

Vehicle structure

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- 3-2 Determining frontal impact compliance
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Vehicle structure

3-1 Structure

IMPORTANT: Any parts that require removal or disassembly in order to carry out the inspection of structural components and frontal impact occupant protection systems must be removed or disassembled. Refer to Vehicle structure – 3-3 Inspection specifications.

A vehicle whose structure has been damaged beyond the threshold specified in Vehicle structure – 3-4 Threshold for requiring repair certification must be certified by a specialist repair certifier before entry certification.

Summary of legislation

Applicable legislation

- Land Transport Rule: Frontal Impact Amendment 2005
- General safety requirements of Land Transport Rules, including:
 - a) Land Transport Rule: Glazing, Windscreen Wipe and Wash, and Mirrors Amendment 2005
 - b) Land Transport Rule: Door Retention Systems 2001
 - c) Land Transport Rule: Seats and Seat Anchorages 2002
 - d) Land Transport Rule: Seatbelts and Seatbelt Anchorages Amendment 2005
 - e) Land Transport Rule: Light-Vehicle Brakes 2002
 - f) Land Transport Rule: Steering Systems 2001
 - g) Land Transport Rule: Tyres and Wheels Amendment 2005

Compliance with approved standards

1. Certain vehicles must comply with one or more of the approved frontal impact standards in **Table 3-2-1**. Follow **Flowchart 3-2-1** to determine whether a particular vehicle is required to comply with an approved frontal impact standard.

Condition and modification

2. Structural components (**Note 3**) and frontal impact occupant protection systems must comply with the requirements relating to condition and modification set out in the *VIRM: In-service certification*, section 3-1.

Reasons for rejection

Compliance with approved standards

1. A vehicle that is required to comply with an approved frontal impact standard did not comply, or cannot be demonstrated to have complied, with at least one of the standards listed in **Table 3-2-1** at the time the vehicle was manufactured.

Condition and modification

2. A structural component (**Note 3**) or frontal impact occupant protection system does not comply with a requirement relating to condition or modification set out in the *VIRM: In-service certification*, section 3-1.

Note 1 If a vehicle is fitted with an auxiliary bar (eg a bullbar), refer to Technical bulletin 6 – Auxiliary bars.

Note 2 Technical bulletin 10 contains information regarding inspection for corrosion in the rear floorpan assembly of some Nissan Terrano and Mistral models.

Note 3 Structural components include, as a minimum, the following:

- | | | |
|------------------------------------|-------------------------------------|---|
| a) Engine compartment | iv. Roof guttering | iv. Steering and suspension mountings |
| i. Front crush zones | c) Luggage/cargo compartment | v. Subframe mountings |
| ii. Chassis rails | i. Suspension towers and mountings | vi. Seat and seatbelt anchorages |
| iii. Inner guards | ii. Seatbelt anchorages | vii. Sills |
| iv. Firewall | iii. Floor | viii. Floor |
| v. Suspension towers and mountings | iv. Rear panel | e) Passenger compartment (inside vehicle) |
| vi. Radiator support panel | v. Spare wheel well | i. Exposed floor areas |
| b) Exterior | d) Underbody and/or chassis frame | ii. Floor to inner sill seams |
| i. Door frames, locks and hinges | i. Front and rear crush zones | iii. Pillars |
| ii. Pillars | ii. Chassis rails and cross members | iv. Cross members |
| iii. Sills | iii. Floor rails | v. Seat and seatbelt anchorages |

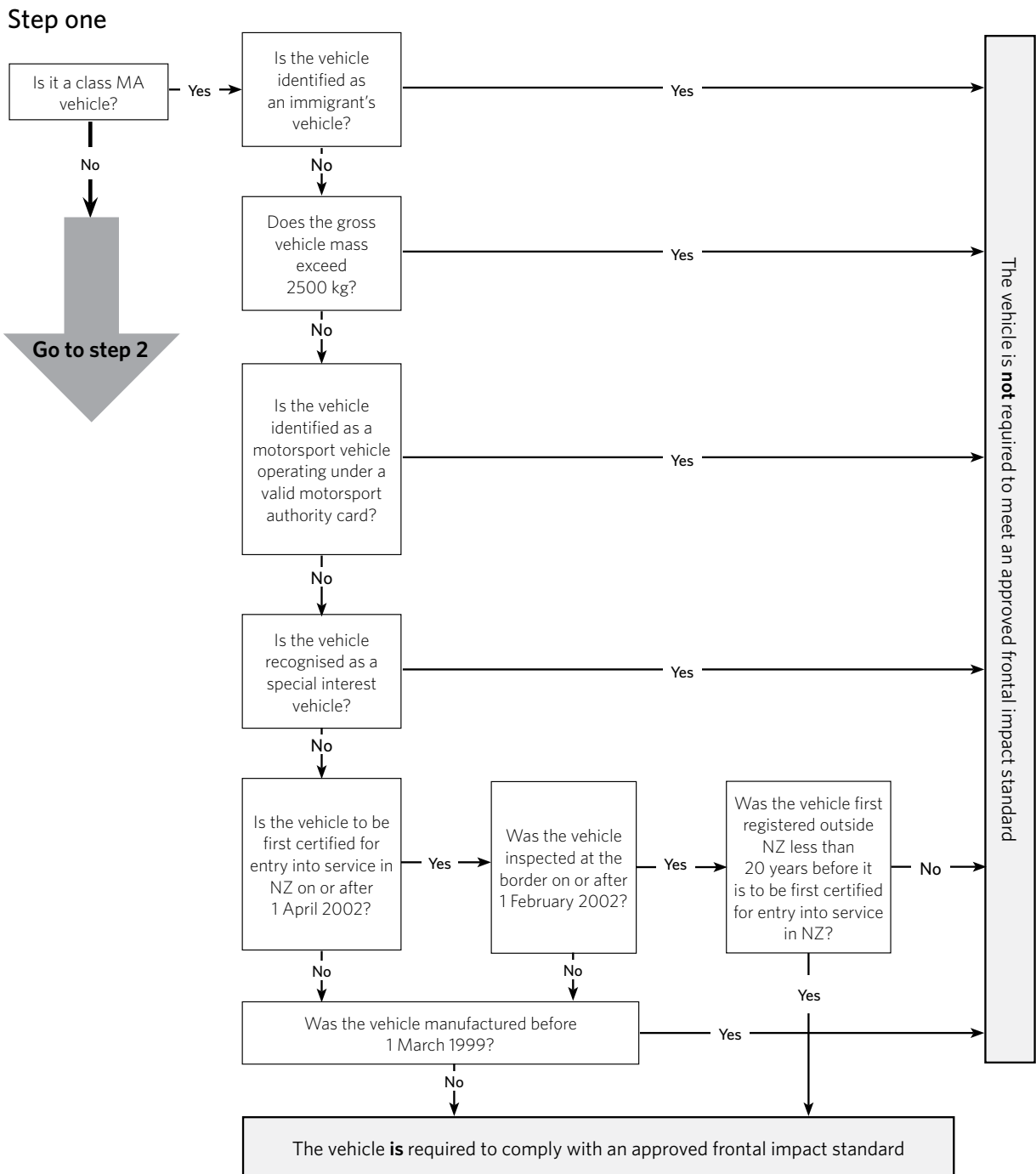
The following information may help a vehicle inspector to apply the requirements for compliance with approved frontal impact standards.

Determine whether or not the vehicle must meet a frontal impact standard (FIS)

Refer to **Flowchart 3-2-1** to determine whether or not the vehicle needs to meet an approved frontal impact standard.

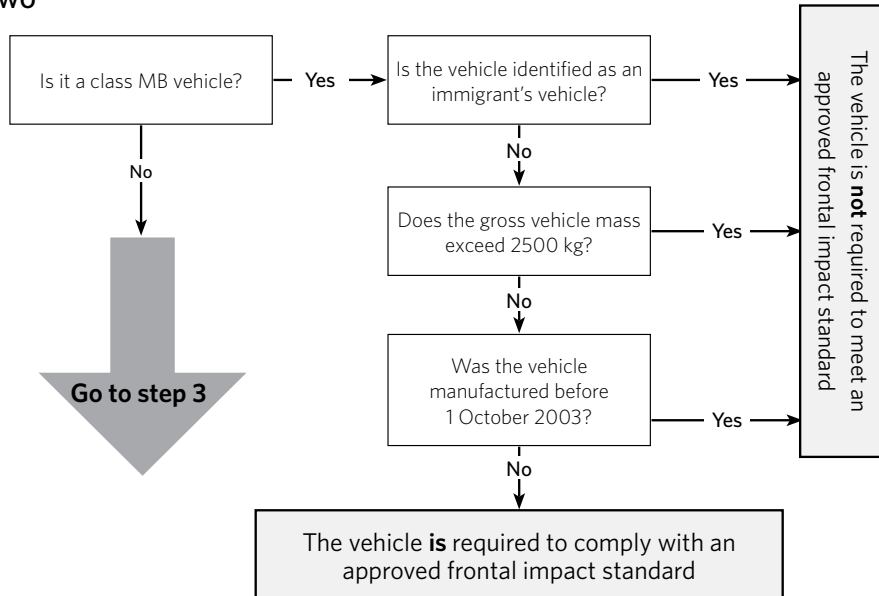
If the vehicle is not required to comply with an approved standard, continue with the inspection.

IMPORTANT: Vehicles may be exempt from the requirement to meet a frontal impact standard. See Technical bulletins 7, 8 and 9 for further information.

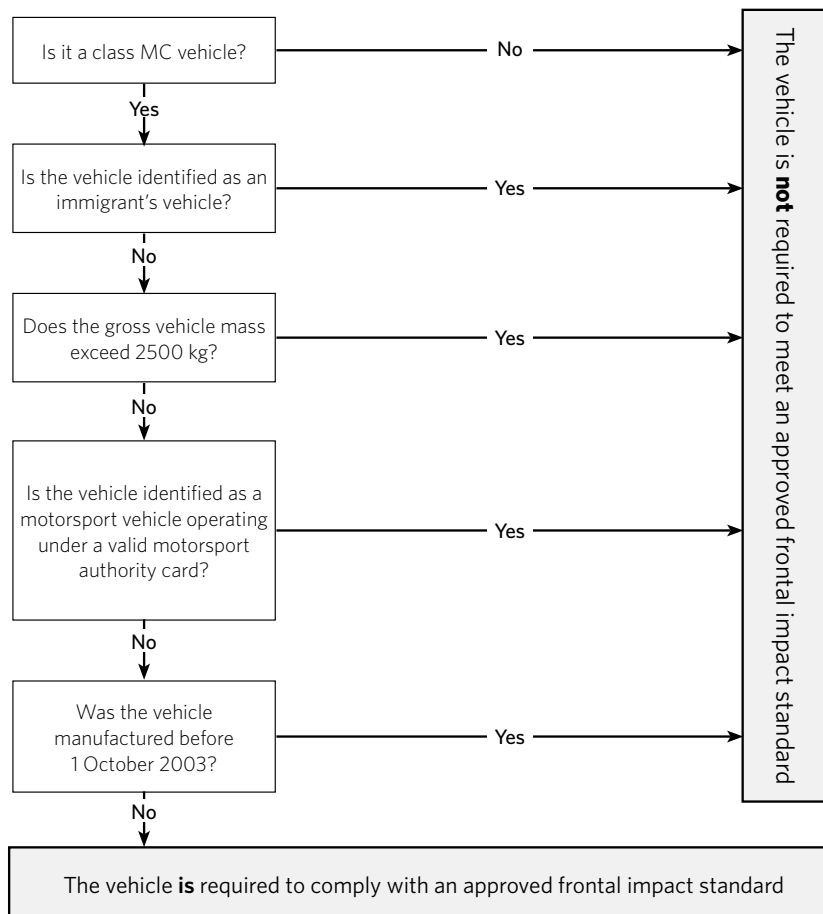




Step two



Step three



Flowchart 3-2-1. Is the vehicle required to comply with an approved frontal impact standard?

If the vehicle is required to comply with an approved standard (listed in **Table 3-2-1**), there are several methods of determining whether or not the vehicle complies, which vary depending on the class of vehicle, the country of import and the date of manufacture.

Table 3-2-1. List of approved frontal impact standards*

UN-ECE Regulation no.	EEC/EC Directive	FMVSS	ADR	Japan
94	96/79 99/98	208	69 73	TS for occupant protection in frontal collision. Article 18

* A vehicle that is required to comply with an approved frontal impact standard must comply with at least one of the standards listed in the table.

Check recognised manufacturer's lists

The NZTA has been advised by several common vehicle manufacturers regarding compliance with approved frontal impact standards for particular class MA vehicles. These vehicles are listed by make and model and published on the NZTA website (www.landtransport.govt.nz/importing/frontal-impact-compliance-status.html).

If a vehicle is shown on one of these lists as complying with an approved frontal impact standard, no further evidence is required to prove that the vehicle meets frontal impact standard requirements. However, a full statement of compliance is still required to prove compliance with other applicable standards, unless an alternative method of confirming standards compliance is provided.

If a vehicle is shown on one of these lists as not complying with an approved frontal impact standard, the vehicle cannot be certified unless a statement of compliance showing that the specific vehicle meets an approved frontal impact standard is provided.

Alternative methods for determining frontal impact compliance

If a vehicle is not shown on any of the recognised manufacturer's lists, one of the following methods may be used to determine compliance with an approved frontal impact standard.

1 Vehicles imported from any country

If a class MA, MB or MC vehicle imported from any country (including Japan) is not shown on one of the recognised manufacturer's lists, one of the following methods may be used to determine compliance with an approved frontal impact standard:

Description	Methods for determining FIS compliance
A class MA, MB or MC vehicle	<ul style="list-style-type: none"> A statement of compliance issued by a representative of the vehicle manufacturer, confirming compliance with an approved frontal impact standard
A class MA vehicle manufactured on or after 1 January 1996	<ul style="list-style-type: none"> An Australian Design Rules (ADR) plate affixed to the vehicle
A class MB or MC vehicle manufactured on or after 1 January 1998	
A used class MA, MB or MC vehicle	<ul style="list-style-type: none"> An FMVSS certification plate, and original documentation confirming that the vehicle was first registered in the US

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Description	Methods for determining FIS compliance
A new or unregistered class MA, MB or MC vehicle	An FMVSS certification plate, and <ul style="list-style-type: none"> documentation confirming that the vehicle was manufactured for the US market and would be permitted for use on public roads in the US
A used class MA, MB or MC vehicle	<ul style="list-style-type: none"> An CMVSS certification plate, and original documentation confirming that the vehicle was first registered in Canada
A new or unregistered class MA, MB or MC vehicle	A CMVSS certification plate, and <ul style="list-style-type: none"> documentation confirming that the vehicle was manufactured for the Canadian market and would be permitted for use on public roads in Canada
A class MA, MB or MC vehicle	<ul style="list-style-type: none"> A United Nations Economic Commission for Europe (UN/ECE) compliance plate, which must display the VIN and an approved frontal impact standard
A class MA, MB or MC vehicle	<ul style="list-style-type: none"> An EC Whole Vehicle Approval plate, which must display compliance with the directive '2001/116'

2 Vehicles imported from Japan

If a class MA, MB or MC vehicle that was manufactured in Japan is not shown on one of the recognised manufacturer's lists published on the NZTA website, one of the following methods may be used to determine frontal impact compliance.

Manufactured in Japan		
Class	Description	Methods for determining FIS compliance
MA	Car with an engine capacity of 660 cc or more	<ul style="list-style-type: none"> Evidence that the vehicle was manufactured for the domestic market on or after 1 January 1996 (Note 2)
	Domestic model first registered in Japan after the end of the last year shown on the latest JAMA list (Note 1)	<ul style="list-style-type: none"> Evidence to establish a clear link to the continuation of a chassis number sequence known to be frontal impact compliant (Note 2)
	Car with an engine capacity less than 660 cc (mini-sized vehicle)	<ul style="list-style-type: none"> Evidence that the vehicle was manufactured on or after 1 July 2000
	New/unregistered car	<ul style="list-style-type: none"> A Japanese completion inspection certificate which demonstrates that the vehicle was manufactured in Japan on or after 1 January 1996 (Note 2)
MB or MC	Manufactured for the Japanese domestic market	<ul style="list-style-type: none"> Evidence that it was manufactured in Japan on or after 1 July 1999
	Domestic model first registered in Japan after the end of the last year shown in the latest JAMA list (Note 1)	<ul style="list-style-type: none"> Evidence to establish a clear link to the continuation of a chassis number sequence known to be frontal impact compliant

Note 1 Japan Automobile Manufacturers Association's (JAMA) books may be used to establish the date of manufacture of Japanese domestic vehicles manufactured after 1 January 1996. When using this method, a vehicle inspector must be able to verify this information and demonstrate the verification process.

Note 2 If a class MA vehicle manufactured in Japan for the Japanese domestic market is not listed in any of the JAMA charts or chassis numbers covering production from 1993 onwards, and was first registered in Japan after the end of the last year shown on the latest JAMA list, it can be assumed that the vehicle was manufactured after 1 January 1996.

If a class MA, MB or MC vehicle that was manufactured outside Japan is not shown on one of the recognised manufacturer's lists published on the NZTA website, one of the following methods may be used to determine frontal impact compliance.

Manufactured outside Japan		
Class	Description	Methods for determining compliance
MA	Vehicle with an engine capacity less than 660 cc (mini-sized vehicle)	<ul style="list-style-type: none"> Evidence that the vehicle was manufactured on or after 1 July 2000 (Note 3), and Evidence that the vehicle has been through the Japanese type approval process (ie a TDN shown on the de-registration or export certificate)
	Car with an engine capacity of 660 cc or more manufactured for the Japanese market	<ul style="list-style-type: none"> Evidence that the vehicle was manufactured on or after 1 April 1999 (Note 3), and Evidence that the vehicle has been through the Japanese type approval process (ie a TDN shown on the de-registration or export certificate) <p>or</p> <ul style="list-style-type: none"> Evidence that the vehicle was manufactured after 1 July 1999 (this may be determined by decoding the VIN to confirm the vehicle has a model year of 2000 or later), and Evidence that the vehicle has been through the Japanese type approval process (ie a TDN shown on the de-registration or export certificate), and The frontal impact compliance lists provided on the NZTA website do not contain any contra information
	Vehicle with no TDN shown on the de-registration or export certificate.	<ul style="list-style-type: none"> Alternative evidence of compliance with an applicable standard. This may be a statement of compliance, an EC Whole Vehicle Approval plate showing directive 2001/116, or a UN/ECE decal showing compliance with R94.
MB or MC	Manufactured for the Japanese domestic market.	<ul style="list-style-type: none"> Evidence that the vehicle was manufactured on or after 1 July 1999 (Note 3) (this may be determined by decoding the VIN to confirm the vehicle has a model year of 2000 or later), and Evidence that the vehicle has been through the Japanese type approval process (ie a TDN shown on the de-registration or export certificate), and The frontal impact compliance lists provided on the NZTA website do not contain any contra information.
	Vehicle with no TDN shown on the de-registration or export certificate.	<ul style="list-style-type: none"> Alternative evidence of compliance with an applicable standard. This may be a statement of compliance, an EC Whole Vehicle Approval plate showing directive 2001/116, or a UN/ECE decal showing compliance with R94.

Note 3 Care must be taken when decoding the VIN. Not all manufacturers use the ISO standard exactly, so it cannot be taken for granted that manufacturers will always use the tenth character as year of manufacture, or that all manufacturers will use the same characters to denote the year. **Table 3-2-3** shows decode data for some non-Japanese makes. Refer to the recognised manufacturers' lists on the the NZTA website for further information.

Note 4 For further information regarding frontal impact compliance requirements for specific Mitsubishi models, refer to Technical bulletin 8 – Frontal impact compliance for Mitsubishi models.

Note 5 For further information regarding frontal impact compliance requirements for Toyota Cavalier vehicles, refer to Technical bulletin 9 – Frontal impact compliance for Toyota Cavaliers.

Note 6 For further information regarding exemptions from frontal impact compliance requirements for people-mover vehicles, refer to Technical bulletin 7 - Frontal impact standard exemptions.

Note 7 A list of the class MA Japanese makes and models that are known to be manufactured outside Japan for the Japanese domestic market are shown in **Table 3-2-2**.

Table 3-1-2. Japanese vehicles manufactured outside Japan

Ford Note: Some Ford models are built in Japan in partnership with Mazda	Festiva (Korea) Ka (Spain) Mondeo (Belgium)	Probe (US) Taurus (US)
Honda	Accord CD3, CD7, CD8, CE1, CF2 (US) Accord Inspire UA4, UA5	Civic Coupe EJ7 (US) LaGreat RL1 (US)
Mitsubishi	Carisma (Belgium and the Netherlands) Magna station wagon (Australia)	Diamante (Australia)
Nissan	Bluebird 'Aussie' (Australia) Primera E-FHP11 (Great Britain)	AD station wagon R-MV FY10 (Mexico) Mistral (Spain)
Toyota	Avalon (US) Cavalier (US)	Scepter (US) Voltz (US)
Subaru	Traviq (Germany)	

Table 3-1-3. VIN decode data for some European makes

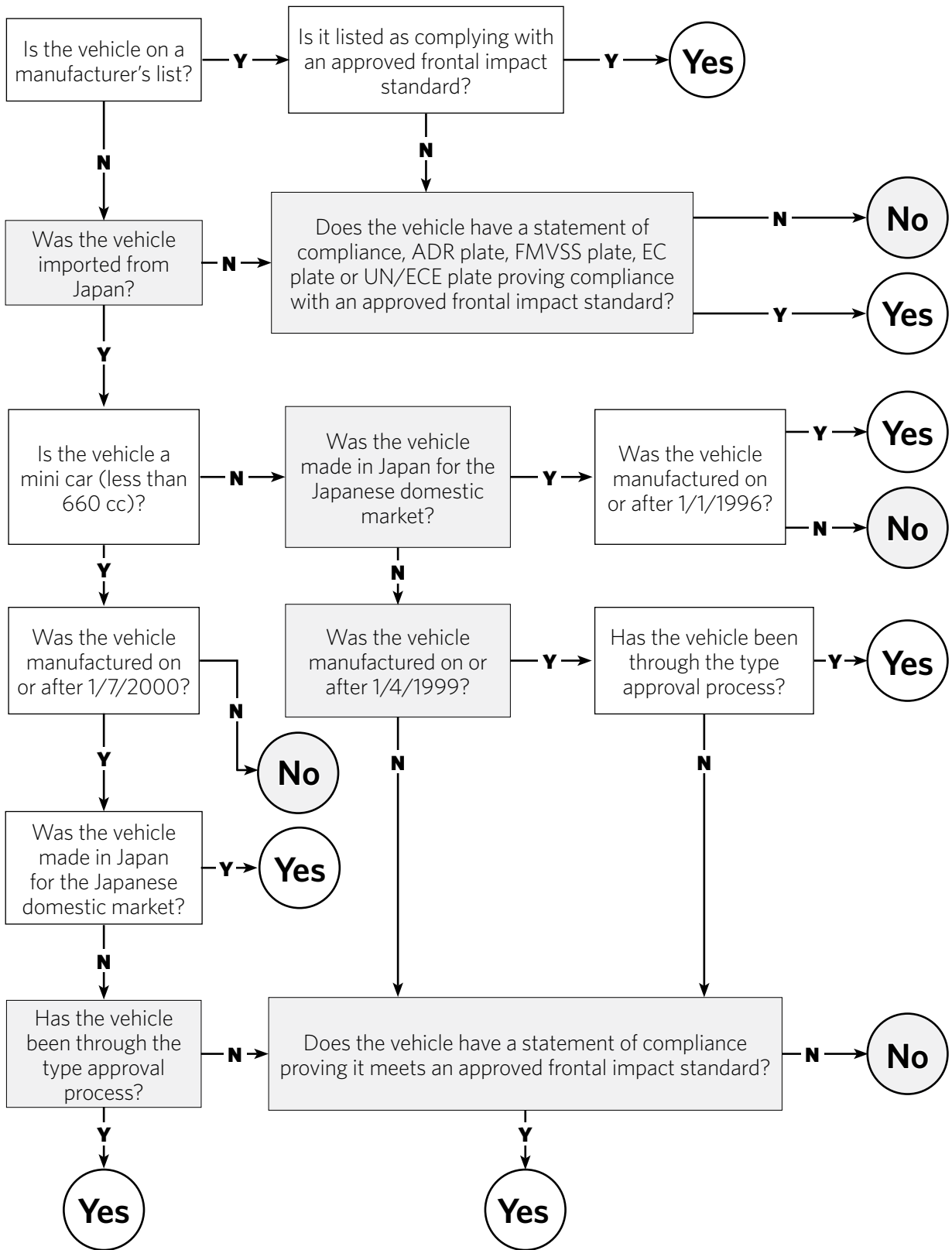
Make	VINs starting with:	Make	VINs starting with:
Audi	WAU, WUA or TRU	Hyundai	KMH
Cadillac	1G6	Jeep	1J4 or 1J8
Chrysler	1A8, 1C3, 1C4 or 1C8	Land Rover	SAL
Daewoo	KLA or KL1	Opel	WOL
Ford China	LFA	Porsche	WPO or WP1
Ford Europe*	WFO	Saab	YS3
Ford USA	1FA or 1FM	Volkswagen	WVW or WVG

* All of the above vehicle manufacturers use the tenth character as model year, except Ford Europe, which uses the eleventh character as year of manufacture.

IMPORTANT: Specific model ranges of class MA, MB and MC vehicles manufactured by Toyota Japan, Nissan Japan and Mazda/Ford Japan are exempt from the requirement to meet approved frontal impact standards. Refer to Technical bulletins 7, 8 and 9 for further information.

Vehicle structure **3-2** **Determining frontal impact compliance (cont.)**

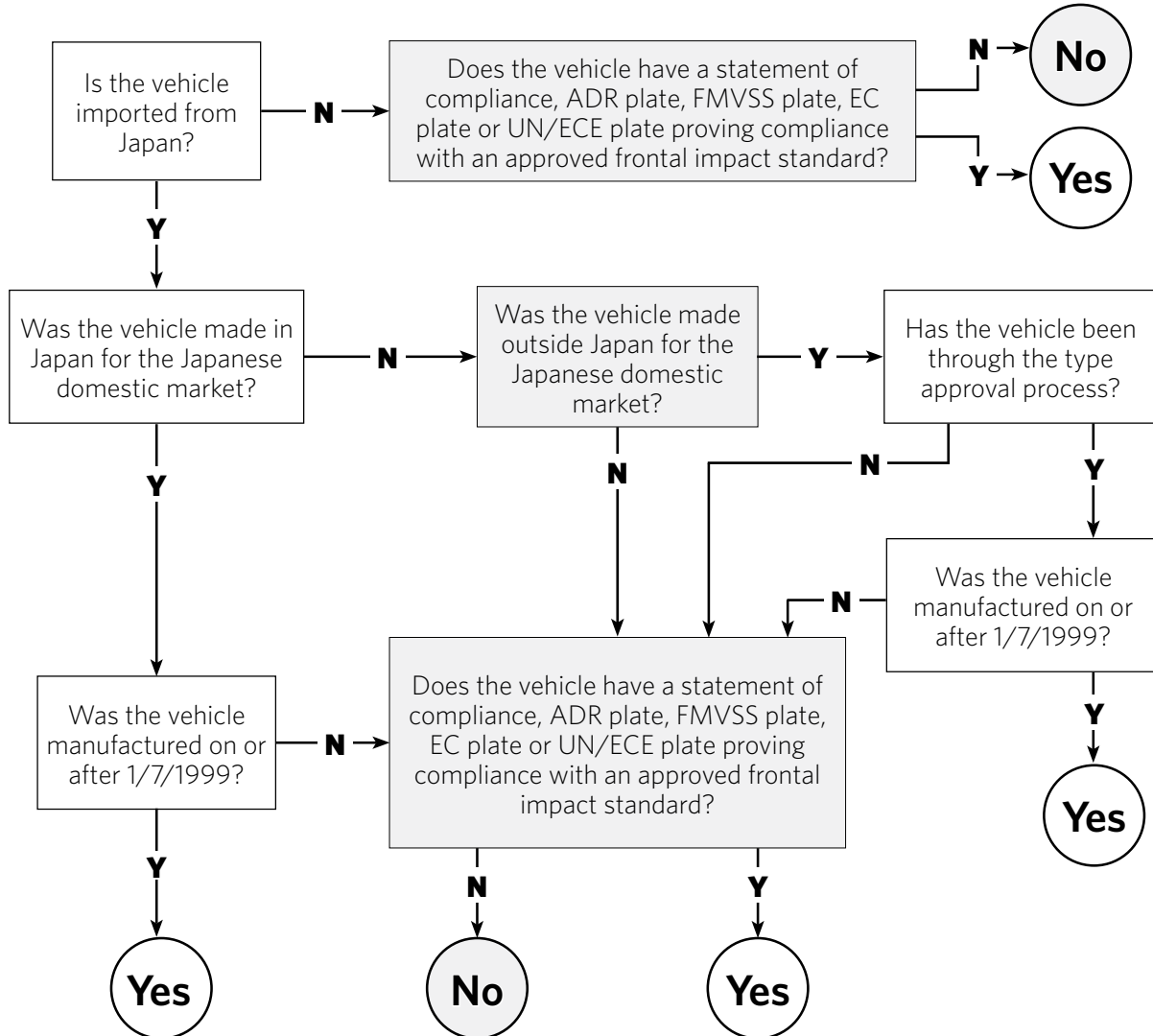
Does this MA class vehicle meet an approved frontal impact standard?



Flowchart 3-2-2. Determining frontal impact compliance for class MA vehicles



Does this MB or MC class vehicle meet an approved frontal impact standard?



Flowchart 3-2-3. Determining frontal impact compliance for class MB and MC vehicles

The vehicle inspector must personally carry out a full structural inspection of the vehicle.

Every vehicle must be inspected for existing accident damage, structural repairs, corrosion or evidence of water damage (see Technical bulletin 2). Any damage, deterioration or repairs to structural areas of the vehicle outside the limits set by the threshold must be recorded on LANDATA and the vehicle referred to a repair certifier.

The threshold for requiring repair certification must be strictly met. See Vehicle structure – 3-4 Threshold for requiring repair certification.

If a vehicle was flagged for damage by the MAF and then presented in a repaired state, it must be referred to a repair certifier.

Damage or deterioration does not require either repair or specialist certification provided it is within the limits established in Vehicle structure – 3-4 Threshold for requiring repair certification.

If a vehicle is failed as a result of structural damage, it cannot be certified until the vehicle has been inspected and certified by a repair certifier.

A three-dimensional (3D) chassis measurement must be carried out on all vehicles undergoing repair certification, unless the vehicle has been referred to a repair certifier as a result of corrosion damage. However, if the corrosion damage is extensive enough to cause distortion or partial collapse of the existing vehicle structure, 3D measurement must be carried out.

Pre-1991 vehicles

Trim does not need to be removed as part of the structural inspection if the vehicle was:

- manufactured before 1991, and
- previously registered in New Zealand before 1 January 1991.

However, a structural inspection must be carried out. If the vehicle fails the structural inspection, it must be referred to a repair certifier and undergo the same repair certification process as any other vehicle that has failed the entry level structural inspection process.

Scratch-built low volume vehicles

Trim does not need to be removed as part of the structural inspection if a vehicle is a scratch-built low volume vehicle certified by category LV1D, LV2B or LV2C authorised LVV certifiers. However, a full general inspection must be carried out. The vehicle inspector may require an invasive structural inspection if any areas of concern are identified during the general inspection.

Parallel-imported new vehicles

A full structural inspection is required for parallel-imported new vehicles. However, an application for an exemption from the requirement to remove trim is likely to be accepted. See Reference material 18 for a template of the 'Request for trim removal exemption'.

1 Structural inspection

During entry-level certification, vehicles of class MA, MB, MC, MD1, MD2 and NA must undergo an invasive structural inspection, according to the following specifications.

1. Before inspecting a vehicle, the following trim items must be **completely removed** from the vehicle (other than pillar trims referred to in the notes):
 - a) door aperture windlances and sealing strips
 - b) door sill plates
 - c) all upper and lower pillar trims necessary to expose:
 - i. previous repair and corrosion damage
 - ii. seatbelt anchorages
 - d) rear seat squab (unless fully hinged)
 - e) boot aperture rubbers or sealing strips
 - f) boot sidewall trim, floor coverings and spare wheel
 - g) front inner guard covers fitted to monocoque construction vehicles (**Note 1**).
 - h) front sub-frame splash guards (**Note 2**).

Note 1 Front inner guard covers do not need to be completely removed from the vehicle; they can hang from one mounting point provided it is possible to view the structure of the vehicle with the guard cover in that position.

Note 2 Front sub-frame splash guards only need to be loosened so that they can be pulled down and the front underbody structure fully viewed.

Note 3 Pillar trims only need to be completely removed from the mounting surface (they can hang from the seat belt webbing). They do not need to be removed from the vehicle.

Note 4 It is not necessary on all vehicles to remove the 'A' pillar trim as part of the structural inspection. The vehicle inspector can ask for the 'A' pillar trim to be removed if there is reason to believe that the trim is covering evidence of damage, previous repair or corrosion.

Note 5 Boot sidewall trim only needs to be removed if it is not possible to view the vehicle structure with the trim in place.

Note 6 This is the minimum amount of trim removal necessary to enable a vehicle inspector to identify any damage, deterioration or poor repairs to structural areas of the vehicle. In many instances it will be necessary to remove additional trim (splashguards etc) to enable a vehicle inspector to identify the full extent of the structural damage, deterioration or previous repairs.

2. Before commencing the inspection, the vehicle inspector must check the exterior of the vehicle for any signs of previous crash repairs under appropriate lighting conditions (as specified in section 8(1.3) and (1.6) of the Introduction to this manual). Evidence of previous repairs may be indicated in any of the following ways:
 - a) mismatch of paint colour or finish
 - b) uneven ride height
 - c) wrinkles in side panels, doors and roof
 - d) misaligned wheels
 - e) uneven gaps between body panels (fenders, bonnet, doors and boot).

3. The following items must be inspected on each vehicle:

a) Engine compartment

- front crush zones
- chassis rails
- inner guards
- firewall
- suspension towers and mountings
- radiator support panel

b) Exterior

- door frames, locks and hinges
- sills (**Note 7**)
- pillars
- roof guttering

Note 7 Where a vehicle is fitted with full sill exterior plastic body kits, which completely cover the exterior sill so that it is not possible to remove without damaging beyond repair, the body kit only needs to be removed if the vehicle inspector believes there are underlying problems with the sill.

c) Luggage/cargo compartment

- suspension towers and mountings
- floor
- spare wheel well
- seatbelt anchorages
- rear panel

d) Underbody and/or chassis frame

- front and rear crush zones
- chassis rails and cross-members
- floor rails
- floor
- sub-frame mountings
- seatbelt anchorages
- sills
- steering and suspension mountings

e) Passenger compartment (inside vehicle)

- exposed floor areas
- floor to inner sill seams
- pillars
- cross-members
- seat and seatbelt anchorages

Note 8 The vehicle inspector must fully extend every seatbelt to ensure that the entire length of the seatbelt is inspected.

The underbody inspection must be carried out under specified lighting conditions, using any of the following equipment:

- an inspection pit
- a vehicle hoist
- a ramp of adequate height that allows the inspector to comfortably walk under the vehicle to inspect all crush zones, chassis rails, sills and cross-members.

Note 9 If seatbelt anchorage bolts are removed as part of the structural inspection process they must be reassembled using a calibrated torque wrench.

2 Evidence of inspection

The vehicle inspector must place some form of unique mark to identify the person carrying out the structural inspection (eg inspector initials as identified in the PRS Staff Record) at each concealed location inspected. This provides evidence of the inspection and a form of quality control.

The minimum requirement is that unique identification marks are placed within 50 mm of all upper and lower outboard seatbelt anchorages.

3 Reassembly

Where components are removed as part of the inspection process, a TSD agent must have procedures in place to ensure that those components are reassembled correctly.

4 Trim removal exemption

Under some circumstances it is not practicable to remove the trim in a motor vehicle.

Examples of such cases are:

- chiller vans
- motorhomes
- vehicles fitted with airbags in the roof or pillars
- late-model, high specification, 'expensive' vehicles

In such instances, TSD agents may apply to the NZTA for an exemption from the requirement to remove the interior trim.

A TSD agent must have an NZTA-approved alternative inspection procedure in place in order to process a trim removal exemption application.

Before the NZTA can process an exemption for a specific vehicle, the TSD agent must structurally inspect the vehicle and complete an application for an exemption from trim removal requirements (see Reference material 18).

Once the NZTA has received the application, an NZTA reviewer will contact the TSD agent to arrange a date and time for the vehicle to be inspected.

1. The vehicle should be available on a hoist, with items such as door rubbers, inner guards and under body panels removed for the purposes of the inspection.
2. The TSD agent must provide the reviewer with a copy of the structural inspection sheet.
3. The reviewer will physically inspect the vehicle. The NZTA will consider the following factors when processing an application for exemption from trim removal:
 - the type of vehicle
 - the age of the vehicle
 - the vehicle's safety features
 - the condition of the vehicle
 - whether the vehicle can be easily stripped
 - whether the vehicle can be partially stripped
4. If any evidence of structural damage, repairs or corrosion damage is found, the application will be declined.

Note 10 An application may be reconsidered if a repair certifier inspects the vehicle and issues a repair certificate that confirms there is no damage, repairs or corrosion.

5. The reviewer will consider the application and notify the applicant of the outcome.
 - a) If the reviewer considers that stripping the vehicle would not pose difficulties or damage the vehicle, the application for a trim removal exemption will be declined. A letter of notification will be sent to the applicant.
 - b) If the reviewer believes there is sufficient reason to grant an exemption from trim removal requirements, the reviewer will approve a full or partial trim removal exemption. An 'exemption to remove trim on an imported used vehicle' letter describing any special conditions will be sent to the TSD agent, and a copy will be sent to the applicant.

IMPORTANT: Technical bulletin 11 describes the requirements for carrying out the inspection of motorhomes.

Replaces the 'Threshold for requiring repair certification' dated 9 December 2005.

The following information gives guidance to vehicle inspectors in determining whether or not a light vehicle (including motorcycles where applicable) undergoing entry certification in New Zealand requires repair certification.

Applicable legislation

- Land Transport Rule: Vehicle Repair 1998

A repair to a vehicle (including its structure, systems, components or equipment) must restore the damage or wear to within safe tolerance of its state when manufactured or modified.

Criteria for reporting structural damage or corrosion

The criteria detailed below must be used when deciding if any damage or corrosion should be referred to a repair certifier.

When applying these criteria, consider whether:

- the area identified as damaged by impact, previous repair, or corrosion is structural or cosmetic, and
- the extent of damage is sufficient to compromise the structural integrity of the motor vehicle, or
- evidence of damage or previous repair is present in a structural area of the motor vehicle.

IMPORTANT: All damage meeting the designated criteria and found in structural parts or the energy management path areas must be referred to a repair certifier.

Inspection

A list of specific types of damage follows. It explains the extent to which damage is allowed before a vehicle must be referred to a repair certifier. Assessment by a repair certifier should be obtained if doubt exists.

Cosmetic damage

- A vehicle does not require repair certification if it has cosmetic damage to outer body panels, providing it does not affect the structural integrity of any of the bonded or welded seams or joints installed by the vehicle manufacturer.

Underbody impact damage

- A vehicle does not require repair certification if it has minor underbody impact damage as a result of 'grounding' the vehicle or some scraping of the sill seams.
- A vehicle must be repair certified if it has underbody damage as a result of a collision with a substantial object, sufficient to cause the splitting of seam welds, distortion of suspension members or mounting points, or tearing of metal structures.
- A vehicle does not require repair certification if there is crushing or tearing of floorpan stiffening members (**Note 1**), provided it does not affect any internal cross-members designed for side-impact protection.

Note 1 When distinguishing between floorpan stiffening members and cross-members, note that a member that runs through the line of a seat or occupant area will not be an energy absorbing member (ie its purpose is to reinforce the floorpan), while a member that runs alongside a seat or occupant area should be treated as an energy absorbing member (ie a chassis rail).

Denting or distortion

- A vehicle does not require repair certification if rocker panels (outer sills) are dented or creased lengthways along the sill to a maximum depth of 25 mm. If the depth of the crease exceeds 25 mm or runs across the sill, the vehicle must be repair certified.
- A vehicle must be repair certified if there is any discernible denting or distortion to the folds or swages in the sill panel or structure of the inner/outer sill weld seam, other than minor scraping.

Crush zones and kick-up areas

- A vehicle must be repair certified if there is distortion of the longitudinal rails affecting the front and rear crush zones and kick-up areas.

Cross-members

- A vehicle does not require repair certification if it has minor jacking damage to a cross-member, provided there is no indication of loss of steering or suspension alignment.
- A vehicle must be repair certified if there is distortion of the crossmember as a result of collision with an object.

Cracking

- A vehicle must be repair certified if there is cracking in the:
 - a) chassis, or
 - b) any cross-members and subframes, or
 - c) load-bearing monocoque body structures, or
 - d) the body on a vehicle with a chassis.

Repaired damage

- A vehicle with repaired damage does not require repair certification if repairs are only to correct cosmetic damage to the outer body panels, provided the vehicle inspector is able to discern the extent of the damage and confirm that none of the vehicle manufacturer's seams or joints have been disturbed during the repair.
- A vehicle must be referred to a repair certifier if signs of fresh repair, rust prevention or under-sealing to any part of the vehicle structure are evident.

Supplementary restraint system (SRS): Airbags and seatbelt pretensioners

- A vehicle must be repair certified if it has a deployed airbag or seatbelt pretensioner, or there is evidence of repairs to or tampering with airbag module covers.

Note 2 Unless there is evidence that the airbag has been deployed, it is not expected that the vehicle go to a repair certifier if it has a sports steering wheel fitted with no airbag at entry and is failed and it is requested that the OE steering wheel be reinstated.

If the airbag has not been deployed it is only expected that the original steering wheel be reinstated and an SRS declaration issued in line with Technical bulletin 29.

Water damage

- A vehicle must be repair certified if there is evidence that it has suffered water damage (see Technical bulletin 2).

Note 3 For the purposes of the threshold for requiring repair certification, evidence of water damage may be physical evidence, or it may be that the vehicle has been written-off for insurance purposes as a result of water damage.

Corrosion damage

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

A vehicle must be repair certified if there is corrosion damage in any structural area, as indicated in the shaded areas of **Figure 3-4-1**.

Note 4 For the purposes of the threshold for requiring repair certification, corrosion damage includes any signs of 'rust bleed'. Rust bleed is a rust coloured stain or mark that appears around an area of corrosion that may not be visible. Rust bleed is most commonly found where panels join or overlap when corrosion has started between the two surfaces and moisture has caused a rust stain or mark to run onto the external surface.

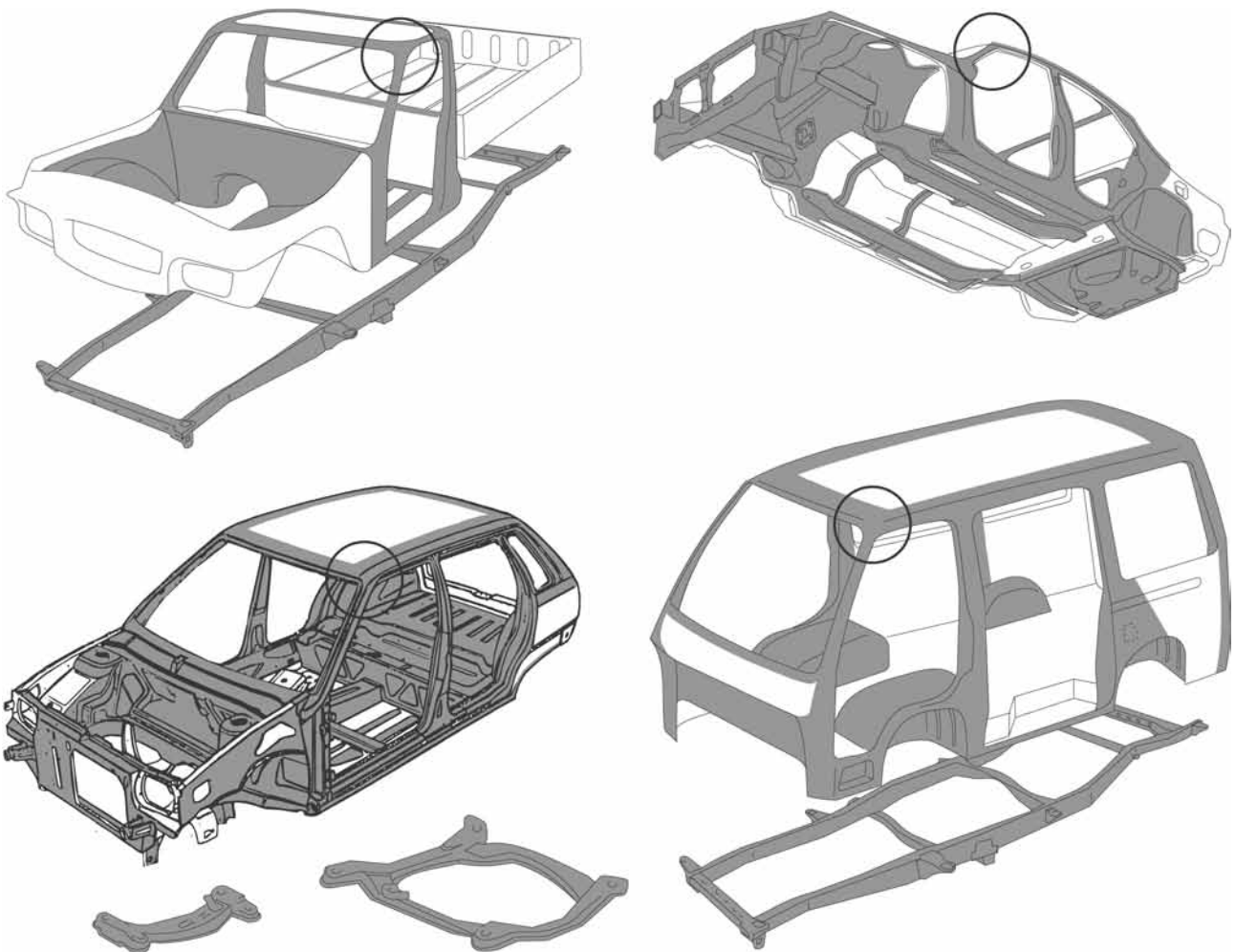


Figure 3-4-1. Structural corrosion damage limits

- **Perforated corrosion** is where the metal is corroded to the extent that it has holes, or holes are exposed when rust scale is removed. If metal is badly pitted causing a loss of metal thickness it must also be treated as perforated corrosion.

A vehicle must be repair certified if there is perforated corrosion in any other (non-structural) area, as indicated in the non-shaded areas of **Figure 3-4-1**.

- *Repair* of corrosion on 'bolt on' parts (doors, bonnets etc) within a 150 mm circle around the outside of hinge or latch components will require repair certification. These 'no corrosion' zones are circled in **Figure 3-4-2**.
- *Replacement* of these parts will not require repair certification, provided the inspector is satisfied that safety systems are not affected (eg side intrusion beams, burst proof locks, frontal impact systems).

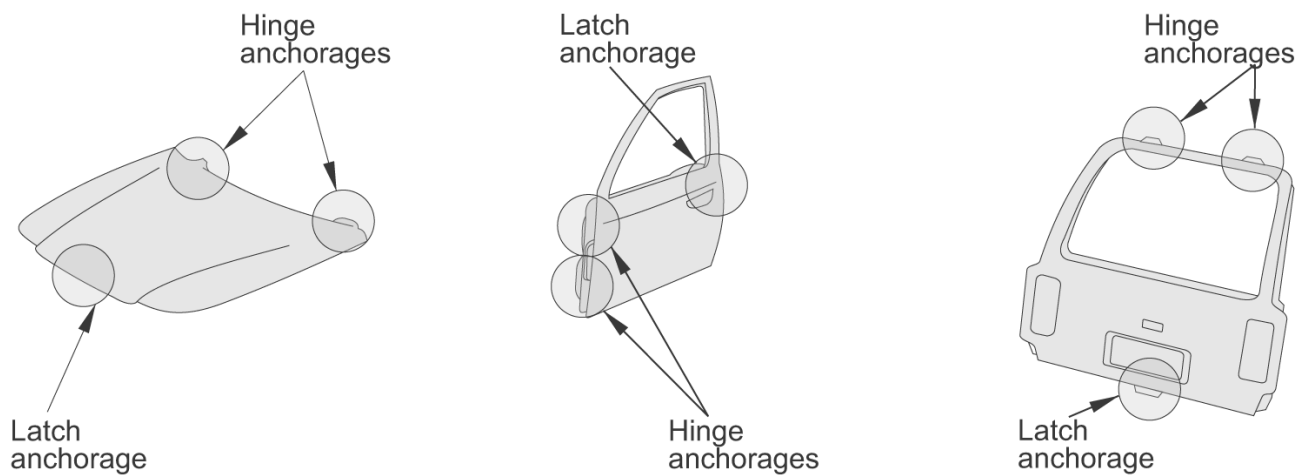


Figure 3-4-2. Hinge and latch anchorage corrosion damage limits

Vehicles flagged for damage by MAF

When MAF identifies damage on a vehicle during the border check, the vehicle will be flagged as damaged on LANDATA. If the vehicle inspector determines that the damage does not exceed the threshold for requiring repair certification, an application must be made to remove the damage flag.

A 'Request to remove border damage flag' form is available in Reference material 17. The vehicle inspector must complete this form and give it to the TSDA supervisor authorised to remove damage flags.

Vehicles must comply with the requirements relating to modification set out in the *VIRM: In-service certification*, section 3-2.

There are no additional requirements in respect of light PSV stability for the inspection and certification of unmodified vehicles for entry into service.

Note The following is a guide as to the requirements for compliance of light PSVs with stability requirements of the Land Transport Rule: Passenger Service Vehicles 1999 (the PSV Rule).

A mass produced stock model light vehicle is deemed to comply with the stability requirements in the PSV Rule, and there is usually no need for certification in respect of mass produced MA, MB, MC, MD1 and MD2 category vehicles. This approach could be used even in the case of class NA vehicles converted into MD1 or MD2.

If there is a serious doubt that the vehicle would comply, and if the vehicle inspector has reasons to believe that a conversion will prevent the vehicle from meeting requirements, he/she may require specialist certification. For example, if a class NA Ford Transit van is converted to an MD2 light bus, but the floor level is much higher than would be usual for unmodified MD2 category Ford Transits of similar passenger capacity, then the vehicle inspector may assume that the stability requirements might not be complied with. A similar situation might arise with off-roader vehicles with very narrow track and very high ground clearance.

Summary of legislation

Applicable legislation

- Land Transport Rule: Passenger Service Vehicles 1999.

Mandatory requirements

- A motor vehicle which entered service as a PSV on or after 1 July 2000 must be stable under the following conditions of static tilt:
 - a vehicle with a floor not more than 2 m above the ground, and loaded with weights representing the occupants' mass in all seating positions must be stable on a surface which is subject to a sideways tilt of 35 degrees, as demonstrated by one of the following methods:
 - written documentation from the vehicle manufacturer, or
 - type approval, or
 - calculations, if the centre of gravity can be proven within 50 mm, or
 - practical testing certified by a HVS certifier.
 - a vehicle with a floor 2 m or more above the ground, and loaded with weights representing the occupants' mass in all seating positions for a single-decked vehicle and in the upper deck only of a double-decked vehicle must be stable on a surface which is subject to a sideways tilt of 28 degrees, as demonstrated by one of the following methods:
 - written documentation from the vehicle manufacturer, or
 - type approval, or
 - calculations, if the centre of gravity can be proven within 50 mm, or
 - practical testing certified by a HVS certifier.

Modification and repair

- A vehicle must comply with the requirements relating to modification and repair set out in the *VIRM: In-service certification*, section 3-2.

Reasons for rejection

Mandatory requirements

- A heavy PSV does not demonstrate static tilt stability as required in **Table HPSV 3-5-1**.

Modification and repair

- A vehicle does not comply with a requirement relating to modification and repair set out in the *VIRM: In-service certification*, section 3-2.

Table HPSV 3-5-1. Static tilt stability requirements for a heavy PSV

Floor height	Sideways tilt	Demonstration of compliance
Less than 2 m above ground	35 degrees	<ul style="list-style-type: none"> Written documentation from the vehicle manufacturer (Note 1), or calculations, if the centre of gravity can be proven within 50 mm, certified by an HVS certifier category HVEC, or practical testing certified by an HVS certifier category HVEC.
2 m or more above ground	28 degrees	

Note 1 See Technical Bulletin 32 for vehicle makes and models that can be accepted as meeting this requirement. All other documentation must be referred to the NZTA for approval.

Summary of legislation

Applicable legislation

- Land Transport Rule: Passenger Service Vehicles 1999.

Mandatory requirements

1. A heavy motor vehicle, except for a double-decked vehicle, which entered service as a PSV on or after 1 September 1999 must:
 - a) demonstrate compliance with:
 - i. one of the four options of UN/ECE 66, or
 - ii. one of the four options of ADR 59/00, or
 - b) be certified to PSV Rule 7.5(3) by an HVS certifier.

Reasons for rejection

Mandatory requirements

1. A heavy PSV, except for a double-decked vehicle does not demonstrate compliance with at least one of the following:
 - one of the four options of UN/ECE 66
 - one of the four options of ADR 59/00
 - certification to PSV Rule 7.5(3) by an HVS certifier category HVEC.

