

Vehicle structure

3-1 Structure (including frontal impact)

3-2 Stability

3-3 PSV roof racks

Vehicle structure

3-1 Structure (including frontal impact)

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.

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** and **Note 3**), or
 - b) cracking, or
 - c) fracture, or
 - d) corrosion damage (**Note 2**) that is individually larger than 50 mm in diameter (**Figure 3-1-1**), or
 - e) corrosion damage within 150 mm 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** and **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

Vehicle structure

3-1 Structure (including frontal impact) (cont.)

Reasons for rejection

- 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.

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"> • The modification was carried out before 1/3/1999, or • 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).
Campervan conversions	<ul style="list-style-type: none"> • The conversion was completed before 1/3/1999, or • The conversion was completed on or after 1/3/1999, and <ul style="list-style-type: none"> • No modifications were carried out to the vehicle roof or rear wall, and • No seats or seatbelt anchorages were retrofitted. <p>Note 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"> • the fitting system does not weaken the vehicle structure, and • the kit or 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), and • the performance of any lamps is not affected as a result of the kit or components.
Bumper bar (removal and change) (Note 2)	<ul style="list-style-type: none"> • the vehicle is not required to comply with a frontal impact occupant protection standard (Note 4)

Continued ...

Fitting of or modification to:	LVV certification is not required provided that:
Fibreglass replacement panels (that are substituted for OE panels)	<ul style="list-style-type: none"> ▪ 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.
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"> ▪ 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)	<ul style="list-style-type: none"> ▪ there are no structural changes to the body or suspension mounting points.
Auxiliary bars (including bull bars, nudge bars, external roll cages and A-frames [or similar])	<ul style="list-style-type: none"> ▪ the vehicle is not required to comply with a frontal impact occupant protection standard (Note 4), or ▪ the vehicle is required to comply with a frontal impact occupant protection standard and the auxiliary bar: <ul style="list-style-type: none"> - 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). <p>Note 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"> ▪ the front structure of the vehicle has not been modified, and ▪ the front bumper structure is unaltered (cosmetic changes are permitted), 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).
Cargo hoist/lift platform	<ul style="list-style-type: none"> ▪ the vehicle structure has not been weakened.
Stereo equipment and speakers	<p>If fitted to the rear parcel shelf:</p> <ul style="list-style-type: none"> ▪ 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 150 mm 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. <p>If fitted to a part of the vehicle other than the rear parcel shelf:</p> <ul style="list-style-type: none"> ▪ no structural material has been removed from within 300 mm of a seatbelt anchorage, and ▪ any material removed is minimal and is unlikely to have weakened the vehicle structure (including a seatbelt anchorage structure).

Vehicle structure

3-1 Structure (including frontal impact) (cont.)

Fitting of or modification to:	LVV certification is never required:
Aftermarket sunroof or roof vent/hatch	<ul style="list-style-type: none"> in-service requirements for condition and performance must be met.
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 3-3 for PSV requirements).	

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.

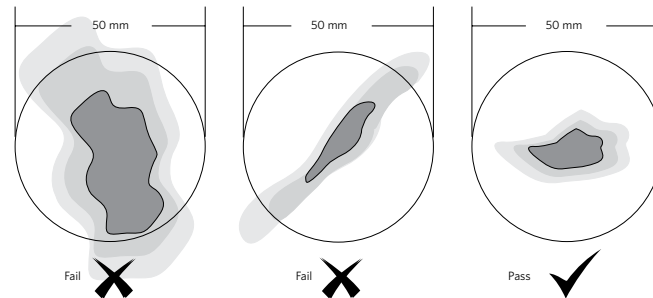


Figure 3-1-1. Corrosion damage 50 mm diameter limit

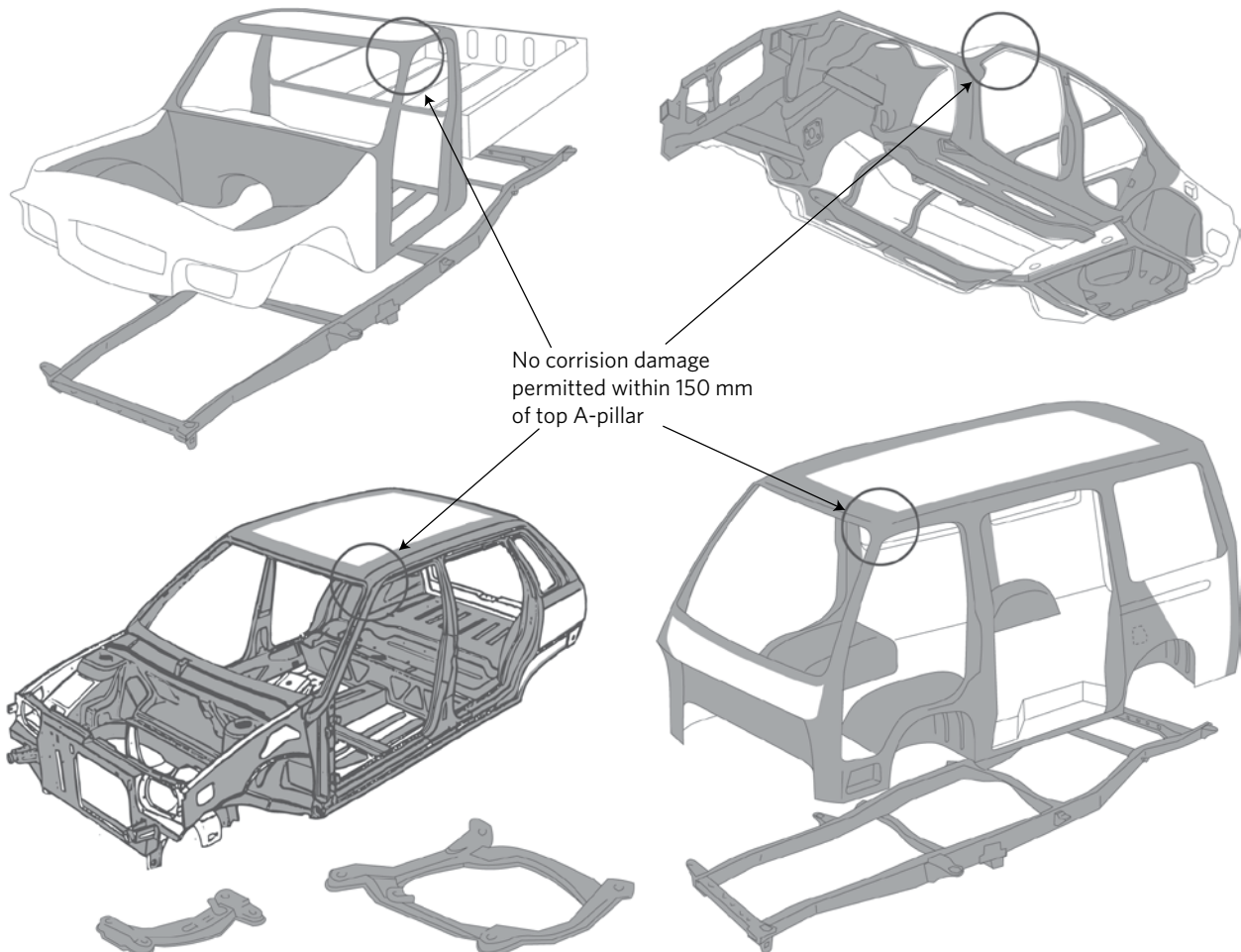


Figure 3-1-2. Shaded areas referred to in Condition above

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.

Vehicle structure

3-1 Structure

Summary of legislation

Applicable legislation

- Land Transport Rule: Heavy Vehicles 2004

Mandatory equipment

1. A sliding chassis must be fitted with:
 - a) a locking device to prevent inadvertent extension or separation, and
 - b) endstops at the end of the slideway to prevent separation of the sliding parts if the primary locking device fails.
2. The body of a vehicle such as a tank body for transporting bulk liquid, a tipping body for transporting sand, grain or other bulk goods, or other types of body that are constructed to contain the transported goods without the use of lashings, chains or other devices, must be specifically designed to contain that type and size of load.

Condition and performance

3. The following must be of adequate strength for all conditions of loading and operation for which the vehicle was constructed:
 - a) the chassis and body of the vehicle
 - b) the body of a vehicle of monocoque construction
 - c) any other load-bearing structure.
4. The locking of a sliding chassis locking device must be readily verifiable by visual inspection or the vehicle must be equipped with a visual or audible alarm to warn the driver if the chassis is not in one of the locking positions.
5. An alarm must be visible or audible from the driver's seating position, and the alarm must operate when the vehicle's engine is running, except when the parking brake is fully applied or when the gear selector of a vehicle with an automatic transmission is in the 'park' position.
6. A sliding chassis locking device must be effective.
7. If a sliding chassis locking device incorporates a system that provides energy for its operation, the device must remain fully engaged in the locked position, or the locking action must be initiated immediately, if the energising system fails.
8. Load-securing equipment that is fitted to a vehicle must be constructed to ensure that the load can be securely contained on the vehicle under all conditions of loading and operation for which the vehicle was constructed.

Modification and repair

9. A modification or repair that affects the vehicle structure must be inspected and certified by an HVS certifier of category HVEC, HVMC or HVIC, unless the vehicle:

Reasons for rejection

Mandatory equipment

1. A sliding chassis is not fitted with both:
 - a) a locking device to prevent inadvertent extension or separation, and
 - b) endstops at the end of the slideway to prevent separation of the sliding parts if the primary locking device fails.

Condition and performance

2. Refer to general vehicle pages.
3. The chassis (**Note 1**), body or other load-bearing structure of a vehicle, including a cab or a monocoque construction body, has damage so that the vehicle is no longer of adequate strength for all conditions of loading and operation for which the vehicle was constructed, such as:
 - a) deformation from original shape that has affected the vehicle's structural integrity, or
 - b) cracking, or
 - c) significant corrosion or delamination, or
 - d) significant rust heave that exceeds the limits in (**Figure 3-1-3**), or
 - e) poor repairs that have not returned the structure to within safe tolerance of when it was manufactured, eg:
 - i. filler has been used to conceal corrosion damage or deformation of a component
 - ii. a high-strength steel component has been heated
 - iii. a component has been strengthened.
 - f) loose, broken or missing fasteners or rivets, or
 - g) damage that affects the integrity, operation or mounting of the following components:
 - i. steering and suspension system, or
 - ii. load anchorages
 - iii. seat or seatbelt anchorages, or

Vehicle structure

3-1 Structure (cont.)

Summary of legislation

- a) is excluded from the requirement for HVS certification (**Table 3-1-2**), and
- b) has been inspected in accordance with the requirements in this manual, including those for equipment, condition and performance.

Reasons for rejection

- iv. brake system, or
 - v. mandatory lighting equipment, or
 - vi. towing connections, or
 - vii. transmission, or
 - viii. cab or vehicle body
4. A body-to-chassis attachment, such as a weld, fastener, hinge, body guide or locking device, is:
 - a) missing, or
 - b) loose, or
 - c) broken, or
 - d) cracked, or
 - e) otherwise in poor condition.
 5. A tipping body hinge, body guide or locking device has deteriorated so that it is not effective in securing the body to the chassis.
 6. The locking of a sliding chassis locking device is either:
 - a) not readily verifiable by visual inspection, or
 - b) the vehicle is not equipped with a visible or audible alarm to warn the driver if the chassis is not locked in one of the locking positions (**Note 5**).
 7. A sliding chassis locking device has wear or damage, such as a worn or bent pin, so that it is not effective.
 8. A sliding chassis locking device does not operate correctly.
 9. A sliding chassis end stop is:
 - a) missing, or
 - b) insecure, or
 - c) damaged.
 10. A bin securing device does not operate correctly.
- #### Modification and repair
11. A modification or repair affects the vehicle structure and:
 - a) is not excluded from the requirements for HVS certification (**Table 3-1-2**), or

Reasons for rejection

- b) the modification is not for the purpose of law enforcement or the provision of emergency services, or
- c) is missing proof of HVS certification, ie:
 - i. the vehicle was modified or repaired before the last CoF inspection and no LANDATA record has been entered, or
 - ii. the vehicle was modified or repaired since the last CoF inspection and no valid LT400 form from a HVS certifier of category HVEC, HVMC or HVIC has been presented.

Table 3-1-2. Requirements for HVS certification

HVS certification is required	HVS certification is not required
<ol style="list-style-type: none"> 1. Repairs to a structural component of a monocoque body. 2. Repairs to a chassis cross-member, ie: <ol style="list-style-type: none"> a) the first or last cross-member of the chassis b) a cross-member that is fitted within 500 mm of an engine mount, transmission mount, or suspension support c) a cross-member to which a driveshaft centre bearing is fitted d) a cross-member that supports any of the following: <ol style="list-style-type: none"> i. ballrace turntable ii. tow coupling iii. fifth wheel iv. kingpin v. bolster attachment vi. hoist, hydraulic cylinder of a tipping body or any other device that may place a concentrated load on the chassis. 3. Repairs to a coaming rail that supports a certified load anchorage point or J-hook, or that secures a load-rated curtain. 4. Modifications that affect the chassis, including fitting of a hoist, crane, tipping body or other special equipment which may result in increased stress to a localised area of the chassis or significant redistribution of the load over the chassis as determined by an HVS certifier. 	<ol style="list-style-type: none"> 1. Repairs to a non-structural component of a monocoque body (eg a body panel). 2. Repairs to a first failure of a chassis cross-member except a repair listed in the left-hand column. 3. Repairs to a coaming rail that does not support a load anchorage point (including a stock crate J-hook) or that does not secure a load-rated curtain. 4. Any modification or repair likely to have been carried out before 1 January 1997 (modifications and repairs before this date generally required certification but for inspection purposes no evidence of this is required). 5. Any repair or modification not listed in the left-hand column unless the vehicle inspector considers that certification is required because the modification or repair has affected the vehicle's safety performance (a second opinion from an expert may be needed).

Note 1 Definitions

Chassis means the structural lower part of a vehicle to which the running gear and, as applicable, engine, transmission, steering system and body may be attached.

Chassis assembly means a chassis with running gear attached and, as applicable, engine, transmission and steering system attached.

Body means the part of the vehicle that is designed for the use and accommodation of the occupants or to hold any goods.

Note 2 Rust stains can indicate fretting or movement between two components, eg as a result of loose fasteners or cracking.

Note 3 Chassis cracking is most likely to occur in the following areas:

- abrupt changes in chassis section
- adjacent to welds
- body mounting points
- adjacent to loose fasteners
- notches.

Note 4 Corrosion is most likely to occur in areas where moisture is retained, or when the vehicle is used to carry stock, fertiliser or corrosive cargo.

Note 5 An alarm must be visible or audible from the driver's seating position, and the alarm must operate when the vehicle's engine is running, except when the parking brake is fully applied or when the gear selector of a vehicle with an automatic transmission is in the 'park' position.

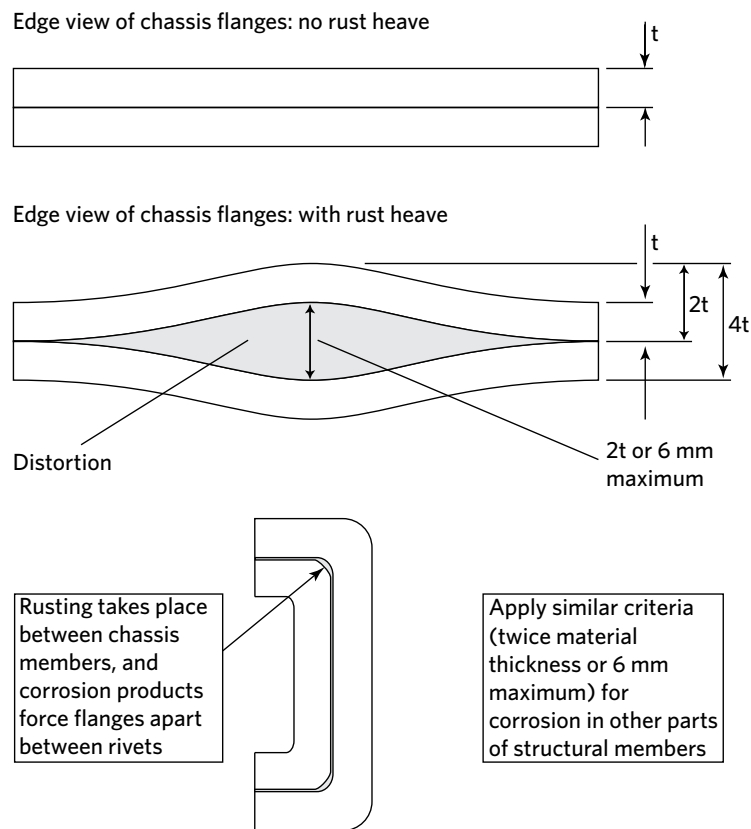


Figure 3-1-3. Rust heave limits

Rust heave beyond the limits described above is acceptable only if an HVS certifier has confirmed this in writing. The vehicle may continue without repair until an expiry date specified by the HVS certifier. Where no expiry date is specified the vehicle must be referred to an HVS certifier for another assessment at the next CoF inspection. Regardless of any expiry date, an inspector may refer the vehicle to an HVS certifier if he/she suspects that the safety of the vehicle is compromised, eg due to excessive corrosion or chassis cracking. If the chassis is repaired, an LT400 is required.

Vehicle structure

3-1 Structure

Summary of legislation

Applicable legislation

- Land Transport Rule: Passenger Service Vehicles 1999

Mandatory equipment

1. An open-bodied vehicle that entered service as a PSV in New Zealand on or after 1 January 2001 must:
 - a) on the open-bodied part of the vehicle have side walls that extend at least 450 mm above the highest point of the uncompressed seat cushion, and
 - b) have a permanent framework to provide reasonable protection for the occupants in the case of the vehicle rolling over, and
 - c) on any upper deck have drains to prevent water from collecting on it or draining into the body of the vehicle.

Condition

2. Refer to general vehicle pages.
3. The structural strength must be maintained throughout the service life of the PSV.
4. The superstructure must be of robust design, and made of materials fit for the purpose.
5. The body of a PSV must be fit for its purpose and securely fixed to the chassis.
6. The structural strength of a PSV must be sufficient to provide reasonable protection for the occupants in the event of roof or wall deformation resulting from the vehicle rolling over.

Modification

7. Refer to general vehicle pages.
8. A modification that affects the vehicle structure must be inspected and certified by an LVV specialist certifier.

Reasons for rejection

Mandatory equipment

1. An open-bodied vehicle that entered service as a PSV in New Zealand on or after 1 January 2001:
 - a) has side walls that are less than 450 mm above the highest point of the uncompressed seat cushion on the open-bodied part of the vehicle, or
 - b) does not have a permanent framework in addition to the side walls to provide reasonable protection for the occupants in the case of the vehicle rolling over, or
 - c) on any upper deck does not have any drains to prevent water from collecting on it or draining into the body of the vehicle.

Condition

2. Refer to general vehicle pages.
3. The structural strength of a PSV has been reduced so that it does not provide reasonable protection for the occupants in the event of roof or wall deformation resulting from the vehicle rolling over, eg:
 - a) structural parts of the superstructure have been removed or substituted with parts that are of insufficient strength or not fit for purpose.
4. A body to chassis attachment, such as a weld, or fastener is:
 - a) missing, or
 - b) loose, or
 - c) cracked, or
 - d) broken, or
 - e) significantly corroded, or
 - f) otherwise in poor condition.

Modification

5. Refer to general vehicle pages.

Vehicle structure

3-1 Structure

Summary of legislation

Applicable legislation

- Land Transport Rule: Passenger Service Vehicles 1999

Mandatory equipment

1. An open-bodied vehicle that entered service as a PSV in New Zealand on or after 1 January 2001 must:
 - a) on the open-bodied part of the vehicle have side walls that extend at least 450 mm above the highest point of the uncompressed seat cushion, and
 - b) have a permanent framework to provide reasonable protection for the occupants in the case of the vehicle rolling over, and
 - c) on any upper deck have drains to prevent water from collecting on it or draining into the body of the vehicle.
2. A heavy open-bodied vehicle that entered service as a PSV in New Zealand on or after 1 July 2001 must have:
 - a) a front screen that extends at least 1 m above the highest uncompressed seat cushion, and at least 1.95 m above the upper floor level, and
 - b) a railing, or another structure through which a sphere of 125 mm diameter cannot be passed, that extends above the side walls to a height of 610 mm above the highest point of the uncompressed seat cushion.

Condition

3. Refer to heavy vehicle pages.
4. The structural strength must be maintained throughout the service life of the PSV.
5. The superstructure must be of robust design, and made of materials fit for the purpose.
6. The body of a PSV must be fit for its purpose and securely fixed to the chassis.
7. The structural strength of a PSV must be sufficient to provide reasonable protection for the occupants in the event of roof or wall deformation resulting from the vehicle rolling over.

Modification and repair

8. Refer to heavy vehicle pages.

Reasons for rejection

Mandatory equipment

1. An open-bodied vehicle that entered service as a PSV in New Zealand on or after 1 January 2001:
 - a) has side walls that are less than 450 mm above the highest point of the uncompressed seat cushion on the open-bodied part of the vehicle, or
 - b) does not have a permanent framework in addition to the side walls to provide reasonable protection for the occupants in the case of the vehicle rolling over, or
 - c) on any upper deck does not have drains to prevent water from collecting on it or draining into the body of the vehicle.
2. On a heavy open-bodied vehicle that entered service as a PSV in New Zealand on or after 1 July 2001:
 - a) a front screen to extend above the upper floor level:
 - i. is missing, or
 - ii. does not extend to at least 1 m above the highest point of the uncompressed seat cushion, or
 - iii. does not extend to at least 1.95 m above the upper floor level, or
 - b) a railing, or another structure, to extend above the side walls:
 - i. has a railing above the side walls through which a sphere of 125 mm diameter can be passed, or
 - ii. has a railing that does not extend above the side walls to a height of at least 610 mm above the highest point of the uncompressed seat cushion.

Condition

3. Refer to heavy vehicle pages.
4. The structural strength of a PSV has been reduced so that it does not provide reasonable protection for the occupants in the event of roof or wall deformation resulting from the vehicle rolling over, eg:
 - a) structural parts of the superstructure have been removed or substituted with parts that are of insufficient strength or not fit for purpose.

Vehicle structure

3-1 Structure (cont.)

Reasons for rejection

5. A body-to-chassis attachment, such as a weld, or fastener is:
 - a) missing, or
 - b) loose, or
 - c) cracked, or
 - d) broken, or
 - e) significantly corroded, or
 - f) otherwise in poor condition.

Modification

6. Refer to heavy vehicle pages.

Vehicle structure

3-2 Stability

Summary of legislation

Applicable legislation

- Land Transport Rule: Passenger Service Vehicles 1999
- Land Transport Rule: Vehicle Standards Compliance 2002

Modification

1. A modification, on or after 1 July 2000, that affects the stability of a light PSV must be inspected and certified by an LVV specialist certifier, unless the vehicle:
 - a) is excluded from the requirements for LVV specialist certification (**Table 3-2-1**), and
 - b) has been inspected in accordance with the requirements in this manual, including those for equipment, condition and performance.

Reasons for rejection

Modification

1. A modification from 1 July 2000 affects the vehicle stability and:
 - a) is not excluded from the requirements for LVV certification (**Table 3-2-1**), or
 - b) is not for the purpose of law enforcement or the provision of emergency services, or
 - c) is missing proof of LVV certification, that is the vehicle is not fitted with a valid low volume vehicle certification plate.

Table 3-2-2. Requirements for LVV certification

LVV certification is required	LVV certification is not required
<ol style="list-style-type: none"> 1. Fitting of components to the roof, eg a roof rack or an air conditioning unit. 2. Changes in floor height or geometry, eg due to changes to suspension, wheel or tyre size. 	<ol style="list-style-type: none"> 1. Any repair or modification not listed in the left-hand column unless the vehicle inspector considers that certification is required because the modification or repair has affected the vehicle's safety performance (a second opinion from an expert may be needed).

Vehicle structure

3-2 Stability

Summary of legislation

Applicable legislation

- Land Transport Rule: Passenger Service Vehicles 1999
- Land Transport Rule: Vehicle Standards Compliance 2002

Modification and repair

1. A modification or repair, on or after 1 July 2000, that affects the stability of a heavy PSV must be inspected and certified by an HVS certifier, unless the vehicle:
 - a) is excluded from the requirements for HVS certification (**Table 3-2-2**), and
 - b) has been inspected in accordance with the requirements in this manual, including those for equipment, condition and performance.

Reasons for rejection

Modification and repair

1. A modification or repair since 1 July 2000 affects the vehicle stability and:
 - a) is not excluded from the requirements for HVS certification (**Table 3-2-2**), or
 - b) the modification is not for the purpose of law enforcement or the provision of emergency services, or
 - c) is missing proof of HVS certification, ie:
 - i. the vehicle was modified or repaired before the last CoF inspection and no LANDATA record has been entered, or
 - ii. the vehicle was modified or repaired since the last CoF inspection and no valid LT400 form from an HVS certifier has been presented.

Table 3-2-2. Requirements for HVS certification

HVS certification is required	HVS certification is not required
<ol style="list-style-type: none"> 1. Fitting of components to the roof, eg a roof rack or an air conditioning unit. 2. Changes in floor height or geometry, eg due to changes to suspension, wheel or tyre size. 	<ol style="list-style-type: none"> 1. Any repair or modification not listed in the left-hand column unless the vehicle inspector considers that certification is required because the modification or repair has affected the vehicle's safety performance (a second opinion from an expert may be needed).

Vehicle structure

3-3 PSV roof racks

Summary of legislation

Applicable legislation

- Land Transport Rule: Passenger Service Vehicles 1999
- Land Transport Rule: Vehicle Standards Compliance 2002

Mandatory requirement

1. A roof rack that is fitted to a light PSV must have a sign or plate on the left-hand side stating:
 - a) the purpose of the roof rack, if other than for general baggage, and
 - b) the maximum weight it is allowed to carry, and
 - c) the manufacturer of the roof rack, and
 - d) either:
 - i. the make, model and registration number of the PSV to which it is fitted, or
 - ii. vehicle identification number or chassis number of the PSV to which it is fitted, or
 - iii. if rated and certified by the vehicle manufacturer or an LVV specialist certifier for a vehicle model, the approval for that vehicle model.

Condition

2. A roof rack that is fitted to a light PSV must be fitted in accordance with instructions by an LVV specialist certifier.

Modification

3. A modification that affects the roof rack of a light PSV, including the fitting of a roof rack, must be inspected and certified by an LVV specialist certifier.

Reasons for rejection

Mandatory requirement

1. A roof rack does not have a sign or plate on the left-hand side.
2. A roof rack sign or plate does not state:
 - a) the purpose of the roof rack, if other than for general baggage, or
 - b) the maximum weight it is allowed to carry, or
 - c) the manufacturer of the roof rack, or
 - d) at least one of the following:
 - i. the make, model and registration number of the PSV to which it is fitted
 - ii. vehicle identification number or chassis number of the PSV to which it is fitted
 - iii. if rated and certified for a vehicle model, the approval for that vehicle model.

Condition

3. The roof rack sign or plate is:
 - a) not securely fitted, or
 - b) not legible.
4. A roof rack that is fitted to a light PSV:
 - a) is not fitted as appropriate for that particular vehicle make, or
 - b) is not fitted securely, eg fastenings are missing, broken or loose, or
 - c) shows signs of significant deterioration that affects its ability to hold or retain the rated load.

Modification

5. A modification since 1 July 2000 affects the roof rack, or a roof rack has been fitted since 1 July 2000, and:
 - a) is not for the purpose of law enforcement or the provision of emergency services, or
 - b) is missing proof of LVV certification, ie:
 - i. the vehicle is not fitted with a valid low volume vehicle certification plate.

Vehicle structure

3-3 PSV roof racks

Summary of legislation

Applicable legislation

- Land Transport Rule: Passenger Service Vehicles 1999
- Land Transport Rule: Vehicle Standards Compliance 2002

Mandatory requirement

1. A roof rack that is fitted to a heavy PSV must have a sign or plate on the left-hand side stating:
 - a) the purpose of the roof rack, if other than for general baggage, and
 - b) the maximum weight it is allowed to carry, and
 - c) the manufacturer of the roof rack, and
 - d) either:
 - ii. the make, model and registration number of the PSV to which it is fitted, or
 - iii. vehicle identification number or chassis number of the PSV to which it is fitted, or
 - iv. if rated and certified by the vehicle manufacturer or a category HVEC, HVIC or HVMC heavy vehicle specialist certifier for a vehicle model, the approval for that vehicle model.

Condition

2. A roof rack that is fitted to a heavy PSV must be fitted in accordance with instructions by a category HVEC, HVIC or HVMC heavy vehicle specialist certifier.

Modification

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

Reasons for rejection

Mandatory requirement

1. A roof rack does not have a sign or plate on the left-hand side.
2. A roof rack sign or plate does not state:
 - a) the purpose of the roof rack, if other than for general baggage, or
 - b) the maximum weight it is allowed to carry, or
 - c) the manufacturer of the roof rack, or
 - d) at least one of the following:
 - i. the make, model and registration number of the PSV to which it is fitted
 - ii. vehicle identification number or chassis number of the PSV to which it is fitted
 - iii. if rated and certified for a vehicle model, the approval for that vehicle model.

Condition

3. The roof rack sign or plate is:
 - a) not securely fitted, or
 - b) not legible.
4. A roof rack that is fitted to a heavy PSV:
 - a) is not fitted as appropriate for that particular vehicle make and model, or
 - b) is not fitted securely, eg fastenings are missing, broken or loose, or
 - c) shows signs of significant deterioration that affects its ability to hold or retain the rated load.

Modification and repair

5. A modification or repair since 1 July 2000 affects the roof rack, or a roof rack has been fitted since 1 July 2000, and:
 - a) is not excluded from the requirements for HVS certification (**Table 3-3-1**), or
 - b) the modification is not for the purpose of law enforcement or the provision of emergency services, or

Vehicle structure **3-3 PSV roof racks (cont.)**

Reasons for rejection

- c) is missing proof of HVS certification, ie:
 - i. the vehicle was modified or repaired before the last CoF inspection and no LANDATA record has been entered, or
 - ii. the vehicle was modified or repaired since the last CoF inspection and no valid LT400 form from a HVS certifier of category HVEC, HVMC or HVIC has been presented.

Table 3-3-1. Requirements for HVS certification

HVS certification is required	HVS certification is not required
Fitting a roof rack	Any repair or modification not listed in the left-hand column unless the vehicle inspector considers that certification is required because the modification or repair has affected the vehicle's safety performance (a second opinion from an expert may be needed, eg the manufacturer's representative or a reputable workshop).