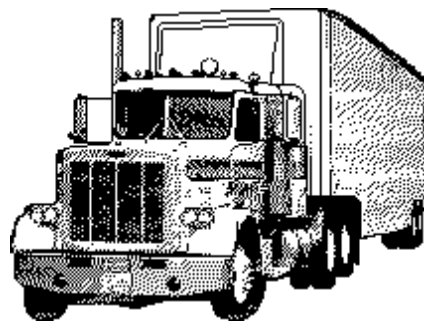
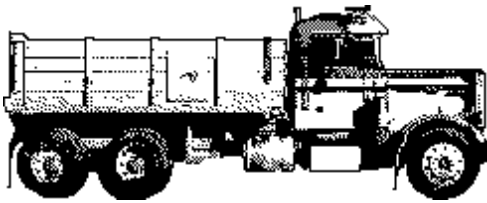


Section K

CABIN



HEAVY VEHICLE MODIFICATIONS**1. SCOPE**

This Section relates to the fitting of cabin alterations to heavy vehicles.

It outlines the minimum requirements for heavy vehicle cabin alterations and includes the fitting of additional seats and seat belts, the installation of restraint systems for wheelchairs and their occupants, installation of child restraint anchorages, major cabin alterations (such as the construction of through loaders and dual cabs) and modifications to cabin interiors (such as the repositioning of controls).

2. GENERAL INFORMATION

This Section collates the requirements of a number of different modifications to vehicle cabins. Each modification type is sufficiently different from the others that all data relating to that modification should be grouped together. Accordingly, each modification type is treated as a stand alone Modification Code.

3. ADR's AFFECTED

Australian Design Rules which may be applicable are:

ADR 2, 2/..	<i>Door Latches and Hinges;</i>
ADR 3, 3A, or 3/..	<i>Seat Anchorages;</i>
ADR 4A, 4B, 4C, 4D or 4/..	<i>Seat Belts;</i>
ADR 5/..	<i>Anchorages for Seat Belts and Child Restraints;</i>
ADR 5A, 5B	<i>Seat Belt Anchorages;</i>
ADR 6, 6A, 6/..	<i>Turn Indicators;</i>
ADR 8, 8/..	<i>Safety Glass;</i>
ADR 11, 11/..	<i>Internal Sunvisors;</i>
ADR 12, 12/..	<i>Glare Reduction;</i>
ADR 13/..	<i>Vehicle Lighting;</i>
ADR 14, 14/..	<i>Rear Vision Mirror;</i>
ADR 15, 15/..	<i>Demisting of Windscreens;</i>
ADR 16, 16/..	<i>Windscreen Wipers and Washers;</i>
ADR 18, 18A, 18/..	<i>Location and Visibility of Instruments;</i>
ADR 21, 21/..	<i>Instrument Panels;</i>
ADR 22, 22A, 22/..	<i>Head Restraints;</i>

HEAVY VEHICLE MODIFICATIONS

ADR 34, 34A, 34/..

Child Restraint Anchorages

ADR 42/..

*General Safety Requirements***4. AFFECTING MODIFICATIONS**

Modifications covered by this code include any modification to the vehicle cabin that is likely to affect the vehicle's compliance with ADR's or the safety of the cabin and its occupants. Examples are given under each individual Modification Code and Checklist.

5. GENERAL REQUIREMENTS

This Section applies to heavy vehicles and should be used in conjunction with other sections of the National Code of Practice that are specific for the type of modification being performed. The following general requirements apply to all cabin modifications:

- In modifying the vehicle, the modifier, if feasible, should duplicate an optional specification offered by the vehicle manufacturer.
- All work performed must be in accordance with recognised engineering standards.
- Modifications must not be carried out to any part of the cabin that is not free of rust.
- Any modifications must not result in the entry of exhaust and road fumes into the cabin.

6. RECORDING

It is not feasible in this code to cover every aspect of analysis that might be necessary in cabin modifications. A number of common cabin modifications are treated in the appendices K1 to K5 for the guidance of Certifying Officers. These appendices:

- Summarise the scope of modification work that may be certified under each of these Modification Codes.
- Include lists of Sections of the National Code of Practice covering other areas of the vehicle which may have been affected by the modification and which should be analysed to determine whether they, too, require re-certification.
- Include checklists appropriate to the particular Modification Code that should be completed.

It is suggested that analysis work records, sketches and other vehicle data, together with copies of the Calculation Sheet and completed Checklists be retained by the Certifying Officer for at least the period specified in Part A of this National Code of Practice.

HEAVY VEHICLE MODIFICATIONS

Appendix K1

Modification Code K1

SEATING CAPACITY ALTERATION AND SEAT BELT INSTALLATION

Modifications that are covered under this Modification Code are:

1. Installation of approved seats to approved anchorage points.
2. Installation of approved seat anchorages.
3. Installation of seat belts conforming to AS 2596 to approved anchorage points.
4. Installation of approved seat belt anchorages.

Modifications that are **not** covered under this Modification Code are:

1. Installation of non-approved seats.
2. Installation of seat belts that do not conform to AS 2596.

NOTE: The modified vehicle/modifications must continue to comply with all applicable ADR's, Australian Standards or Regulations/Acts.

Outlined below are areas of the vehicle that may have been affected by the modifications and that may require recertification, testing and/or data to show compliance for the modified vehicle.

DETAIL

REQUIREMENTS

Installation of Seats and Anchorages

ADR 3, 3A, 3/00, 3/01, 3/02, VSB 5A – Commercial Manufacture and Installation of Additional Seats, VSB 5B – Construction and Installation of Additional Seats by Individuals

Installation of Seat Belts and Anchorages

ADR 4A, 4B, 4C, 4D, 4/00, 4/01, 4/02, 4/03, ADR 5A, 5B, 5/00, 5/01, 5/02, 5/03, 5/04, VSB 5A – Commercial Manufacture and Installation of Additional Seats, VSB 5B – Construction and Installation of Additional Seats by Individuals

HEAVY VEHICLE MODIFICATIONS**SEATING CAPACITY ALTERATION AND SEAT BELT INSTALLATION****SPECIFIC REQUIREMENTS****1.0 Seat Requirements**

- 1.1 Additional or replacement seats must be installed in accordance with the current issue of “Vehicle Standards Bulletin (VSB) No. 5A - Commercial Manufacture and Installation of Additional Seats or VSB 5B – Construction and Installation of Additional Seats by Individuals
- 1.1 Conversion of bench seats to bucket seats, and vice versa, may also be approved in accordance with this Code and applicable Australian Design Rules.

2.0 Seat Anchorage Construction

- 2.1 Single seats may be adequately anchored to sheet steel floors by using not less than four 8mm fine threaded ISO Grade 10.9 (5/16 inch UNF SAE Grade 8) bolts with a mild steel reinforcement backing plate of an area not less than 3750mm^2 in contact with the mounting surface and a thickness not less than 3mm at each anchorage point. For double and triple seats, the number/size of anchorage points should be increased accordingly or as recommended by the seat manufacturer.
- 2.2 The shape of the backing plates should match the contour of the floor material. The corners of the reinforcement plates should have a minimum radius of 5mm and the edges adjacent to the floor material should be chamfered.
- 2.2 The anchor bolts must be tightened to the correct tension and fully engage all the thread of the nut.
- 2.3 In cases where seat belt anchorages are fixed to the seat assembly, the seat anchorages must be certified in accordance with the requirements of Code K2.
- 2.4 Anchorages must not be fitted through wood, fibreglass, sheet aluminium or plastic or where wood or other non-metal material is sandwiched between steel, unless certified in accordance with the requirements of Code K2.
- 2.5 Seats located over wooden floors must be anchored to the vehicle structure via steel members (e.g. ‘C’ - section, channel section or rectangular hollow section) of adequate strength to meet the strength requirements of VSB 5A.

3.0 Seat Anchorage Location

- 3.1 Seats should be located in a position that places the longitudinal centre line of the seat in the manufacturer’s standard position.
- 3.2 Seats should be located so as to allow freedom of adjustment throughout the complete range of travel.
- 3.3 The longitudinal vertical plane through the geometric centre of the front outboard passenger seat should be parallel to the Seating Reference Plane of the driver’s seating position, where possible.

HEAVY VEHICLE MODIFICATIONS

4.0 Seat Belt Requirements

- 4.1 Additional seats must be fitted with seat belts in accordance with the specifications described in VSB 5A or VSB 5B.
- 4.2 When converting a vehicle's front bench seat to bucket seats, and vice versa, seat belts must be fitted in accordance with the Australian Design Rules for that particular vehicle, applicable at the date of its original manufacture.

5.0 Seat Belt Anchorage Strength

Seat belt anchorages must be able to meet the applicable strength requirements given in VSB 5A or VSB 5B.

6.0 Seat Belt Anchorage Construction

- 6.1 Seat belts must be adequately anchored to a steel floor pan, upper body or pillar by 7/16 inch UNF SAE Grade 8 bolts with a mild steel reinforcement backing plate. The threaded portion of the anchorage must be at least 6mm thick. The reinforcement backing plate must have an area not less than 3750mm² in contact with the mounting surface and a thickness of not less than 3mm (1/8 inch).
- 6.2 The reinforcement backing plate and anchor bolt should be positioned so that the backing plate is loaded approximately centrally. Edge loading is most undesirable.
- 6.3 The shape of the backing plates should match the contour of the floor pan/pillar material in the region of the anchorage. The corners of the reinforcement plates should have a minimum radius of 5mm and the edges adjacent to the body must be chamfered. The anchor bolts must be tightened to the correct tension and fully engage all the thread of the nut. A typical assembly of a seat belt anchorage is shown in Figure 1.

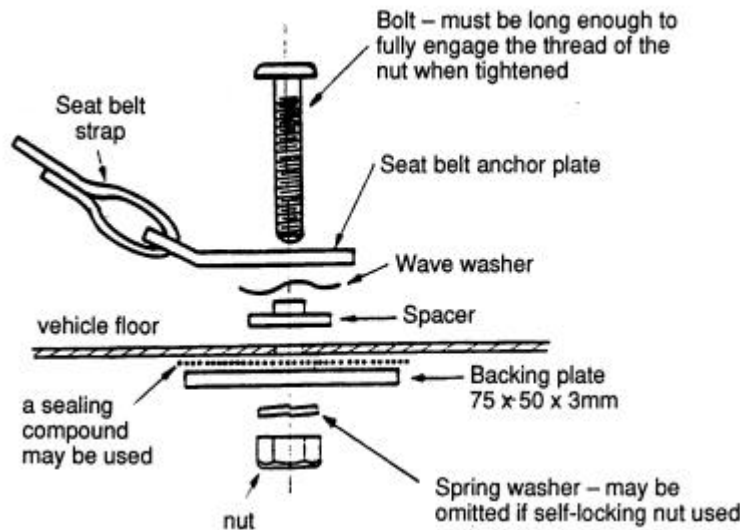


Figure 1

- 6.4 Anchorages must not be fitted through wood or where wood or other non-metallic material is sandwiched between steel.

HEAVY VEHICLE MODIFICATIONS

- 6.5 Anchorages must not be fitted to wooden, aluminium, plastic or fibreglass panels unless the anchorages have been certified in accordance with Code K2.

7.0 Locations of Anchorages

Only seat belt anchorages of a type determined by ADR 5/.. “Anchorages for Seat Belts and Child Restraints” may be installed.

7.1 Lap Anchorages

- 7.1.1 The two lap anchor points for a particular seating position must be located on opposite sides of the Seating Reference Plane (longitudinal centre line of the seat), a minimum distance of 165mm apart. A distance of 250mm to 350mm between the anchorages is desirable. See Figure 2.

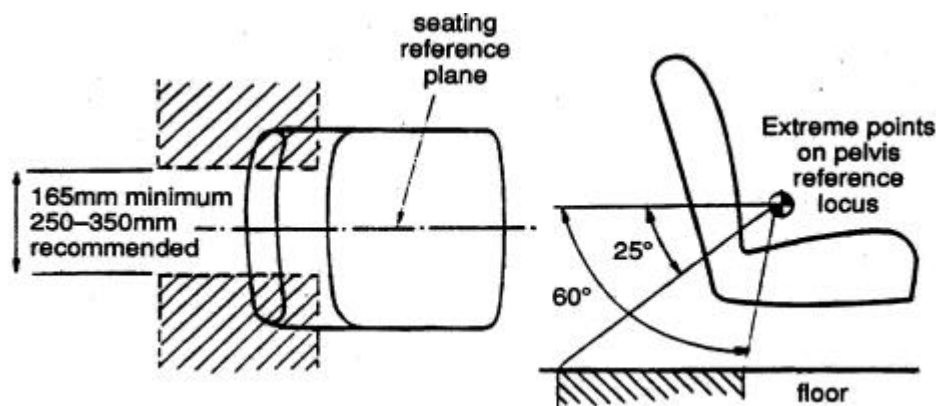


Figure 2

- 7.1.2 The lower seat belt anchorages must not be superimposed (unless permitted by the manufacturer or certified in accordance with Code K2), i.e. each seat belt must be anchored by separate bolts. The anchorages provided for different seating positions must be separated by at least 200mm.
- 7.1.3 In cases where the lap strap is not in a straight line when viewed from the side, the positioning of the anchorage points should be such that the requirements of the clause/s relating to ‘**Location of Anchor Points and Sash Location Points**’ of ADR 5/.. must be met.
- 7.1.4 Since most seat belts are made to a standard length, it is not good practice to have the anchorage points too far behind the seat. The buckle strap should be of such length that the buckle is accessible and at the side of the hip of the seat occupant, but not so long that the buckle rests on the seated person’s abdomen.
- 7.1.5 In the case of a suspension seat, the two pelvic restraint anchorages must be mounted on the seat, to maintain the positional relationship between the retractor assembly and the Seating Reference Point. When the pelvic restraints are mounted to the seat, the seat and seat mountings must be certified in accordance with Code K2.

7.2 Sash Location Point

- 7.2.1 A sash guide must be fitted within Area A for each seating position required by ADR 5/.. to be fitted with a lap sash belt.
- 7.2.2 Upper torso restraints are not permitted on side facing seats. Such seats may be fitted with lap belts only.

HEAVY VEHICLE MODIFICATIONS

LOCATION OF AREA 'B'

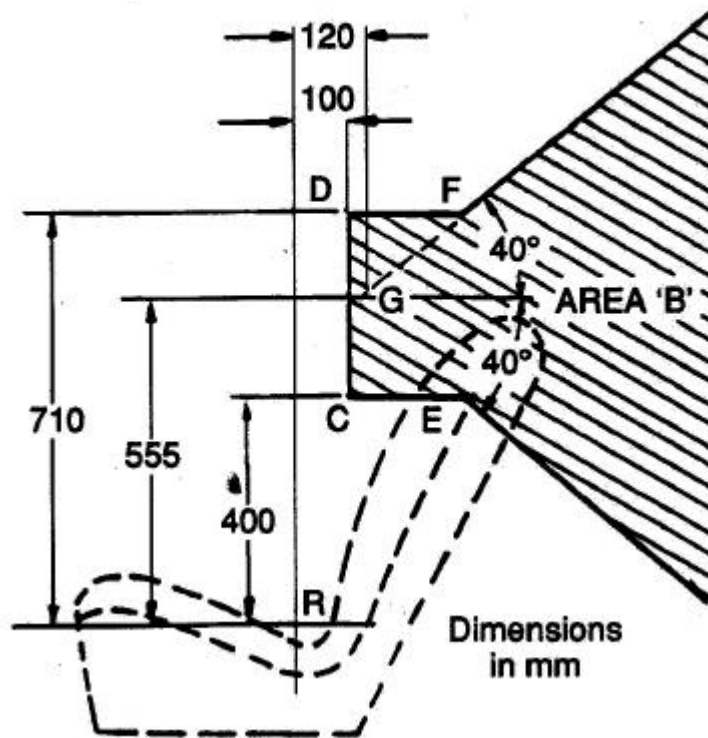


Figure 4

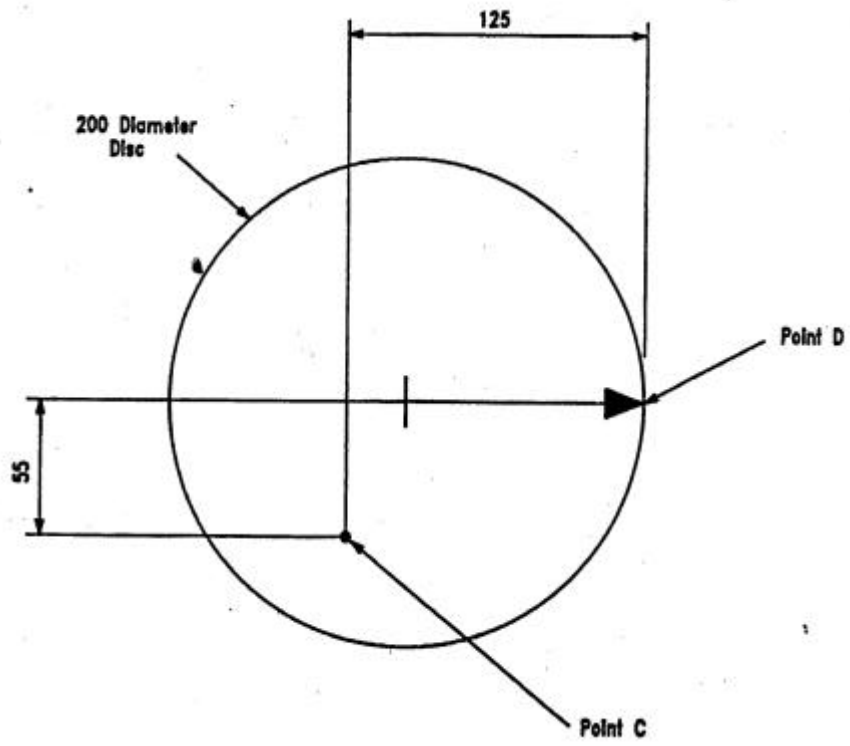
8.0 Definitions

The following terms are defined in the ADR Definitions. If a more detailed definition of a term is required, refer to the appropriate section in the ADR's.

- 8.1 Seating Reference Plane: the vertical longitudinal plane through the geometric centre of the seat.
- 8.2 Seating Reference Point: simulates the position of the pivot centre of human torso and thigh in the rearmost normal seating position. The seating reference point is to be determined using the template in Figure 5. The template is to be positioned on the centre line of the seat with the point D located at the contact point of the template and the seat back. The seating reference point is located at point C.
- 8.3 Pelvis Reference Point: simulates the correct position of a lap strap when worn by the seat occupant. It is located at a height of 95mm above and 70mm forward of the Seating Reference Point (See Figure 5).
- 8.4 Pelvis Reference Locus: the locus of a point fixed relative to the seat, coincident with the Pelvis Reference Point when the seat is in the rearmost normal seating position and extending over the range of seat travel.
- 8.5 Torso Reference Line: a line passing through the Seating Reference Point and parallel to the backrest. For a seat with an adjustable backrest, it is a line passing through the Seating Reference Point at an angle of 30° from the vertical (See Figure 5).

HEAVY VEHICLE MODIFICATIONS

Figure 5



HEAVY VEHICLE MODIFICATIONS

Checklist - K1

SEATING CAPACITY ALTERATION AND SEAT BELT INSTALLATION

(Y=Yes N=No)
delete if not applicable**1.0 Seats**

- | | | | |
|-----------------------|---|---|---|
| 1.1 | Are all additional seats of an automotive type and have they been tested to meet the requirements of the current issue of VSB 5A or VSB 5B. | Y | N |
| 1.2 | Do all replacement seats meet the strength requirements given in the clause/s relating to “Requirements” of ADR 3/.. for the date of manufacture of the vehicle? | Y | N |
| 1.3 | Are the seats mounted on existing anchorage points or anchorage points fitted in accordance with Sections 1, 2 and 3 of this Code? | Y | N |
| 1.4 | If the additional or replacement seats are hinged or have hinged backs, do they meet the requirements for these seats given in the clause/s relating to “Restraining Device for Hinged Seats or Seat Backs” of ADR 3/..? | Y | N |
| 1.5 | Are the head and leg space requirements of VSB 5A or VSB 5B? | Y | N |
| 1.6 | Are the occupants of seats installed in the trays of utilities or trucks provided with adequate rollover protection as required by VSB 5A or VSB 5B? | Y | N |
| 1.7 | Are the additional seat(s) positioned away from areas where there would be a high probability of injury to the occupant(s) in an accident? | Y | N |
| 1.8 | Is access to additional seats unimpeded? | Y | N |
| 1.9 | With the installation of any additional seats, is access to exits, access aisles, doors, door latches, folding seat controls, etc. unobstructed? | Y | N |
| 1.10 | Are seat backs, arm rests and other fittings padded to minimise injury to occupants in an accident? | Y | N |
| 1.11 | Is adequate rear vision for the driver maintained? | Y | N |
| 1.12 | Are all rearward facing seats fitted with irremovable head restraints? | Y | N |
| 1.13 | Are category 2 and category 3 seats labelled or plated in accordance with this Modification Code and VSB 5A or VSB 5B? | Y | N |
| 2.0 Seat Belts | | | |
| 2.1 | Is the type of seat belt fitted in accordance with that determined by the anchorage system specified for the particular application by ADR 5/.. “Anchorages for Seat Belts” ? | Y | N |

HEAVY VEHICLE MODIFICATIONS

- 2.2 Are the seat belts fitted to existing approved anchorage points or to anchorage points certified under the Modification Code K2 - Seat Anchorage Certification and Seat Belt Anchorage Certification of this National Code of Practice? Y N
- 2.3 Are the seat belts fitted, new seat belts complying with the requirements of ADR 4/..? Y N

3.0 General

- 3.1 Is the quality of workmanship of a satisfactory standard? Y N

NOTE: If the answer to any relevant question is "NO", the modification is not acceptable.

Make:.....

Model:..... Year of Manufacture:.....

VehicleChassis No/VIN:.....

Vehicle Modifier:.....

Examined by:.....

Company (if applicable):.....

Certifying Officer No:..... Modification Certificate No:.....

Modification Plate No:.....

Signed:..... Date:.....

HEAVY VEHICLE MODIFICATIONS**Appendix K2****Modification Code K2****SEAT ANCHORAGE CERTIFICATION AND
SEAT BELT ANCHORAGE CERTIFICATION**

Certifications that are covered under this Modification Code are:

1. Certification of seat anchorages.
2. Certification of seat belt anchorages.

Certifications that are **not** covered under this Modification Code are:

1. Seat and seat anchorage installation.
2. Seat belt and seat belt anchorage installation.
3. Child restraint anchorage installation.

NOTE: The modified vehicle/modifications must continue to comply with all applicable ADR's, Australian Standards or Regulations/Acts.

Outlined below are areas of the vehicle that may have been affected by the modifications and that may require recertification, testing and/or data to show compliance for the modified vehicle.

DETAIL

Certification of anchorage system
(by either calculation or physical testing)

REQUIREMENTS

ADR 3, 3A, 3/00, 3/01, 3/02,
ADR 5A, 5B, 5/00, 5/01, 5/02, 5/03, 5/04.
AS2596
VSB 5A – Commercial Manufacture and
Installation of Additional Seats

HEAVY VEHICLE MODIFICATIONS

Appendix K2

**SEAT ANCHORAGE CERTIFICATION AND
SEAT BELT ANCHORAGE CERTIFICATION**

SPECIFIC REQUIREMENTS

1.0 Seat Anchorages

- 1.1 Seat anchorages must be able to withstand the load requirements specified in the current issue of VSB 5A.
- 1.2 In cases where seat belt anchorages are fixed to the seat assembly, the seat anchorages must satisfy the load requirements in addition to the seat belt anchorage loads.
- 1.3 Seats located over wooden floors must be anchored to the vehicle structure via steel members (e.g. 'C' section, channel section or rectangular hollow section) of adequate design to meet the strength requirements.
- 1.4 Seat anchorages must be physically tested or fully certified by engineering calculations in accordance with the current issue of VSB 5A.

2.0 Seat Belt Anchorages

- 2.1 Seat belt anchorages must be able to meet the applicable strength requirements specified in the current issue of VSB 5A.
- 2.2 Seat belt anchorages located through wooden floors must be anchored to the vehicle structure via steel members (e.g. 'C' section, channel section or rectangular or hollow section) of adequate design to meet the strength requirements.
- 2.3 Seat belt anchorages must be physically tested or fully certified by engineering calculations in accordance with the VSB 5A.

HEAVY VEHICLE MODIFICATIONS

Checklist K2

SEAT ANCHORAGE CERTIFICATION AND
SEAT BELT ANCHORAGE CERTIFICATION(Y=Yes N=No)
delete if not applicable**1.0 Seat Anchorage Certification**

- | | | | |
|-----|---|---|---|
| 1.1 | Do the seat anchorages meet the strength requirements given in VSB 5A? | Y | N |
| 1.2 | Does the seat and head restraints meet the strength and deflection requirements of the Code? | Y | N |
| 1.3 | Are seat anchorages located over wooden floors adequately attached to the vehicle structure (i.e. with 'C' section, channel section or RHS steel members)? | Y | N |
| 1.4 | Are comprehensive and easily understood installation instructions for the seat installation available? | Y | N |
| 1.5 | Are detailed plans and specifications of the seat, head restraints and all associated modifications available and do all components conform to these plans? | Y | N |
| 1.6 | Is a detailed report on the testing of the seat and head restraints available? | Y | N |
| 1.7 | Are detailed calculations demonstrating compliance with the strength and deflection requirements available? | Y | N |

2.0 Seat Belt Anchorage Installation

- | | | | |
|-----|--|---|---|
| 2.1 | Do the seat belt anchorages meet the strength requirements given in the VSB 5A? | Y | N |
| 2.2 | Are all anchorage bolts 7/16 inch UNF SAE Grade 8? | Y | N |
| 2.3 | Are the seat belt anchor points for each particular seating position located in accordance with the specifications in the clause/s relating to ' Location of Anchor Points and Sash Location Points ' of ADR 5/.. | Y | N |
| 2.4 | Are all side-facing positions belts fitted with lap belts only? | Y | N |
| 2.5 | Are all seat belt anchorages located to allow the seat belt to be worn in a comfortable and safe position? | Y | N |
| 2.6 | Are comprehensive and easily understood installation instructions for the seat belt anchorage available? | Y | N |
| 2.7 | Are detailed plans and specifications of the seat belt anchorages and all associated modifications available? | Y | N |
| 2.8 | Is a detailed report of the testing of the anchorages available? | Y | N |
| 2.9 | Are detailed calculations demonstrating compliance with the strength requirements available? | Y | N |

HEAVY VEHICLE MODIFICATIONS

3.0 General

3.1 Is the quality of workmanship of a satisfactory standard? Y N

NOTE: If the answer to any relevant question is "NO", the modification is not acceptable .

Make:.....

Model:..... Year of Manufacture:.....

Vehicle Chassis No/VIN:

Vehicle Modifier:.....

Examined by:.....

Company (if applicable):.....

Certifying Officer No:..... Modification Certificate No:.....

Modification Plate No:.....

Signed:.....Date:.....

HEAVY VEHICLE MODIFICATIONS**Appendix K3****Modification Code K3****CABIN CONVERSION**

Modifications that are covered under this Modification Code are:

1. Removal of an existing cabin and replacement with an alternative cabin.
2. Repositioning of existing steering column.
3. Repositioning of existing accelerator, brake and clutch controls.
4. Repositioning of gear change mechanism.
5. Construction and installation of new cabin.
6. Extending or shortening of existing cabin.
7. Change in cabin roof profile.
8. Fitting or removal of doors.

Modifications that are **not** covered under this Modification Code are:

1. Fitting omnibus body.
2. Fitting components that are not compatible with original vehicle componentry.
3. Welding of components that is not in accordance with this National Code of Practice.
4. Fitting components not designed for automotive use.
5. Steering modifications.
6. Fitting seat belts and seat belt anchorages.

NOTE: The modified vehicle/modifications must continue to comply with all applicable ADR's, Australian Standards or Regulations/Acts.

Outlined below are areas of the vehicle that may have been affected by the modifications and that may require recertification, testing and/or data to show compliance for the modified vehicle.

DETAIL**REQUIREMENTS**

Removal and Replacement of Cabin

Good Engineering Practice

Reposition Steering, Accelerator,
Brake and Clutch Controls

Good Engineering Practice

HEAVY VEHICLE MODIFICATIONS

Reposition Gear Change Linkages	Good Engineering Practice
Exhaust System Alteration	Modification Code A4
Steering System Alteration	Modification Code E2
Brake Line Relocation	Modification Code G1
Chassis Frame Alteration	Modification Code H4
Extension/shortening of Cabin	Good Engineering Practice
Change in Roof Profile	Good Engineering Practice
Doors	ADR 2, 2/..;
Turn Indicators	ADR 6, 6A, 6/..;
Glass	ADR 8, 8/..;
Internal Sunvisors	ADR 11, 11/..;
Glare Reduction	ADR 12, 12/..;
Vehicle Lighting	ADR 13/..;
Rear Vision Mirrors	ADR 14, 14/..;
Demisting of Windscreens	ADR 15, 15/..;
Windscreen Wipers & Washers	ADR 16, 16/..;
Instrumentation	ADR 18, 18A, 18/..;
Instrument Panels	ADR 21, 21/..;
Structure	Good Engineering Practice
Field of View and External and Internal Protrusions	ADR 42/..

HEAVY VEHICLE MODIFICATIONS

Checklist K3

CABIN CONVERSION

(Y=Yes N=No)
delete if not applicable

- | | | | |
|--|--|---|---|
| 1.0 | Does the cabin continue to comply with all the ADR's it was originally manufactured under? | Y | N |
| 2.0 Removal and Replacement of Cabin | | | |
| 2.1 | Is the replacement cabin compatible with the original vehicle? | Y | N |
| 2.2 | Do any alterations to the exhaust system comply with Modification Code A4? | Y | N |
| 2.3 | Do any alterations to the steering system comply with Modification Code E2? | Y | N |
| 2.4 | Does the repositioning of any controls, valves and pipe work of the brake system comply with Modification Code G1? | Y | N |
| 2.5 | Do any frame alterations comply with Modification Code H4? | Y | N |
| 3.0 Reposition Steering, Accelerator, Brake and Clutch Controls | | | |
| 3.1 | Do any alterations to the steering system comply with Modification Code E2? | Y | N |
| 3.2 | Do any frame alterations comply with Modification Code H4? | Y | N |
| 4.0 Reposition of Gear Change Linkages | | | |
| 4.1 | Are only original components used or have any non-genuine components been certified by a Registered Professional Engineer? | Y | N |
| 5.0 General | | | |
| 5.1 | Are all components fitted compatible with original vehicle components and designed for automotive use? | Y | N |
| 5.2 | Do all components continue to comply with ADR's after any cabin alteration? | Y | N |
| 5.2 | Is the quality of workmanship of a satisfactory standard? | Y | N |

NOTE: If the answer to any relevant question is "NO", the modification is not acceptable.

HEAVY VEHICLE MODIFICATIONS

Make:.....

Model:..... Year of Manufacture:.....

Vehicle Chassis No/VIN:

Vehicle Modifier:.....

Examined by:.....

Company (if applicable):.....

Certifying Officer No:..... Modification Certificate No:.....

Modification Plate No:.....

Signed:..... Date:.....

HEAVY VEHICLE MODIFICATIONS

Appendix K5

Modification Code K5

WHEELCHAIR OCCUPANT RESTRAINT SYSTEM INSTALLATION

Modifications that are covered under this Modification Code are:

1. Installation of wheelchair occupant restraint assemblies and anchorages complying with AS 2942 *Wheelchair Occupant Restraint Assemblies for Motor Vehicles*.

Modifications that are **not** covered under this Modification Code are:

1. Installation of non approved wheelchair restraint systems.
2. Installation of seat belt assemblies.

NOTE: The modified vehicle/modifications must continue to comply with all applicable ADR's, Australian Standards or Regulations/Acts.

Outlined below are areas of the vehicle that may have been affected by the modifications and that may require recertification, testing and/or data to show compliance for the modified vehicle.

DETAIL	REQUIREMENTS
Seat Mountings	ADR 3, 3A, 3/..;
Seat Belt Anchorages	ADR 5A, 5B, 5/..;
Seat Belts	ADR 4, 4A, 4B, 4C, 4D, 4/..;
Wheelchair Restraints	AS 2942

HEAVY VEHICLE MODIFICATIONS

Appendix K5

WHEELCHAIR OCCUPANT RESTRAINT SYSTEM INSTALLATION

SPECIFIC REQUIREMENTS

1.0 Restraint Requirements**1.1 Restraint Design and Construction**

The wheelchair restraints and wheelchair occupant restraints installed must be designed and constructed in accordance with the section/s relating to **“Design, Construction and Testing”** of Australian Standard AS 2942 *Wheelchair Occupant Restraint Assemblies for Motor Vehicles*.

1.2 Restraint Marking and Packaging

The wheelchair occupant restraint assembly and subassemblies installed must be marked and packaged in accordance with the section/s relating to **“Marking and Packaging”** of AS 2942.

1.3 Restraint Assembly and Installation

The wheelchair restraint and wheelchair occupant restraint systems must be installed in accordance with the manufacturer’s instructions supplied in accordance with the section/s relating to **“Instructions for Installation”** of AS 2942.

1.4 Restraint System Location

The wheelchair restraint and wheelchair occupant restraint systems must be positioned so as to satisfy the restraint system manufacturer’s clear space requirements, supplied in accordance with the clause/s relating to **“Clearspace Requirements”** of AS 2942.

The area where the wheelchair(s) is restrained must not be used as a luggage area when not occupied by a wheelchair.

1.5 Restraint Anchorages

1.5.1 Wheelchair and occupant restraint anchorage points must be of adequate strength to withstand all anticipated conditions of loading. The vehicle usually requires reinforcement at the mounting points, and the type of reinforcement required will depend on the applied loads and the strength of the vehicle structure in the vicinity of the anchorages. The guidelines for vehicle reinforcement in AS 2942 should be followed.

1.5.2 In cases where timber floors are used, reinforcing plates must be extended and fully welded to the nearest body bearer or cross member of the vehicle.

1.5.3 All wheelchair and occupant restraint mountings must be secured with high tensile bolts which fully engage the thread of the nuts. Self locking or captive type nuts must be used.

1.5.4 The location of the occupant restraint anchorages must comply with the requirements given in clause/s relating to **“Occupant Restraints – Anchorages or Anchor fittings”** of AS 2942.

HEAVY VEHICLE MODIFICATIONS**2.0 Vehicles Used for Transport of Wheelchair Occupants**

- 2.1 It is recommended that vehicles which are used to carry a variety of wheelchair occupants or more than one wheelchair occupant, should satisfy the following minimum dimensional requirements (based on the wheelchair dimensions and clearance zones outlined in AS 2942):
- 2.1.1 Width of doorways for wheelchair access 800mm
- 2.1.2 Height of doorways for wheelchair access 1400mm
- 2.1.3 Internal headroom 1500mm
- 2.2 To allow wheelchair occupants a clear view of surroundings, it is preferable for vehicle windows to extend to at least 1400mm up from the vehicle floor.
- 2.3 If the vehicle to be modified is to be used as a licensed vehicle (i.e. a taxi) it may be required to meet the above minimum dimensional requirements.
- 2.4 It is also recommended that vehicles which are used to carry a variety of wheelchair occupants or more than one wheelchair occupant, should be provided with a means of emergency exit which satisfy the following requirements:
- The wheelchair installation should not obscure any emergency exits in either its loaded or unloaded state.
 - Any means of emergency exit should be clear of obstruction and be capable of being opened outwards from both inside and outside.
 - Any means of emergency exit should be identified by a prominent notice inside and outside displaying the words “EMERGENCY EXIT”, and by words and/or symbols indicating the method of opening, unless, by virtue of the exit design, the method of opening is obvious.
- 2.5 It is recommended that the Taxi Licensing Section of the relevant State jurisdiction be contacted to determine their requirements before modifications are commenced.

HEAVY VEHICLE MODIFICATIONS

Checklist K5

WHEELCHAIR OCCUPANT RESTRAINT SYSTEM INSTALLATION

(Y=Yes N=No)

delete if not applicable

- 1. Are the wheelchair restraints and wheelchair occupant restraints designed and constructed in accordance with the relevant section/s of Australian Standard AS 2942 *Wheelchair Occupant Restraint Assemblies for Motor Vehicles*? Y N
- 2. Are the wheelchair occupant restraint assemblies and subassemblies marked and packaged in accordance with the relevant section/s of AS 2942? Y N
- 3. Are the wheelchair restraint and wheelchair occupant restraint systems installed in accordance with the manufacturer’s instructions supplied in accordance with the relevant sections of AS 2942? Y N
- 4. Are the wheelchair restraint and wheelchair occupant restraint systems positioned so as to satisfy the restraint system manufacturer’s clear space requirements, stated in accordance with the relevant section/s of AS 2942? Y N
- 5. Are the wheelchair and occupant restraint anchorage points of strength adequate to withstand all anticipated conditions of loading? Y N
- 6. In the case of a timber floor, are the anchorage reinforcing plates extended and fully welded to the nearest body bearer or cross member of the vehicle? Y N
- 7. Are all wheelchair and occupant restraints anchored with high tensile bolts that fully engage the thread of the nuts? Y N
- 8. Are self locking or captive type nuts and washers used at all anchorages? Y N
- 9. Is the quality of workmanship to a satisfactory standard? Y N

NOTE: If the answer to any relevant question is “NO”, the modification is not acceptable.

Make:.....

Model:..... Year of Manufacture:.....

Vehicle Chassis No/VIN:

Vehicle Modifier:.....

Examined by:.....

Company (if applicable):.....

Certifying Officer No:..... Modification Certificate No:.....

Modification Plate No:.....

HEAVY VEHICLE MODIFICATIONS

Signed:.....Date:.....