Extract taken from: In-service certification (WoF and CoF) > Light PSVs > Vision > Glazing

5-1 Glazing

Reasons for rejection

Mandatory equipment

Glazing markings (windscreens and flat glass only) – visual inspection

- Only windscreens and flat glass are required to be inspected for standards markings at in-service inspection. Flat glass is any glazing that is flat edge to edge (like typical housing window glass) in every direction ie a straight edge would sit flush on the glass in every possible position.

1. A glazing marking is not permanent, except for glazing marked by a vendor or installer, and fitted in a vehicle before 1 January 1997, which may be marked by means of a self-adhesive label.

2. A glazing marking required in Table 5-1-1 or Table 5-1-2 is missing, except for:

a) plastic glazing behind the driver's seat in a soft-top convertible, or

b) hard plastic material behind the driver's seat in a vehicle manufactured before 1 January 1991, or

c) wire glass fitted to a window behind the driver's seat of a dangerous goods vehicle, or

d) markings on any isolation shield (see Table 5-1-6) (Note 7).

3. The glazing has an incorrect marking for the location in which it is fitted.

4. Glazing that is marked by a vendor or installer does not contain (Table 5-1-3 and Figure 5-1-3):

a) wording, characters or symbols that indicate the approved vehicle standard, and

b) the type of glazing, and

c) the thickness of the glazing in millimetres, or, in the case of laminated glass only, the thickness of the intervening layer of plastic, and

d) the identity of the vendor or installer of the glazing.

Glazing condition

5. A piece of glazing is not mechanically sound, or is not securely affixed to the vehicle.

6. A windscreen or front side window is so dirty or obstructed that the driver's vision is impaired.

7. A windscreen has damage that prevents the wiper blades from working properly.

8. A windscreen has scratches, discolouration or other defects that unreasonably impair the driver's vision or compromise the strength of the windscreen.

Condition within the critical vision area (CVA)

9. The critical vision area (CVA) of a windscreen (Figure 5-1-4) is damaged (apart from scratching, surface pitting, small stone marks and certified visible repairs that do not affect the driver's vision).

Condition outside the CVA

10. A windscreen has damage (Note 2) of the types and exceeding the dimensions in Table 5-1-5.

11. Any damage that extends through more than one layer of glass.

Glazing performance

12. The overall visible light transmittance (VLT) (Note 3) of a windscreen is less than 70%.

13. The overall VLT of a front side window is less than 35% (see also Figure 5-1-6 for minimum VLT limits for modified glazing (tinted overlays) for different vehicle classes).

14. Glazing has a mirrored effect sufficient to dazzle other road users (unless it is OE and has an approved standard marking).

Permitted modifications

15. A modification that affects glazing is not within the limits in Table 5-1-6.

Glazing removal

16. OE glazing that affects the structural integrity of the vehicle (eg bonded glazing) has been permanently removed but the vehicle has not been certified to the LVV Code and is not fitted with a valid LVV certification plate, the operator is not able to produce a valid modification declaration or authority card, or the vehicle has not been certified to an accepted overseas system as described in **Technical bulletin 13**.

Condition of modified glazing

17. Glazing has scratches or other defects that unreasonably impair vision or compromise the strength of the glazing.

Performance of modified glazing

18. A modification:

a) unreasonably impairs the driver's vision through the windscreen or a front side window, or

b) adversely affects the strength or mechanical performance of the glazing or the vehicle.

Windscreen repair

19. A windscreen that has been rejected for a WoF or CoF has been repaired and re-presented without the required documentation (Note 6).

Note 1 - Definitions

Windscreen means all glazing extending across the front of a vehicle that is not parallel to the vehicle's longitudinal centreline, but does not include a wind deflector. No fitting of overlays or stickers are permitted to the windscreen except those previously mentioned.

Laminated glass means glazing consisting of two or more pieces of sheet glass, plate glass or float glass bonded together by one or more intervening layers of plastic material.

Overlay means a transparent, translucent or opaque self-adhesive or clinging film that is applied to large areas, or the whole, of a piece of glazing, including anti-glare band overlays, stoneguard overlays.

Sticker means a self-adhesive or clinging film, with or without print on it, that is applied for purposes such as, but not limited to, advertising, identification, information, or for aesthetic or legal reasons.

Anti-glare band overlay means a tinted overlay that is transparent and that is applied along the top edge of the windscreen for the purpose of reducing glare from the sun.

Stoneguard overlay means a clear overlay that is transparent and that is applied along the bottom edge of the windscreen for the purpose of preventing damage to the windscreen from stones and other debris thrown up by other vehicles.

Note 2

Damage includes any unrepaired damage and attempted visible repairs that unreasonably impair the driver's vision.

Note 3

Visible light transmittance (VLT) is the proportion of visible light that passes through glazing, measured perpendicular to the glazing. Overall VLT is the VLT of the glazing together with any overlays.

Note 4

Any OE opaque edging (usually black) is not considered part of the windscreen when determining the boundaries of the CVA, or the areas permitted for stickers, print on an anti-glare band, or radio antennae.

Note 5

Perforated overlays are usually made from printed-on materials. They are therefore not transparent and may be fitted only where stickers are allowed.

Note 6

When a windscreen has been rejected for a WoF or CoF, repaired, and then re-presented for inspection, the repair must be certified to AS/NZS 2366: 1999, AS 2366-1990 or NZS 5470: 1993. Proof of certification is the receipt issued in accordance with the relevant standard by the repairer. For AS/NZS 2366: 1999, the windscreen repair invoice must include:

a) invoice number

b) date of repair

c) date of invoice (if different from date of repair)

d) trading name and address of repairer

e) name or identification of person performing the repair

f) make of vehicle

g) registration number of vehicle, or if registration number is unavailable then the vehicle identification number (VIN) or chassis number

h) details of work carried out

i) type and location of repaired damage on the windscreen (it is recommended that this be marked on a schematic windscreen on the invoice form)

j) in the case of repairs performed to this standard, a statement that the repairs have been made in accordance with and comply with AS/NZS 2366.1 using a repair system that complies with AS/NZS 2366.2

k) any guarantees or warranties given.

Note 7

NZTA makes no representations about the effectiveness of these installations, whether they are required, or whether they are sufficient for the purposes of meeting health and safety or other requirements. It takes no responsibility for the installation and use of isolation shields.

Note 8

A tolerance of 5% is permitted for the visible light transmittance (VLT) reading, to compensate for variations in tint film and light meters.

Table 5-1-1. Required markings for windscreens

- see Note 1

Date of manufacture					
Vehicle class	**before 1/1/60**	**1/1/60–1/7/86**	**1/7/86–1/1/91**	**1/1/91–1/7/97**	**from 1/7/97**
MA, MB, MC, NA	–	Safety glass with approved trade name or approved standard	Laminated glass with approved standard	Laminated glass with approved standard	Laminated glass with approved standard
MD1, MD2	–	Safety glass with approved trade name or approved standard	Safety glass with approved standard	Safety glass with approved standard	Laminated glass with approved standard
Low volume vehicles	–	–	–	LVV Code	LVV Code

Table 5-1-2. Required markings for other glazing

	Date of manufacture		
Vehicle class	**before 1/2/77**	**1/2/77–1/1/91**	**from 1/1/91**
MA, MB, MC, NA, MD1[1], MD2[1]	–	Safety glass with approved trade name or approved standard	Safety glass with approved standard
Low volume vehicles	–	–	LVV Code

[1] Curved scenic skylights above the cant rail, curved windows at front and rear corners, skylights, louvres and interior partitions may be made of a transparent material of a kind that does not shatter. This material is not usually marked.

Table 5-1-3. Approved trade names for glazing

Armourfloat	Hankuk Glass Safety Heat	Plexite	Temperlite
Armourplate	Line	Safetyflex	Temperlite Santa Marina
Blindex	HMC Glass Safety Hankuk	Safety MGB (Meloplate)	Thorex Connex
Duolite Safety	TF5	Safety MGB (Melite Safety	Triplex
Duplate Safety	HMC Glass Safety Hankuk	Plate)	Triplex Plate
Flolite	TV5	Sekurit	Tuflite
Ford Indestructo	Indestructo	Sigla	Tyneside
Ford Safety Glass	Nippon Safety	Spectrofloat Splintex	Veracetex
Ford Silver Arrow	NM Laminated Safety Glass	Sunmat	
Glacetex	FHP	Suntex Safety Glass	
	Peerless		

Table 5-1-4. Glossary of codes for safety glass (including laminated glass)

- see Note 1, Note 4, Figure 5-1-1

L	laminated glass
F	float glass
P	plate glass
LF	laminated float
LP	laminated plate
V	toughened, VLT <70%, when near the  mark
/	toughened, when near the  mark
// or ///	laminated, when near the  mark
TS	toughened glass
TP	toughened plate
T	toughened or tempered
Z	zone tempered
HP	high performance laminated safety glass
WHP	complies with impact test (windscreen high performance laminated safety glass)
DOT	Department of Transport (USA)
AS 1 or AS up-arrow 2	the glass, in the direction of the arrow, complies with the 70% light transmission requirement
ANSI	American National Standards Institute

FMVSS codes	
AS1	for use anywhere in the vehicle
AS2	for use anywhere in the vehicle other than windscreen
AS3	for rear and rear side windows only
AS4 and AS5	for glazing not used for driver's vision (eg the rear window of heavy truck cabs or convertible tops, windows/doors in motorhome bodies, ute canopies, rear windows on buses, roof glazing etc)
Glazing cut from mother sheet	
L.76WHP	laminated, 0.76 mm interlayer, suitable for all locations
L.38	laminated, 0.38 mm interlayer, must not be used for windscreens
PCZ26.1	polycarbonate, meets requirements of ANSI Z26, must not be used for windscreens

Table 5-1-5. Types and maximum sizes of windscreen damage (outside the CVA)

- see Note 2, Figure 5-1-5

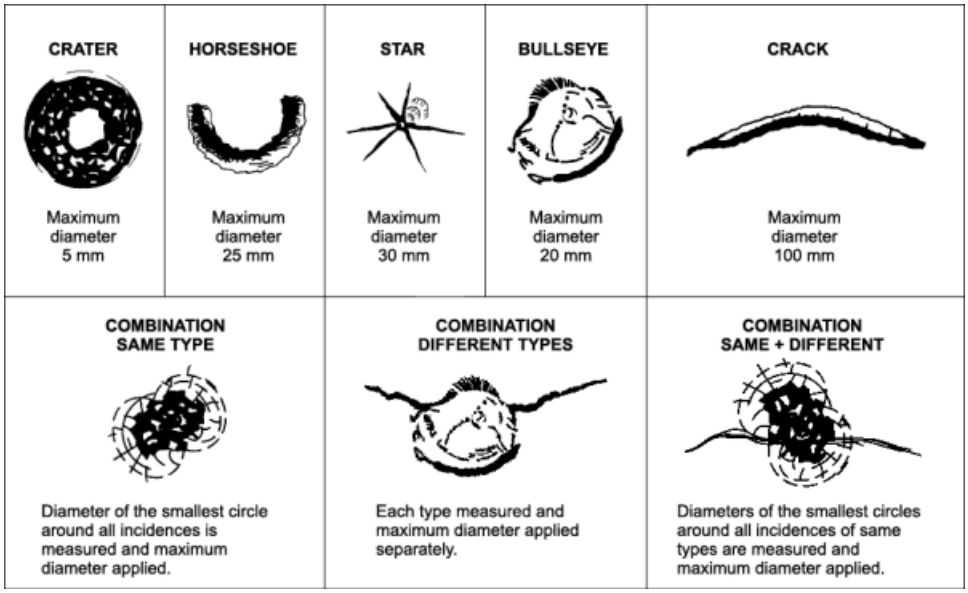


Table 5-1-6. Permitted modifications

Fitting of or modification to:	Modification permitted provided that:
Isolation shields (to separate vehicle occupants for the purpose of medical isolation) (Note 7)	The shield: • is constructed from a transparent flexible thin film (minimum 80% VLT), and • does not interfere with the driver's vision (including through the front side windows, and rear-view mirrors), and • does not interfere with the operation of airbags, and • does not interfere with the driver's ability to reach vehicle controls (including lights, warning devices, etc.), and • is fastened to the vehicle using flexible/breakaway fixings that are unlikely to injure a vehicle occupant, and • can be quickly and easily removed to allow for emergency access or exit of the vehicle. (**Note:** the partition/shield should be able to be removed, or broken, with a reasonable push or strike to allow both the driver and passenger/s to use an alternative exit in the event of an emergency.)
Overlays (Note 1): See below for overlays on windscreens, front side windows, rear and rear side windows, and sun roofs	• overlays do not: – have any bubbling or other defect that could unreasonably impair vision, or – have a mirrored effect that is sufficient to dazzle other road users, or – affect the performance of any high-mounted stop lamp fitted to the vehicle.
Windscreens:	

Fitting of or modification to:	Modification permitted provided that:
Stickers (Note 1)	• stickers are wholly within 100mm of the top or bottom edge, or 50mm of the side edges (Note 4), unless required or permitted by legislation, eg: – a licence label – a road user licence label – a WoF label – an alternative fuel sticker – a current parking permit or other document issued by the local authority – learner L-plates (in sticker format) provided the driver's vision is not unreasonably affected.
Anti-glare band overlay (Note 1)	• the overlay is transparent, and • the overlay does not extend below the bottom edge of the vehicle's OE sun visors when they are folded down as far as possible towards the windscreen, and • the overlay does not contain print below a line that is 100 mm below and parallel to the top edge of the windscreen (Note 4).
Clear or transparent stoneguard overlay (Note 1)	• the vehicle is not of class MA or MC, and • the overlay is applied only to the bottom edge of the windscreen, and • the top edge of the overlay does not extend any higher than the highest point of the steering wheel.
Radio antennae	• antennae are wholly within 100mm of any edge (Note 4).
Front side windows:	
Transparent overlays (Note 5)	• the overall visible light transmittance (VLT) is not reduced to below 35% (Note 8).
Stickers	• stickers are wholly within 100mm of the bottom edge, or 50 mm of any other edge, unless required or permitted by legislation.

Fitting of or modification to:	Modification permitted provided that:
Radio antennae	• antennae are wholly within 100mm of any edge.

Window ports or hatches	The hatch is fitted in a class ME vehicle; and
	• The glazing in the hatch **either** meets an approved standard **OR** is made of a shatter proof polycarbonate or acrylic material, and
	• the glazing has a VLT of not less than 35% (Note 8), **AND**
	• the hatch and its frame:
	  ○ does not unreasonably interfere with the driver's vision, and
	  ○ is minimised in size and located to have as little impact on vision as possible (Note 1), and
	  ○ is rigid, sturdy, secure and water tight, and
	  ○ the original glazing maintains the correct and original compliant markings
	Note: A typical compliant hatch will have a frame with a thickness ?40mm and a total area ?0.12m^2

Rear and rear-side windows (behind the driver's seat) – **class MA vehicles except stretch limousines and body transfer vehicles**:	
Transparent overlays (Note 5)	• the overall visible light transmittance (VLT) is not reduced to below 35% (Note 8), and • the vehicle is equipped on both sides with external rear-view mirrors.

Stickers	• the stickers are wholly within 100mm of any edge unless they are:
	  ○ required or permitted by legislation
	  ○ required for motorsport purposes (such as competition numbers or competitor names), and the vehicle has a valid motorsport authority card .

Radio antennae	• antennae are wholly within 100mm of any edge.
Rear and rear-side windows (behind the driver's seat) – **any vehicle class except MA, but including stretch limousines and body transfer vehicles**:	
Overlays and other modifications	• the vehicle is equipped on both sides with external rear-view mirrors.

Fitting of or modification to:	Modification permitted provided that:
Stickers	• stickers may be applied anywhere on the glazing but, if not wholly within 100mm of any edge (Note 4), the vehicle must be equipped on both sides with external rear-view mirrors.
Radio antennae	• in-service requirements for condition and performance are met.

Fitting of or modification to:	Modification always permitted:
Monsoon shields	• in-service requirements for condition and performance must be met.
Electric demisters	
Sunroofs (overlays and stickers applied anywhere on the glazing, radio antennae, and electric demisters)	
Any modification for the purposes of law enforcement or the provision of emergency services	

Figure 5-1-1 Approved standards markings

NZ TRANSPORT AGENCY
WAKA KOTAHI

Procedure – CR1

A. JAPANESE IMPORTED COMMERCIAL VEHICLES ONLY – including Japanese imported heavy trailers:
Please send items A1 and A2 to: ⟶

NZ Transport Agency
Private Bag 6995
Wellington 6141
Rating type A
Fax: 04 496 6981

A1. A completed Chassis Rating Request Form (form CR2 (powered vehicles) or CR3 (trailers)) below or overleaf). This must be completed using details taken directly from the vehicle.

A2. A copy of the Japanese de-registration or export certificate.

B. NON-JAPANESE IMPORTS – Including heavy trailers
Please send items B1 and B2 (together) to: ⟶

NZ Transport Agency
Private Bag 6995
Wellington 6141
Rating type A
Fax: 04 496 6981

B1. Evidence of the vehicle manufacturer's chassis Ratings*, from one of the following sources:

(a) [North American, United Kingdom or European vehicles] A certified** copy or photograph of the manufacturer's chassis rating plate, or (overseas) loading certificate located on the vehicle, or;

(b) [Other vehicles]
A letter or other document detailing the chassis ratings* as applicable (Maximum axle and/or axle-set masses, GVM, GCM, MTM unbraked, MTM braked) from the vehicle's manufacturer, or from the manufacturer's representative in New Zealand.

B2. A completed Chassis Rating Request Form – As in A1 above.

C. MODIFICATIONS TO IMPORTED HEAVY VEHICLES – including heavy trailers.
Vehicles which have been modified after manufacture, but have not been certified in their country of origin, must be certified by a NZTA recognised category HVEC engineer. The NZTA (0800 699 000) has the contact details of such engineers in various regions of New Zealand.

* *As applicable to the vehicle concerned, means the: maximum axle and/or axle-set masses, gross vehicle mass (GVM), gross combination mass (GCM), maximum towed mass unbraked (MTM unbraked), maximum towed mass braked (MTM braked).*

** *A certified copy is a paper copy of everything off the plate, certified*

Figure 5-1-2. Typical laminated glazing markings (Note 1)

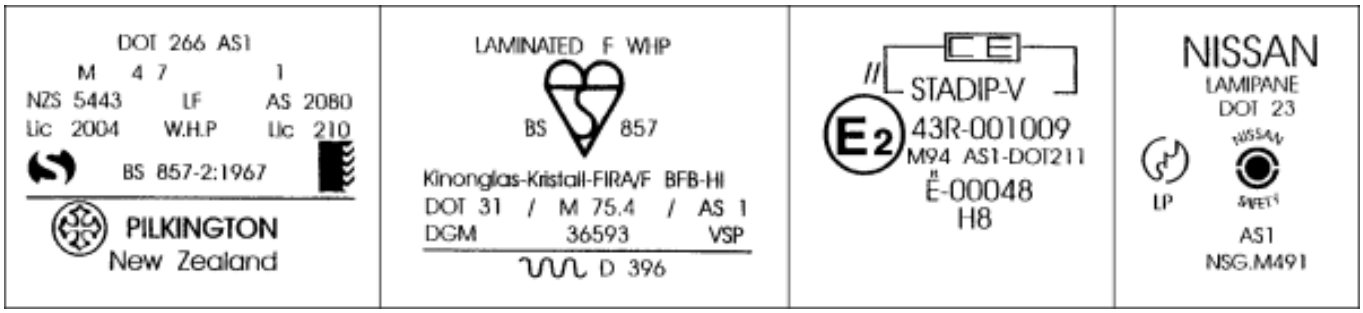


Figure 5-1-3. Typical markings required on glazing cut from mother sheet

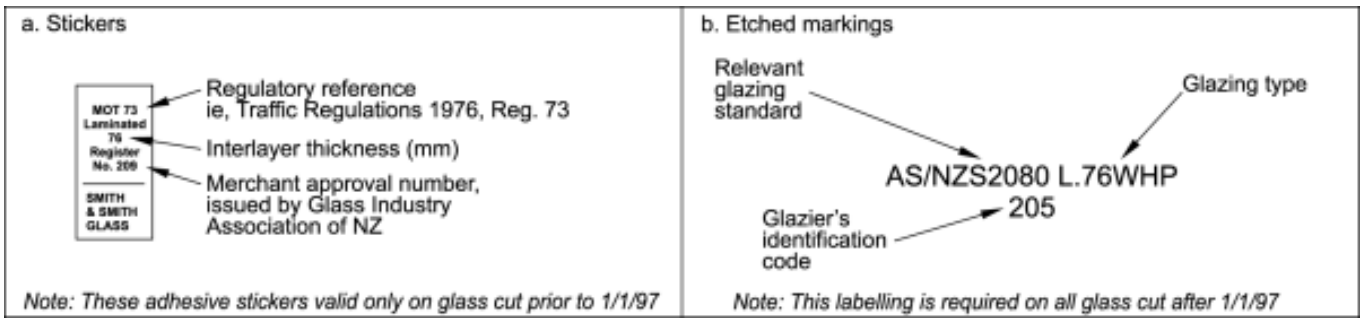
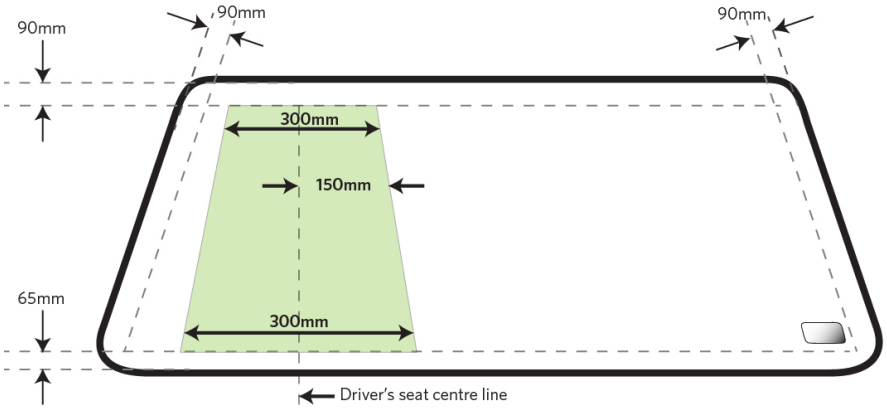


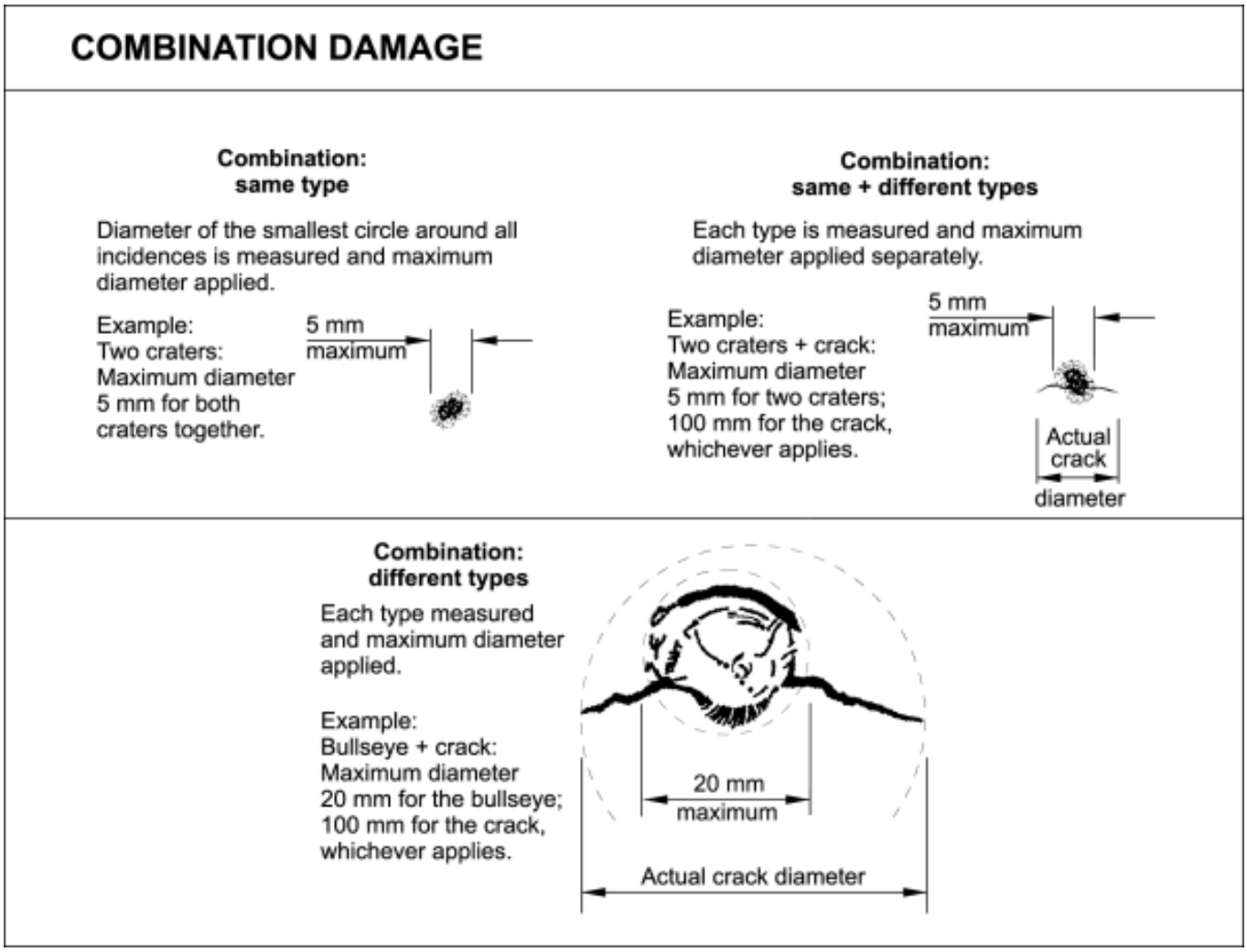
Figure 5-1-4. Windscreen critical vision area (CVA)



To be measured from the inside of the vehicle from the point where the glass is visible (ie after any seals)

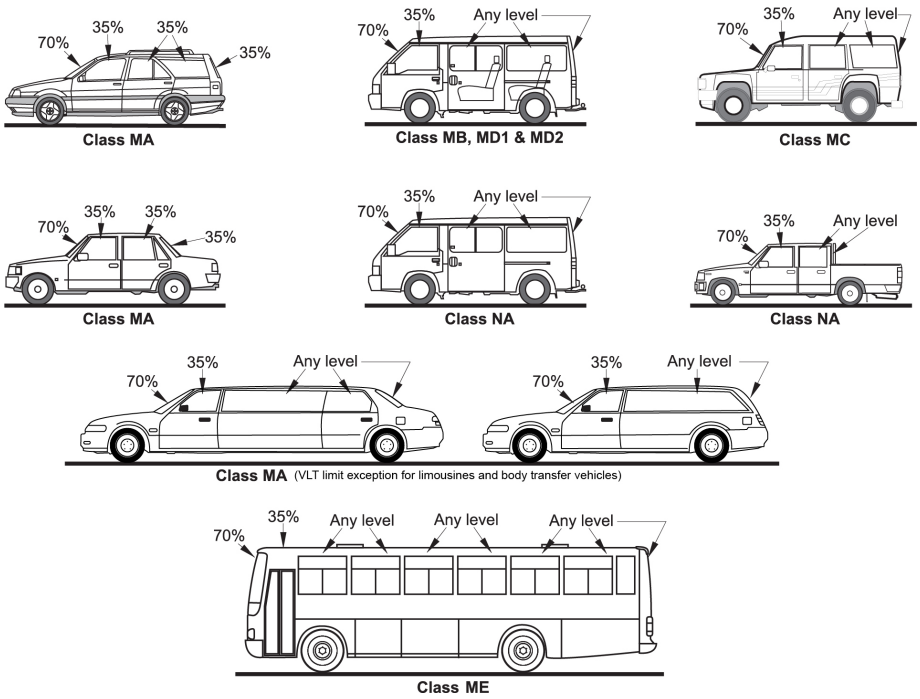
Stickers are allowed within the critical vision area so long as they are within 100mm from the top or bottom edge of the windscreen (see Table 5-1-6).

Figure 5-1-5. Actual maximum sizes of types of windscreen damage



Note Due to different screen resolutions and sizes the above image may not be shown at actual size.

Figure 5-1-6. Minimum VLT limits for modified glazing (tinted overlays) for different vehicle classes



Note The minimum VLT for any windscreen is 70% but no overlays may be fitted.

Summary of legislation

Applicable legislation

- Land Transport Rule: Glazing, Windscreen Wipe and Wash, and Mirrors 1999.

Mandatory equipment

Glazing markings

1. Windscreens and other glazing must be permanently and indelibly marked as complying with an approved trade name or approved vehicle standard as shown in Table 5-1-1 and Table 5-1-2 unless excluded as below:

    a) glazing marked by a vendor or installer, and fitted in a vehicle before 1 January 1997, may be marked by means of a self-adhesive label

    b) plastic glazing behind the driver's seat in a soft-top convertible need not be marked

    c) hard plastic material behind the driver's seat in a vehicle manufactured before 1 January 1991 need not be marked.

2. Glazing marked by the vendor or installer must contain wording, characters or symbols that indicate the approved vehicle standard, and the:

    a) type of glazing, and

    b) thickness of the glazing in millimetres or, in the case of laminated glass only, the thickness of the intervening layer of plastic, and

c) identity of the vendor or installer of the glazing.

Permitted glazing

3. Wire glass may be used in any window behind the driver's seat, if required or allowed under any legislation.

4. Vehicles of class MD1 or MD2 may be fitted with the following, which may be made of a transparent material of a kind that does not shatter:

a) curved scenic skylights above the cant rail

b) curved windows at the front and rear corners

c) skylights

d) louvres

e) interior partitions.

Glazing condition

5. Glazing must be mechanically sound, strong, and securely affixed to the vehicle.

6. A windscreen and front side windows must be clean and free of obstruction to ensure the driver has sufficient vision through the glazing to operate the vehicle safely.

7. A windscreen must not have scratches and other defects that:

a) unreasonably impair vision, or

b) compromise its strength.

8. A laminated windscreen must not show signs of discolouration that could unreasonably impair the driver's vision.

9. Glazing in roof panels may be tinted.

Glazing performance

10. A windscreen visible light transmittance (VLT) must be at least 70%.

11. Front side windows VLT must be at least 35%.

12. Glazing must not have a mirrored effect sufficient to dazzle other road users.

Permitted modifications

13. A modification that affects glazing is permitted if within the limits in Table 5-1-6.

Glazing removal

14. Permanent removal of OE-specified glazing that affects the structural integrity of the vehicle (eg bonded glazing) must be certified in accordance with the Low Volume Vehicle Code.

Condition of modified glazing

15. Overlays must not have any bubbling or other defects that could unreasonably impair vision.

16. Glazing must not have any scratches or other defects that unreasonably impair vision or compromise the strength of the glazing.

Performance of modified glazing

17. Modifications must not:

a) unreasonably impair vision through a windscreen or a front side window, or a rear or rear side window in the case of MA vehicles other than stretch limousines or body transfer vehicles, or

b) adversely affect the strength or mechanical performance of the glazing or the vehicle.

Windscreen repair

18. Windscreens: a repair to a windscreen carried out on or after 1 January 1997 must comply with whichever of the following standards is applicable at the date of repair:

a) New Zealand standard 5470: 1993, Code of Practice for Automotive Windscreen Repair (superseded by Australian Standard/New Zealand standard 2366: 1999, Windscreen Repairs), or

b) Australian standard 2366-1990, Repair of Laminated Glass Windscreens fitted to Road Vehicles (superseded by Australian Standard/New Zealand standard 2366: 1999, Windscreen Repairs).

Page amended **1 April 2023** (see **amendment details**).

Page updated **4 October 2023** (see **details**).