Correct as at 26th June 2026. It may be superseded at any time.

Extract taken from: In-service certification (WoF and CoF) > General vehicles > Vehicle structure

3 Vehicle structure

3-1 Structure (incl. frontal impact)

Note 1

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

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) (Note 9) (Figure 3-1-4), or

b) cracking, or

c) fracture, or

d) corrosion or wood rotting damage (Note 2) that is individually larger than 50mm in diameter (Figure 3-1-1), or

e) corrosion or wood rotting damage within 150mm of the top of an A-pillar (Figure 3-1-2), or

f) any corrosion or wood rotting 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 any damage or deformation of a component

ii. a high strength steel component has been heated

iii. a component has been strengthened.

Modification

- see Note 5 and **Introduction 3.1.2: Note 3**)

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 (Note 7), and

a) is not excluded from the requirements for LVV specialist certification (Table 3-1-1), and

b) is missing proof of LVV specialist or accepted overseas certification, ie:

i. the vehicle is not fitted with a valid LVV vehicle certification plate, or

ii. the operator is not able to produce a valid modification declaration or authority card

iii. the vehicle has not been certified to an accepted overseas system as described in **Technical bulletin 13** .

Note 2

Corrosion or wood rotting damage is where a metal or wooden structure has been eaten away and could be seen as bubbling, or pitting of the steel or by water damage, delamination or swelling of a wooden surface. The outward signs of such damage is typically displayed by the lifting, bubbling or discolouring of painted surfaces. In extreme cases, the area affected by the damage will fall out and leave a hole.

Bumper bar means either the part inside a plastic bumper or a complete metal bumper as used on older vehicles. The bumper fascia (bumper cover) is not part of the bumper structure. It is the bumper reinforcement (also known as the bumper bar) that is the actual bumper bar for inspection purposes (see Figure 3-1-3).

Note 3

The vehicle inspector may request additional relevant information from a repairer or other relevant person. To the extent that it could affect the vehicle's structural strength or one of the vehicle's safety requirements, 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 or wood rotting damage.

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.

Note 8

Rear bumper removal must still meet external projection requirements.

Note 9

Dents smaller than 5mm deep and 40mm in diameter (to the outer edges of the crease), such as those caused by hail, in the pillars, cant rail or any other similar roof structure, should not be considered to affect the vehicles structural integrity. Any damage larger than above should be referred to a repairer for additional information (see Figure 3-1-4).

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	• The modification was carried out before 1/3/1999, or The modification was carried out on or after 1/3/1999, and the modification has not weakened the vehicle structure (Note 10).
Aftermarket sunroof or roof vent/hatch	The fitting has not weakened the vehicle structure (Note 10)

A-frames	• the A-frame meets all of the following requirements:
	  ○ is attached to the chassis by means other than welding, and
	  ○ the components are fit for purpose, and
	  ○ 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
	  ○ the brackets are fitted so that they do not bridge the vehicle's crumple zones, and
	  ○ the brackets are fitted so that they do not significantly stiffen the front of the vehicle.
	
	See also **Table 2-1-1**

Fitting of or modification to:	LVV certification is not required provided that:

Auxiliary bars (including bull bars, nudge bars, external roll cages and winches)	• The vehicle is not required to comply with a frontal impact occupant protection standard (Note 4)
	• The auxiliary bar:
	  ○ presents no pedestrian traps (Note 11), and
	  ○ is not angled forward except where necessary to clear the contours of the vehicle, and
	  ○ presents no sharp edges or an external radius of less than 3mm, and
	• The winch either:
	  ○ does not protrude forward of the front face of the bumper, or
	  ○ does project forward of the bumper line but is fitted with 'pedestrian-friendly' shrouds to reduce trapping risk and present a larger forward-facing surface area.
	• the vehicle is required to comply with a frontal impact occupant protection standard and the auxiliary bar:
	  ○ is a vehicle manufacturer supplied component for that vehicle, or
	  ○ has been certified by the auxiliary bar manufacturer as frontal impact compliant (as may be indicated by a label).
	
	Note that an auxiliary bar that does not meet the above minimum requirements is unlikely to meet LVV requirements and so cannot be certified.
	
	See also **Table 2-1-1**

Body kits	Fitting, removal or modification does not weaken the vehicle structure (Note 10). See also **Table 2-1-1**
Bumper bar (removal and change)	• the vehicle is not required to comply with a frontal impact occupant protection standard (Note 4), and • Does not weaken the vehicle structure (Note 10) • Any changes to the bumper do not affect the performance of mudguards or • A rear bumper bar has been replaced by a towbar crossmember. See also **Table 2-1-1**

Fitting of or modification to:	LVV certification is not required provided that:

Campervan conversions	• the conversion was completed before 1/3/1999, or
	• the conversion was completed on or after 1/3/1999, and
	  ○ no modifications were carried out to the cab rear wall, and
	  ○ modifications to the roof meet the following requirements:
	  ▪ only a single panel of sheet metal may be cut per roof opening, and
	  ▪ any bracing or structural elements have not been modified, and
	  ▪ no modifications are within 150mm of a seatbelt anchorage; and
	  ○ no seats or seatbelt anchorages were retrofitted, or
	• there is evidence of certification of the modification from the company that carried out the modification, ie a secondary certification plate or label in the case of a motorhome conversion (see **Technical bulletin 13**).
	
	See also **Table 7-1-1** and **Table 7-5-1**

Cargo hoist/cargo lift platform	• the vehicle is not adapted for the transportation of a person in a wheelchair, and the hoist or tail lifter is positioned to the rear of any vehicle occupants and adequately mounted, and • the vehicle structure has not been weakened (Note 10). See also **Table 7-1-1**
Fibreglass replacement panels (that are substituted for OE panels)	• no frontal impact components have been removed where the vehicle is required to comply with a frontal impact occupant protection standard (Note 3), and • the OE panels being replaced do not contribute to the strength of the vehicle structure, including side impact resistance, and • the replacement panels use OE attachment points (bonnet hinges and latches must be OE or direct replacements). See also **Table 2-1-1**
Gear shift lever location	• no substantial modifications have occurred to the floor or gearbox tunnel area, other than provision for gear-shift mechanism, and • the relocation presents no additional risk of injury than OE specification. See also **Table 7-1-1**

Fitting of or modification to:	LVV certification is not required provided that:
Glass racks	Fitting, removal or modification does not weaken the vehicle structure (Note 10). See also **Table 2-1-1**
Seatbelt anchorages retrofitted after 1 January 1992 in vehicles of classes MA, MB, MC or after 1 March 1999, in vehicles of other classes	• the anchorage is a top tether anchorage for a child seat or child harness, and • the installation is carried out in accordance with the instructions of the seat or harness manufacturer.
Suspension braces (strut tower braces)	• there are no structural changes to the body or suspension mounting points, and • no cutting, heating or welding to the vehicle structure or suspension components is involved in the attachment of the brace, and • the brace is attached to existing chassis/suspension points with the correct grade bolts and exposed thread is showing through the nut/fastener. See also **Table 9-1-1**
Front-mounted intercooler	• the front structure of the vehicle has not been modified, and • the front bumper structure is unaltered (cosmetic changes are permitted) (Note 2), and • the components do not present any forward-facing external projections, and • none of the frontal impact components have been removed where the vehicle is required to comply with a frontal impact occupant protection standard (Note 4).
Snorkels	• the snorkel is fitted only to the outer skin of the A-pillar (not into the central structure), and • the fixings are of an appropriate size, and • the fixings are sealed to prevent water ingress into the A-pillar, and • appropriate rust treatment is applied to prevent corrosion. **Note:** it is recommended that snorkels are fitted with high strength adhesives rather than screws.

Fitting of or modification to:	LVV certification is not required provided that:

Stereo equipment and speakers	• any modification or fitting carried out before 1/1/1992
	
	If fitted to the rear parcel shelf :
	
	• no upper seatbelt anchorage is attached to the shelf or any shelf support bracket, and
	• 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, and
	• the removal of any material from the rear shelf is minimal and is unlikely to have weakened the vehicle structure to which a seatbelt anchorage is attached.
	
	If fitted to a part of the vehicle other than the rear parcel shelf:
	
	• no structural material has been removed from within 300mm of a seatbelt anchorage, and
	• any material removed is minimal and is unlikely to have weakened the vehicle structure (including a seatbelt anchorage structure), and
	• the stereo equipment or speakers fitted in the passenger compartment:
	  ◦ present no additional risk of injury, and
	  ◦ are securely fastened by mechanical means.
	
	See also **Table 7-1-1** and **Table 7-5-1**

Ute trays	For vehicles registered in New Zealand **on or after 1 January 2021**: The fitting has not weakened the vehicle structure (Note 10); and the tray has no sharp edges and radiuses of not less than 3mm on every external edge. See also **Table 2-1-1**
Wheelchair stowing devices	The device: • is for stowing and/or deploying an unoccupied non-powered wheelchair, and • is securely attached to the vehicle, and • folds and locks in a position outside of the vehicle's passenger compartments, and • has no sharp protrusions (edges have a radius of at least 3mm), and • doesn't compromise the safe performance of the vehicle.

Fitting of or modification to:	LVV certification is never required:
Roof mounted solar panels	• in-service requirements for condition and performance must be met.
Roof racks	
Towbars	
Any modification for the purposes of law enforcement or the provision of emergency services	

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 10

Heating, drilling, welding or cutting the vehicle structure, modifying a roof bow, or modifying any part of the structure would be considered to weaken it. Cutting a single layer of unstressed panel of sheet metal (i.e. roof) is not considered to weaken the vehicle structure. Drilling a hole suitable for a child restraint top tether does not require LVV certification.

Note 11

A pedestrian trap is any part of a vehicle that may hook, catch or pull/push a pedestrian into or under a vehicle. Vehicle components should be shaped to reduce injury to a pedestrian and to move the pedestrian away from the vehicle in the event of an incident.

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

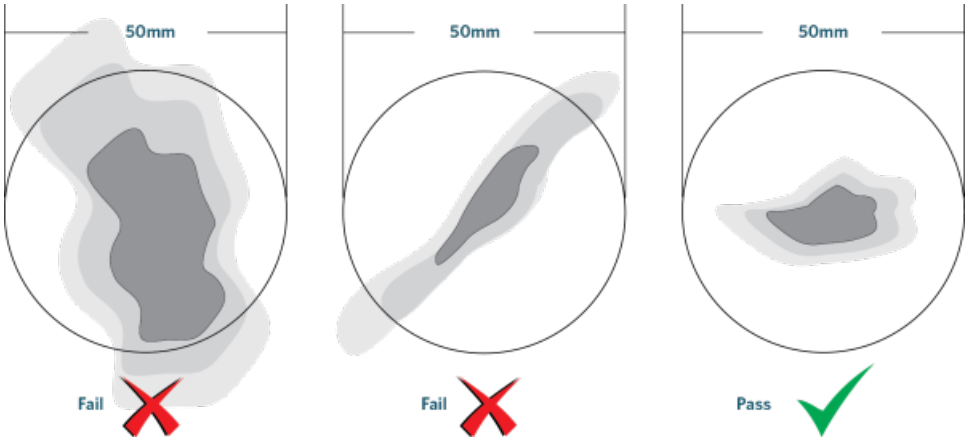
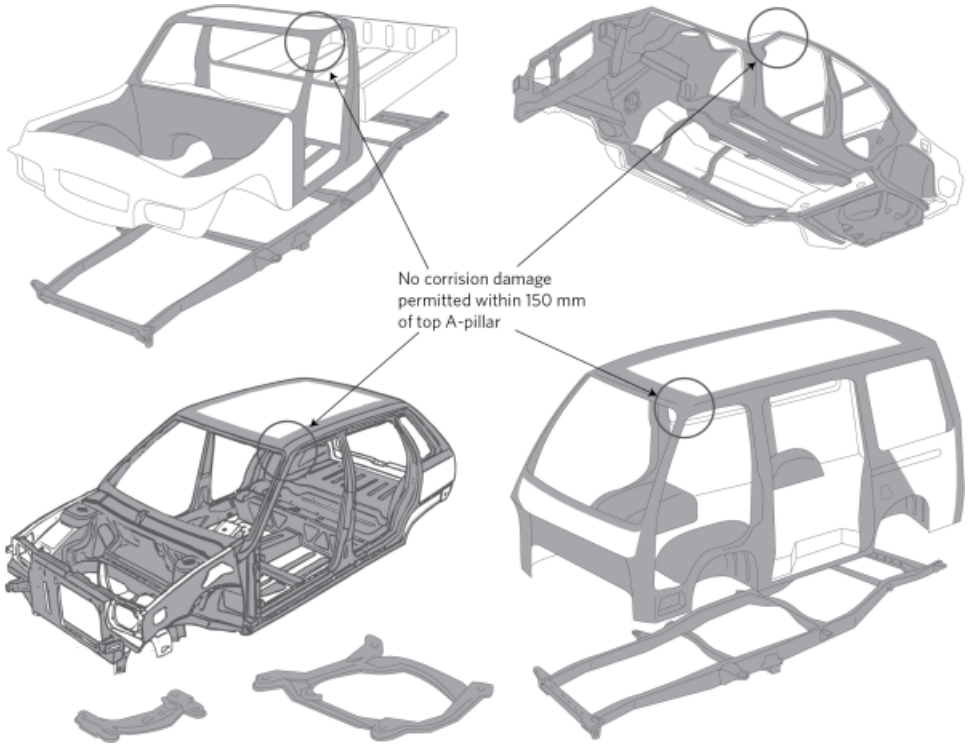


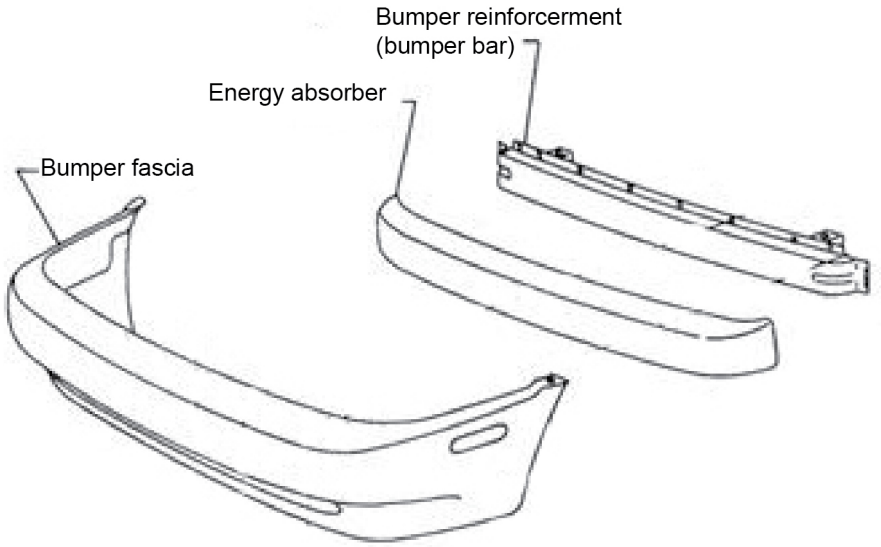
Figure 3-1-2. Corrosion damage as referred to in Condition above



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).

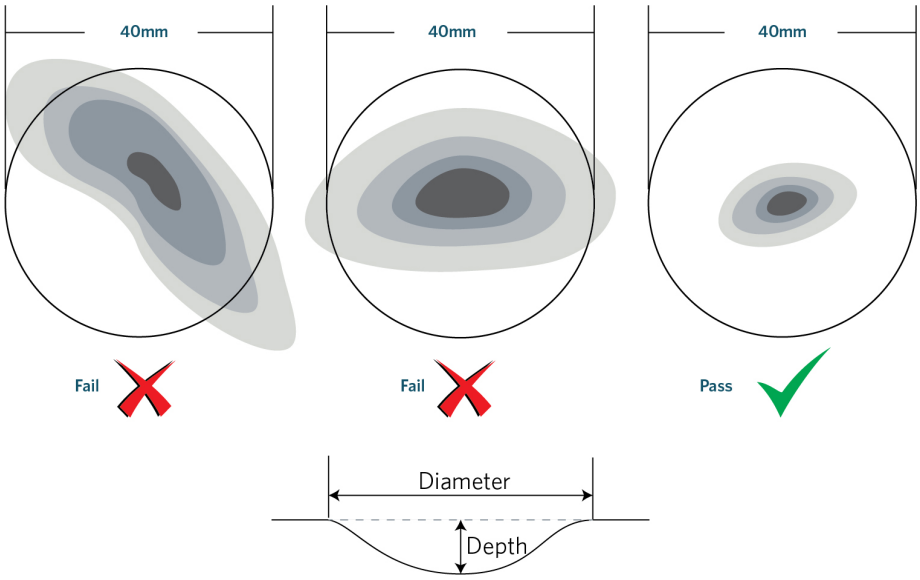
Note that the diagram has been updated to take into account the more modern vehicle structures of common vehicles.

Figure 3-1-3. Bumper components



The bumper fascia (bumper cover) is not part of the bumper structure. It is the bumper reinforcement (also known as the bumper bar) that is the actual bumper bar for inspection purposes.

Figure 3-1-4. Deformation limits



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 **1 April 2024** (see amendment details)