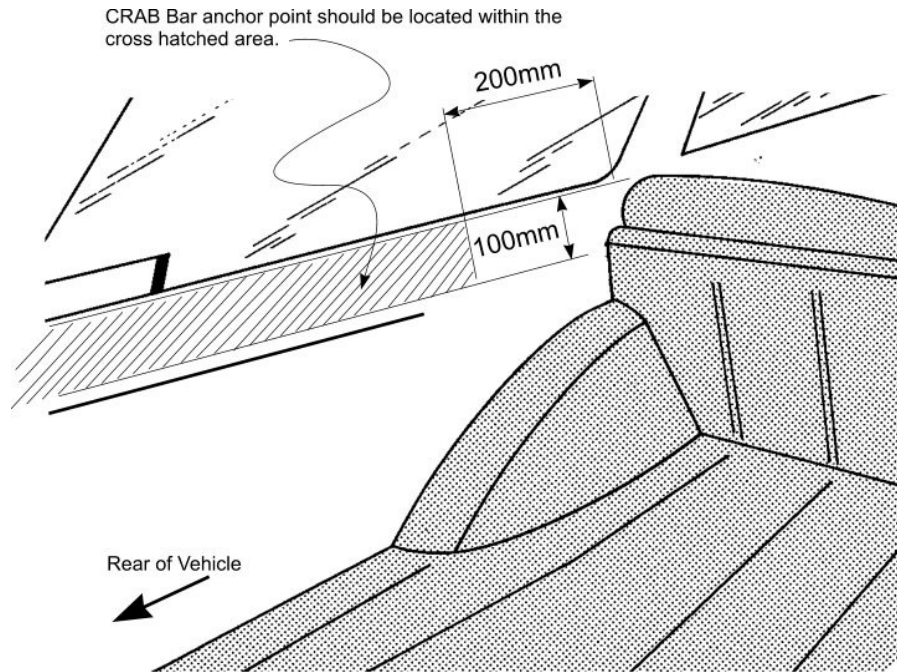


Figure 3(a) CRAB Bar Location (Not to scale)

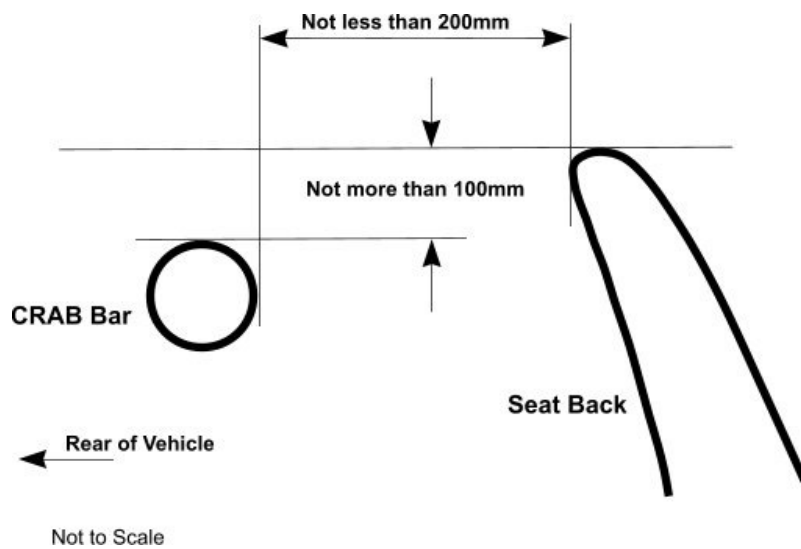


Figure 3(b) CRAB Bar Location Relative to Seat Back (Not to scale)

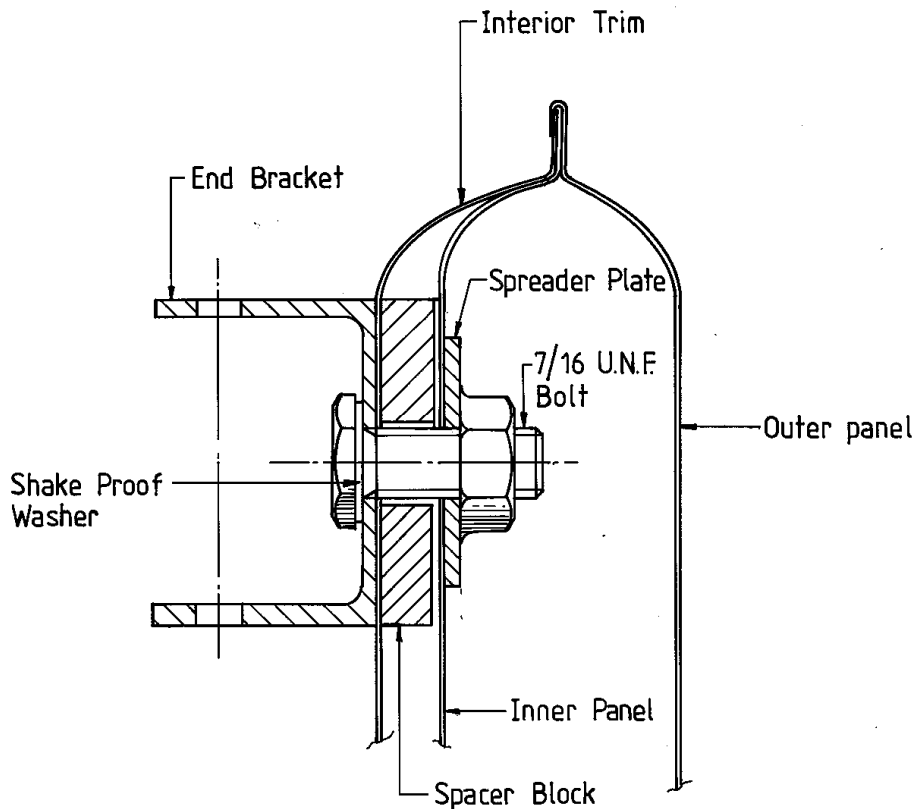


Figure 4 Child Restraint Anchorage Bar Attachment

3.4 Vertical post

An alternative to the *CRAB Bar* is the *Vertical Post*. This device (Figure 5) is also suitable for provision of a single child restraint anchorage in station wagons, four wheel drive vehicles and forward control passenger vehicles.

The installation of a *Vertical Post* provides a single anchorage point and is suitable for any height of seat back up to 640mm. The device can be an anchorage for the installation of child seats and child safety harnesses.

The post must be installed in accordance with the manufacturer's instructions.

The centreline of the post must lie within 40mm of the longitudinal centreline of the child restraint when installed in the required seating position.

Load spreader plates must be utilised.

For corrugated floors, the base channel must be positioned so that holes are drilled through the middle of the vee. Spacers must be used to fill the depth of the vee (refer to Figure 6).

The vertical tube may be reduced in height to suit seat back heights less than 640mm. Under no circumstances must the anchorage point be more than 100mm below the top of the seat back.

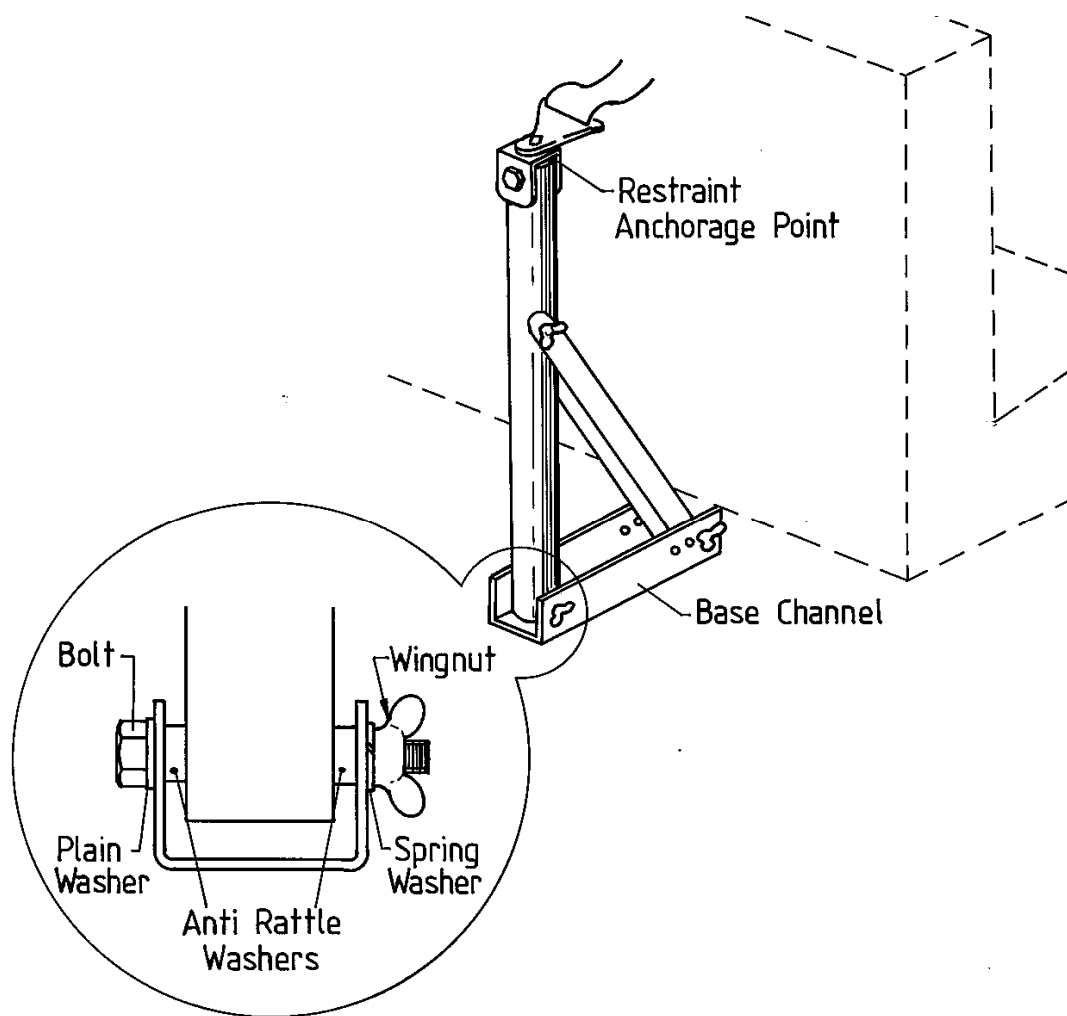


Figure 5 Vertical Post

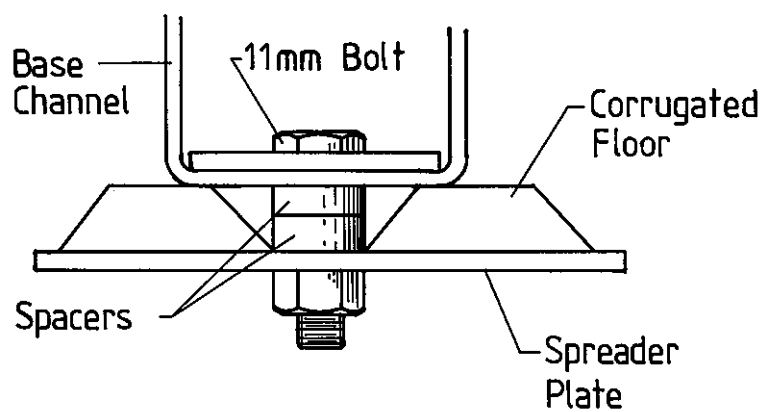


Figure 6 Vertical Post Attachment

3.5 Universal frame

A *Universal Frame* (refer to Figure 7) has been developed for use in panel vans and station wagons to accommodate all of the presently available child seats.

While it has been designed for installation in the rear of vehicles with a single steel floor pan, it may be possible to install it on vehicles with raised false floors, provided the cavity between the false floor and floor pan can be accessed. The *Universal Frame* must not be used for any purpose other than that for which it was designed.

The *Universal Frame* must be installed in accordance with the manufacturer's fitting instructions and must not be modified in any way.

The frame should be positioned as close as possible behind the front seats to ensure good access to the child restraint and the child, whilst at the same time allowing sufficient space between the vehicle seats and the frame, for the child's legs and feet.

The frame must only be used for child seats and must be installed in the normal forward facing position.

The frame must be secured using high tensile bolts with suitable locking devices such as shake-proof washers.

Spreader plates and spacers to fill in the depth of vee in corrugated floors must be utilised (refer to Figure 8).

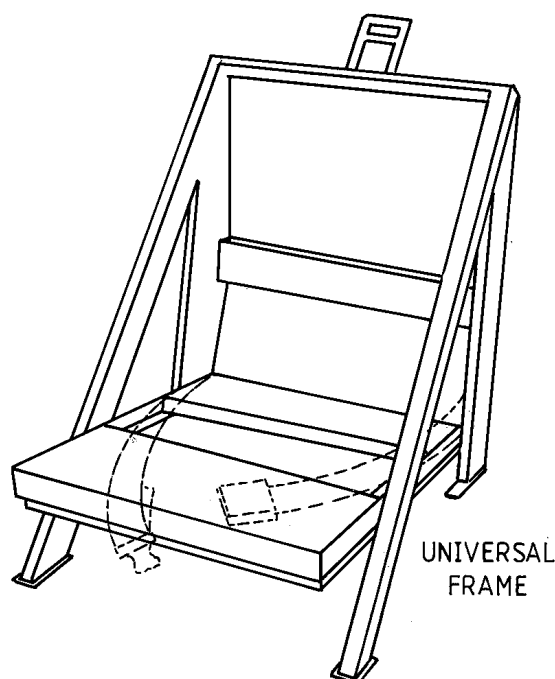


Figure 7 Universal Frame

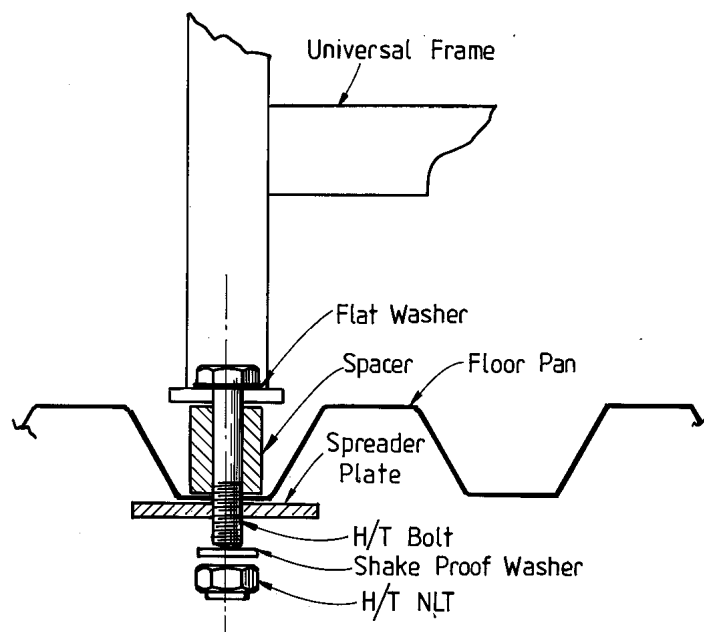


Figure 8 Universal Frame Attachment

3.6 Dual cab anchorage

Anchorage for child seats and capsules may be provided in twin cab or dual cab vehicles using a *dual cab anchorage* (DCA) (refer to Figure 9).

The device may be fitted to any of the rear seat positions providing there is nothing obstructing any spreader plate positions (e.g. fuel tank, lines, chassis rails, etc.).

The device is suitable for use with child seats and safety harnesses.

The twin cab device must be installed in accordance with the manufacturer's instructions and load spreader plates must be utilised.

The centreline of the device must lie within 40mm of the centreline of the child restraint when installed in the required seating position.

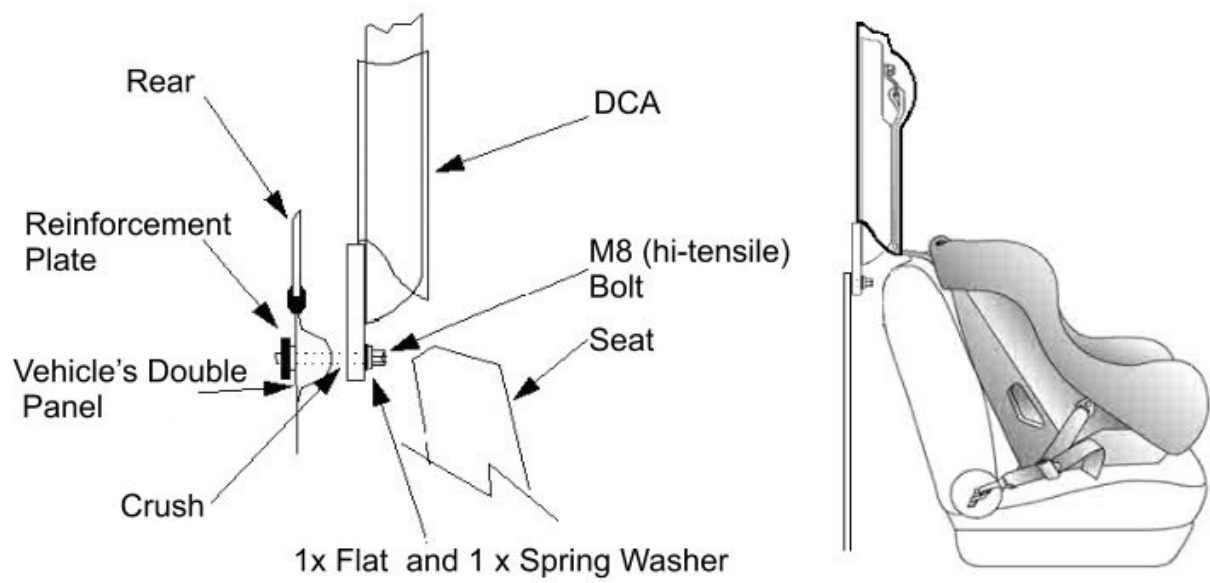


Figure 9 Dual Cab Anchorage (DCA)

Checklist K6
Child Restraint Anchorage Installation
CODE K6

Form No: K6
(N/A=Not Applicable, Y=Yes, N=No)

1	Installation			
1.1	Does the installation comply with the manufacturer's instructions and the relevant sections of Code K6?		Y	N
1.2	Do the vehicle's seatbelts comply with ADR4, Australian Standards or equivalent?		Y	N
2	Workmanship			
2.1	Is all work, including welding, of satisfactory quality and has all work been performed in accordance with recognised engineering standards?		Y	N

Note: If the answer to any question is **N (No)**, the modification cannot be certified under Code K6.

CERTIFICATION DETAILS																
Make						Model						Year of Manufacture				
VIN																
Chassis Number (If applicable)																
Brief Description of Modification/s																
Vehicle Modified By																
Certificate Number (If applicable)																
Vehicle Certified By (Print)																
Signatory's Employer (If applicable)																
Signatory's Signature											Date					

