

Correct as at 23rd November 2013. It may be superseded at any time.

Extract taken from: NZTA Vehicle Portal > VIRMs > In-service certification (WoF) > General vehicles > Vehicle structure

## 3 Vehicle structure

### 3-1 Structure (incl. frontal impact)

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#### Reasons for rejection

##### Condition

1. The structure of the vehicle (shaded areas of **Figure 3-1-2**) has visible:
  - a) deformation from the original shape that has affected the vehicle's structural integrity ([Note 1](#)) ([Note 3](#)), or
  - b) cracking, or
  - c) fracture, or
  - d) corrosion damage ([Note 2](#)) that is individually larger than 50mm in diameter (**Figure 3-1-1**), or
  - e) corrosion damage within 150mm of the top of an A-pillar (**Figure 3-1-2**), or
  - f) any corrosion that the inspector considers has caused weakening of a load-bearing structure ([Note 6](#)), or
  - g) poor repairs that have not returned the structure to within a safe tolerance of when it was manufactured ([Note 3](#)) ([Note 6](#)), eg:
    - i. filler has been used in an attempt to conceal corrosion damage or deformation of a component
    - ii. a high strength steel component has been heated
    - iii. a component has been strengthened.

##### Modification ([Note 5](#))

2. The performance of the frontal impact occupant protection system may have been affected by a modification, including an added or removed object, fitting or component, after the vehicle was manufactured if the vehicle has a GVM of 2500 kg or less and:
  - a) is:
    - i. a class MA motor vehicle manufactured from 1 March 1999, or
    - ii. a class MA motor vehicle that was less than 20 years old when it was first registered in New Zealand on or after 1 April 2002, or
    - iii. a class MB or MC motor vehicle manufactured from 1 October 2003, and
  - b) is not excluded from the requirements for LVV specialist certification (**Table 3-1-1**).
3. A modification affects the vehicle structure – including an object or fitting affixed after manufacture that is welded to the chassis, sub-frame, cross-member or body of a monocoque structure, and
  - a) is not excluded from the requirements for LVV specialist certification (**Table 3-1-1**), and
  - b) is missing proof of LVV specialist certification, ie:
    - i. the vehicle is not fitted with a valid low volume vehicle certification plate, or
    - ii. the operator is not able to produce a valid modification declaration or authority card.

##### Note 1

The structure of a vehicle may incorporate crumple zones that form part of a frontal impact occupant protection system.

##### Note 2

**Corrosion damage** is where the metal has been eaten away, which is evident by pitting. The outward sign of such corrosion damage is typically displayed by the lifting or bubbling of paint. In extreme cases, the area affected by the corrosion damage will fall out and leave a hole.

**Bumper bar** means either the structural part inside a plastic bumper or a complete metal bumper as used on older vehicles.

### **Note 3**

The vehicle inspector may request additional relevant information from a repairer or other relevant person. The vehicle inspector should withhold the warrant of fitness if there is reason to believe that the vehicle has:

- a) structural damage, or
- b) inadequate structural repair(s), or
- c) corrosion damage

to the extent that it could affect the vehicle's structural strength or one of the vehicle's safety requirements. If the owner questions the decision, the vehicle inspector should recommend the vehicle owner obtain further written assessment from a panel beater.

### **Note 4**

The following vehicles with a GVM of 2500kg or less must comply with a frontal impact occupant protection standard:

- Class MA motor vehicles manufactured on or after 1 March 1999
- Class MA motor vehicles that were less than 20 years old when they were first registered in New Zealand on or after 1 April 2002
- Class MB and MC motor vehicles manufactured on or after 1 October 2003.

### **Note 5 Definitions**

**Modify** means to change a vehicle from its original state by altering, substituting, adding or removing a structure, system, component or equipment, but does not include repair.

**Repair** means to restore a damaged or worn vehicle, its structure, systems, components or equipment to within safe tolerance of its condition when manufactured, including replacement with equivalent undamaged or new structures, systems, components or equipment.

### **Note 6**

Where the inspector is presented with a Nissan Terrano or Nissan Mistral vehicle of the type that is fitted with a two-layer (double skin) floor panel, the inspection procedure in Technical bulletin 2 must be followed.

### **Note 7**

A body lift on a body/chassis vehicle (commonly a 4x4) always requires LVV certification.

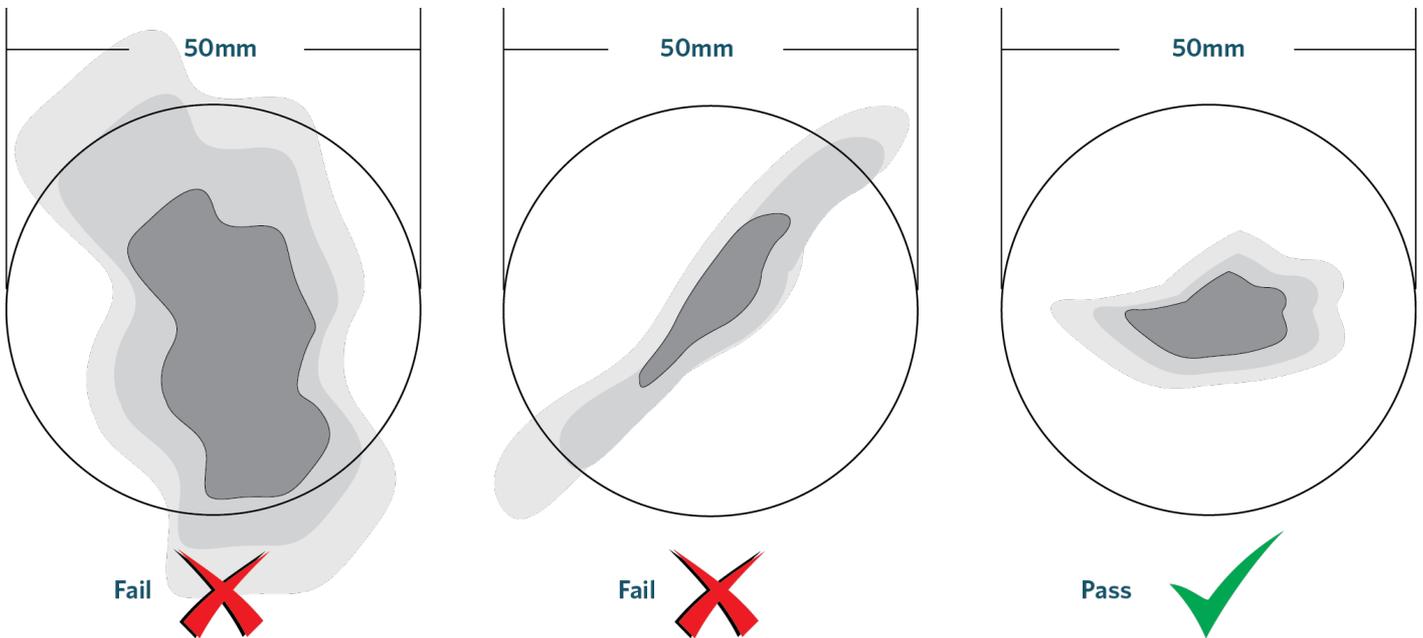
## **Table 3-1-1. Modifications that do not require LVV certification**

Fitting of or modification to:	LVV certification is not required provided that:
Addition of side windows into a panel van or goods van	<ul style="list-style-type: none"> <li>• The modification was carried out before 1/3/1999, or</li> <li>• The modification was carried out on or after 1/3/1999, and the material removed for the side window installation does not contribute to the strength of the vehicle structure (for example, cutting into flat panels does not affect the structural strength, but cutting into bracing material does affect the structural strength of the vehicle).</li> </ul>
Campervan conversions	<ul style="list-style-type: none"> <li>• The conversion was completed before 1/3/1999, or</li> <li>• The conversion was completed on or after 1/3/1999, and</li> <li>• No modifications were carried out to the vehicle roof or rear wall, and</li> <li>• No seats or seatbelt anchorages were retrofitted.</li> </ul> <p><b>Note</b> This means that a campervan conversion completed on or after 1/3/1999, other than a camper box fitted to an unmodified cab and chassis, always requires LVV certification.</p>
Cosmetic body kits and components (including utility canopies and plastic bumper skins)	<ul style="list-style-type: none"> <li>• the fitting system does not weaken the vehicle structure, and</li> <li>• the kit or components do not present any forward-facing external projections, and</li> <li>• none of the frontal impact components have been removed where the vehicle is required to comply with a frontal impact occupant protection standard (<a href="#">Note 4</a>), and</li> <li>• the performance of any lamps is not affected as a result of the kit or components.</li> </ul>
Bumper bar (removal and change) ( <a href="#">Note 2</a> )	<ul style="list-style-type: none"> <li>• the vehicle is not required to comply with a frontal impact occupant protection standard (<a href="#">Note 4</a>)</li> </ul>
Fibreglass replacement panels (that are substituted for OE panels)	<ul style="list-style-type: none"> <li>• the OE panels being replaced do not contribute to the strength of the vehicle structure, including side impact resistance, and</li> <li>• the replacement panels use OE attachment points.</li> </ul>
Seatbelt anchorages retrofitted after 1 January 1992 in vehicles of classes MA, MB, MC or after 1 March 1999, in vehicles of other classes	<ul style="list-style-type: none"> <li>• the anchorage is a top tether anchorage for a child seat or child harness, and</li> <li>• the installation is carried out in accordance with the instructions of the seat or harness manufacturer.</li> </ul>
Suspension braces (strut tower braces)	<ul style="list-style-type: none"> <li>• there are no structural changes to the body or suspension mounting points.</li> </ul>
Auxiliary bars (including bull bars, nudge bars, external roll cages and A-frames [or similar])	<ul style="list-style-type: none"> <li>• the vehicle is not required to comply with a frontal impact occupant protection standard (<a href="#">Note 4</a>), or</li> <li>• the vehicle is required to comply with a frontal impact occupant protection standard and the auxiliary bar: <ul style="list-style-type: none"> <li>– is a vehicle manufacturer supplied component for that vehicle, or</li> <li>– has been certified by the auxiliary bar manufacturer as frontal impact compliant (as may be indicated by a label) <b>or</b></li> <li>- is an A-frame that meets all of the following requirements: <ul style="list-style-type: none"> <li>- is attached to the chassis by means other than welding, and</li> </ul> </li> </ul> </li> </ul>

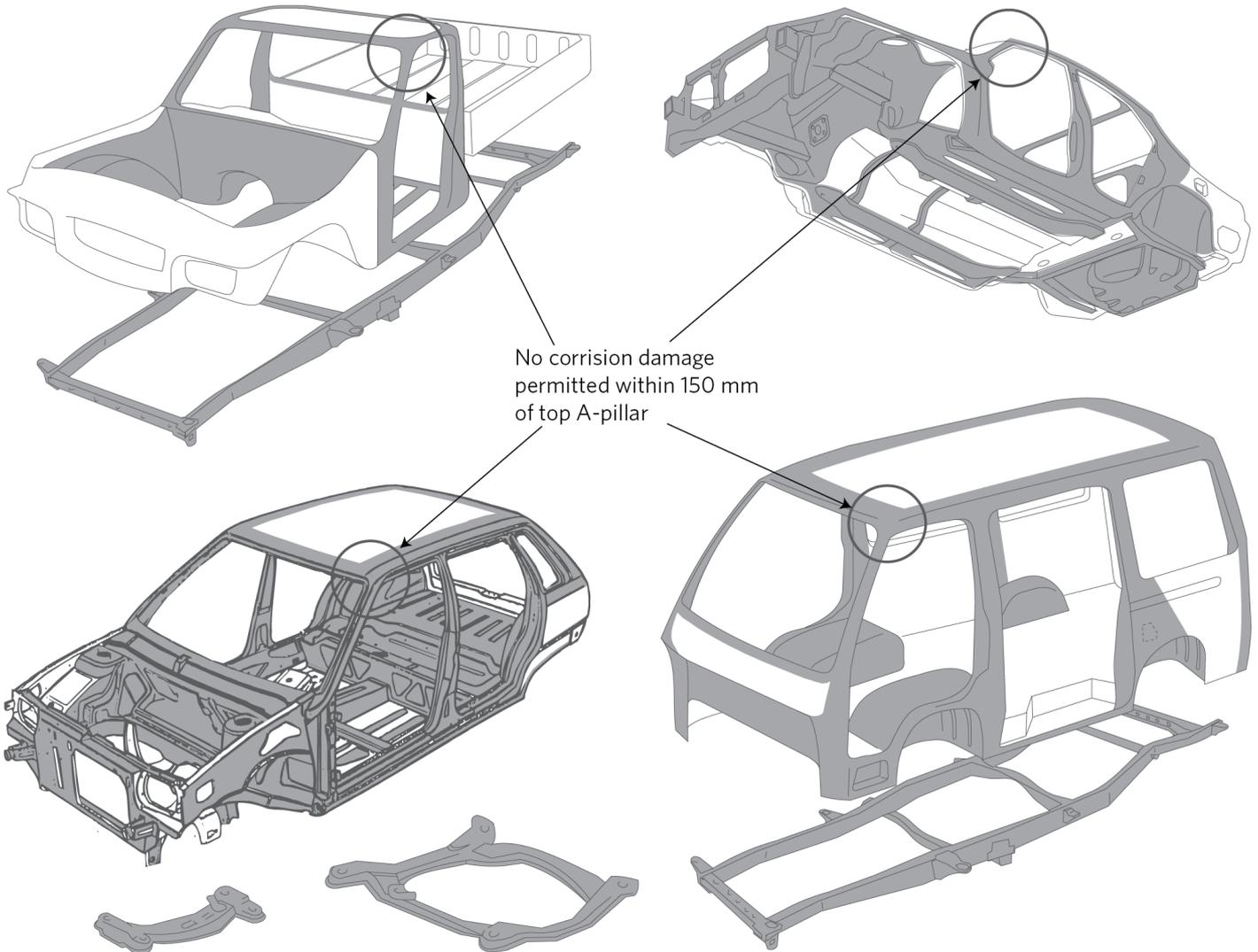
	<ul style="list-style-type: none"> <li>- components are fit for purpose, and</li> <li>- the brackets remaining on the vehicle when the A-frame is removed are recessed behind the forward surface of the bumper by no less than 20mm, and</li> <li>- the brackets are fitted so that they do not bridge the vehicle's crumple zones or significantly stiffen the front of the vehicle.</li> </ul> <p><b>Note</b> that an auxiliary bar that does not meet the above minimum requirements is unlikely to meet LVV requirements and so cannot be certified.</p>
Front-mounted intercooler	<ul style="list-style-type: none"> <li>• the front structure of the vehicle has not been modified, and</li> <li>• the front bumper structure is unaltered (cosmetic changes are permitted), and</li> <li>• the components do not present any forward-facing external projections, and</li> <li>• none of the frontal impact components have been removed where the vehicle is required to comply with a frontal impact occupant protection standard (<a href="#">Note 4</a>).</li> </ul>
Cargo hoist/lift platform	<ul style="list-style-type: none"> <li>• the vehicle structure has not been weakened.</li> </ul>
Stereo equipment and speakers	<ul style="list-style-type: none"> <li>• any modification or fitting carried out before 1/1/1992</li> </ul> <p>If fitted to the rear parcel shelf :</p> <ul style="list-style-type: none"> <li>• no upper seatbelt anchorage is attached to the shelf or any shelf support bracket, and</li> <li>• if upper seatbelt anchorage is fitted, the removal of any material from the rear shelf is unlikely to have weakened the vehicle structure to which a seatbelt anchorage is attached, and</li> <li>• in the case of a top tether point for a child seat attached to the rear shelf, the top tether point is not located within 150mm of a modification to a rear parcel shelf.</li> </ul> <p>If fitted to a part of the vehicle other than the rear parcel shelf:</p> <ul style="list-style-type: none"> <li>• no structural material has been removed from within 300mm of a seatbelt anchorage, and</li> <li>• any material removed is minimal and is unlikely to have weakened the vehicle structure (including a seatbelt anchorage structure).</li> </ul>

Fitting of or modification to:	LVV certification is never required:
Aftermarket sunroof or roof vent/hatch	<ul style="list-style-type: none"> <li>• in-service requirements for condition and performance must be met.</li> </ul>
Towbars	
Any modification for the purposes of law enforcement or the provision of emergency services	
Roof racks fitted to a vehicle other than a PSV (refer to <a href="#">3-3</a> for PSV requirements).	

**Figure 3-1-1. Corrosion damage 50mm diameter limit**



**Figure 3-1-2. Corrosion damage as referred to in Condition above**



These include chassis, cross-members and sub-frames, load-bearing monocoque body structures, body mounts and the body on a vehicle with a separate chassis. Other sections also contain Reasons for rejection and diagrams relating to specific vehicle components. See figures for corrosion limits to hinge and latch anchorages (section 6-1), seatbelt anchorages (section 7-5), and front or rear suspension anchorages (section 9-1).

Note that the diagram has been updated to take into account the more modern vehicle structures of common vehicles.

## Summary of legislation

### Applicable legislation

- [Land Transport Rule: Frontal Impact 2001](#)
- [Land Transport Rule: Vehicle Standards Compliance 2002](#).

### Condition

1. The vehicle must be safe to be operated.
2. The components and materials must be fit for their purpose and within safe tolerance of their state when manufactured or modified.
3. The performance of a motor vehicle in relation to protecting occupants in a frontal impact collision must not be reduced below a safe tolerance by any factors, including corrosion, structural damage, material degradation, inadequate repair, the fitting of additional equipment, or the removal of equipment, taking into account:
  - a) the function of the additional equipment fitted to the motor vehicle after manufacture, and the measures taken to minimise the risk of injury from the equipment;
  - b) evidence that the motor vehicle is within the manufacturer's operating limits.

### Modification

4. A modification that affects the integrity of the vehicle structure must be inspected and certified by an LVV specialist certifier, unless the vehicle:
  - a) is excluded from the requirement for LVV specialist certification (**Table 3-1-1**), and
  - b) has been inspected in accordance with the requirements in this manual, including those for equipment, condition and performance.

Page amended **14 October 2013** (see [amendment details](#)).