

NSAI
Certification

**Inspection and Test Procedures for
Individual Vehicle Approval (IVA)**

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Foreword

Individual Vehicle Approval (IVA)

This is an approval for vehicles which are not produced in series. Each individual vehicle is tested / inspected against all applicable test requirements.

These test procedures are a detailed guide on the test / inspection of vehicles submitted to an authorised Appointed Test Centre (ATC).

Method of Inspection

The presenter may be required to open lockable compartments, remove engine covers, inspection / access panels, trims, carpeting and dismantle certain parts of the vehicle to allow ATC examiners to carry out a full and meaningful inspection.

Non-European and Other Acceptable Standards

Evidence that a vehicle complies with the standards in the table will be accepted instead of compliance with the relevant IVA requirements. This does not necessarily mean that these standards are equivalent to the IVA requirements.

Mass-Produced Vehicles from USA or Canada.

To prove compliance with the listed standards, these vehicles must be fitted with a Compliance plate which will contain the name of manufacturer, 17 digit VIN number, gross vehicle weights, and the following:

For FMVSS. *'This vehicle conforms to all applicable Federal Motor Vehicle Safety Standards in effect on the date of manufacture shown above.'*

For CMVSS: The plate will contain bilingual text (English/French) and a Transport Canada maple leaf containing a number and:



Such vehicles will only need to be tested to certain sections of these procedures. However in the case of modified vehicles, for example stretch limousines, modifications to the vehicle may have invalidated the original compliance and so enquiries will need to be made of the converter, in particular whether any increase in maximum permissible weights is technically justifiable and whether the brakes have likewise been uprated.

Mass produced vehicles from Japan.

To prove compliance with the listed standards, a Japanese de-registration document (or equivalent, original not a copy) must be provided when the vehicle is presented for test. It must contain a Type Designation number. Such vehicles will only need to be tested to certain test procedures. However, in the case of modified vehicles, the original compliance may be invalidated and this must be assessed on a case-by-case basis.

Mass produced vehicles from other territories: NSAI will update this document from time to time with the latest information.

Item	Subject	United States (U)	Canada (C)	Japan (J)	Other
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No.					
1	Sound levels	California (SAE J986)	CMVSS 1106	Std accepted – ref TBC	
2	Emissions	EPA 40 CFR Part 86 or California TLEV, LEV, or ULEV	CMVSS 1100	To be confirmed	
3	Fuel tank	FMVSS 301 and EPA 40 CFR Part 80.24	CMVSS 301	Std accepted – ref TBC	
4	Rear reg plate				
5	Steering effort				
6	Door latches	FMVSS 206	CMVSS 206	11-4-12 (door retention systems)	
7	Audible warning				
8	Rear vision	FMVSS 111	CMVSS 111		
9	Braking	FMVSS 135 or FMVSS 105 + ABS on rear wheels	CMVSS 135 or CMVSS 105 + ABS on rear wheels	11-4-29 (braking systems)	
10	EMC	SAE J551	SAE J551	Std accepted – ref TBC	
11	Diesel smoke	EPA 40 CFR Part 86 or California TLEV, LEV, or ULEV		11-4-26 (10.15 mode: diesel particulate standard)	
12	Interior fittings	FMVSS 201	CMVSS 201	11-4-6 (instrument panel) 11-4-7 (sun visors) 11-4-9 (seat backs) (J2)	
13	Anti-theft/immobiliser	FMVSS 114	CMVSS 114		
14	Protective steering	FMVSS 203 FMVSS 204	CMVSS 203 CMVSS 204	11-4-1 (steering system impact) (J3)	
15	Seat strength (+ head restraint)	FMVSS 207	CMVSS 207	11-4-8 (seats and seat anchorages) (J1)	
16	Exterior projections				
17	Speedometer / reverse	FMVSS 101	CMVSS 101		
18	Statutory plates				
19	Seat belt anchorage	FMVSS 210 including associated requirements of FMVSS 207 and 208	CMVSS 210 including associated requirements of CMVSS 207 and 208	11-4-10 (seat belt anchorages)	
20	Lighting installation				

Item	Subject	United States (U)	Canada (C)	Japan (J)	Other
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No.					
31a	Seat belts components	FMVSS 209 (U1)	CMVSS 209 (U1)	Std accepted – ref TBC	
31b	Installation of seat belts	FMVSS 208	CMVSS 208	Std accepted – ref TBC	
32	Forward vision				
33	ID of controls	FMVSS 101	CMVSS 101		
34	Defrost/Demist	FMVSS 103	CMVSS 103	11-4-33 (defrosting and demisting systems)	
35	Wash/Wipe	FMVSS 104	CMVSS 104	Std accepted – ref TBC	
36	Heater				
37	Wheel guards				
38	Head restraints (see item 15)	FMVSS 202	CMVSS 202	Std accepted – ref TBC	
39	Fuel consumption			Std accepted – ref TBC	
41	Heavy duty diesel gaseous emissions	Std accepted – ref TBC	Std accepted – ref TBC	Std accepted – ref TBC	
44	Masses and Dimensions (M1)				
45	Glass	FMVSS 205 (U2)	CMVSS 205 (U2)	11-4-21 (window glass) JIS R3211	South Africa SABS 1191 SABS 1193 India IS2253 (Part 2) 1992 (Note 11) Australia AS/NZS 2080 AS/NZS 2080T (Note A1)
46	Tyres	FMVSS 109 (U3) FMVSS 110 (U4) FMVSS 119/120 FMVSS 139	CMVSS 109 (U3) CMVSS 110 (U4) CMVSS 119/120 CMVSS 139	JIS D4201 JIS D4202 JIS D4230	
50	Couplings (if fitted)				
53	Frontal impact (if <2500kg)	FMVSS 208	CMVSS 208	Std accepted – ref TBC	
54	Side impact (if <700mm R point)	FMVSS 214	CMVSS 214	Std accepted – ref TBC	
60	Frontal protection systems (if fitted)				

This information is provided for guidance only and NSAI retains the right to test the vehicle against the IVA requirements if they have any reason to doubt compliance with the indicated standard.

U) FMVSS = Federal Motor Vehicle Safety Standards

C) CMVSS = Canadian Motor Vehicle Safety Standards

SAE = Society of Automotive Engineers (standard)

EPA 40 CFR = Environmental Protection Agency, Code of Federal Regulation, Title 40

J) The references 11-4-(digit) are the relevant sections of the Automotive Type Approval Handbook for Japanese Certification published by the Japan Automobile Standards International Centre in the respective years listed (1994 or 1997).

JIS) Japanese Industrial Standard.

A1) Does not include opacity. Must display manufacturer's name or trademark. Windscreen to show 2080 and WHP. Other windows 2080T and CHT, L, LT, LCHT or HP.

A2) Vehicles having a date of manufacture pre- 1/10/96

A3) Vehicles having a date of manufacture from 1/10/96

I1) Does not include opacity. Must display manufacturer's name or trademark. Windscreen to show Z or LW. Other windows T, TW, Z, L or LW.

J1) Does not address location of unlocking controls or automatic locking of seats.

1. Title of Test:

Sound levels

Test Record Number: TR001

Stationary Noise Test Procedure

Using the sound level meter in accordance with the instructions of the sound level meter manufacturer, carry out a stationary noise check as follows:

- Place the vehicle within the authorised test area.
- With the sound meter horizontal, set the microphone height so that it is at the height of the exhaust outlet or 200mm from the ground, whichever is higher at an angle of 45 degrees to the exhaust outlet in the direction which gives the greatest distance between it and the vehicle contour at a distance of 500mm from the exhaust outlet.
- For vehicles of category M1, with the vehicle at normal operating temperature, run the engine at $\frac{3}{4}$ of its 'maximum power' speed, and at and note the sound level reading obtained (See note below).
- For vehicles of category M1, with the vehicle at normal operating temperature, run the engine at $\frac{3}{4}$ of its 'maximum power' speed, and note the sound level reading obtained (See note below).
- For vehicles not of category M1, with the vehicle at normal operating temperature, run the engine at $\frac{1}{2}$ of its 'maximum power' speed, and note the sound level reading obtained (See note below).
- The measured sound level will be the average of three readings.

Note:

Some vehicles are designed not to allow the engine RPM to be increased above a certain threshold whilst stationary, with the parking brake applied or in Neutral. In this case the test should be carried out at the maximum RPM achievable if $\frac{3}{4}$ max power engine speed cannot be achieved.

Where the examiner has doubts that the vehicle result obtained may be falsely low then evidence of compliance must be supplied.

What to record

- Test results
- All three noise level results
- Average noise level result
- Positioning of microphone
- Equipment

What needs to be reported (following format in ISO17025):

- All the above
- General weather conditions including wind and if surface was wet etc, (if test is carried out outdoors)
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Test track
- Variations and uncertainties (eg. three tests must be within a certain bandwidth)

2. Title of Test:

Emissions

Test Record Number: TR002

TEST

- Connect the engine speed measuring device and insert the engine oil temperature measuring probe into the dipstick hole
- Engine pre-conditioning: Check the engine oil temperature. If it is below the minimum vehicle specific requirement, raise the engine speed to between 2000 and 3000rpm and maintain this speed until the minimum engine oil temperature has been reached. Remove temperature measuring probe and replace dipstick
- Perform a HC hang-up check and ensure that $HC < 20\text{ppm}$ before continuing. Insert the analyser sample probe
- Raise the engine speed to the vehicle specific fast idle speed and maintain for 30 seconds. If the engine speed drifts outside the fast idle speed range, begin the 30 second countdown again. During the last 5 seconds note the readings for CO, HC and lambda, and record the results.

Diesels

Where possible check that:

- there is sufficient oil in the engine,
- the oil pressure is not too low,
- the camshaft belt is in a satisfactory condition,
- there is no abnormal engine noise,
- the governor has not been tampered with,
- the engine is at normal operating temperature.

Raise the engine speed to around 2500rpm, or half the maximum engine speed if this is lower and hold for 30 seconds to fully purge the inlet and exhaust system. Raise the engine speed slowly to maximum to check the operation of the governor. Once the engine speed has stabilised or if it becomes clear that the governor is not working, release the pedal, return to idle and stop the engine.

- a. Prompt the meter to carry out a zero check.
- b. Check that the smoke meter probe can be inserted into the tailpipe.
- c. Insert the probe fully and securely, in line with the gas flow. Restart the engine.

Fast Pass

- Following the meter prompts, depress the accelerator pedal quickly and continuously but not violently, to reach full fuel position in less than 1 second.
- Hold it there until a release prompt is given, then immediately release the pedal.
- Allow the engine, and any turbocharger fitted, to return to idle speed.
- At the end of the 1st acceleration read the smoke level displayed on the meter. If it is at or below 1.50m^{-1} the vehicle has passed this part of the test and a pass result will be displayed on the meter.

- If the 1st acceleration smoke level is greater than 1.50m^{-1} carry out two further accelerations

following the meter prompts.

- At the end of the 3rd acceleration, read the mean smoke level displayed on the meter. If it is at or below the appropriate limit, the vehicle has passed this part of the test and a pass result will be displayed on the meter.
- If the mean smoke level is too high, carry out further accelerations up to a maximum of 6 in total.
- After each acceleration, check the mean reading. This part of the test is complete when either:
 1. the mean of any 3 consecutive smoke readings is at or below the appropriate limit,
 2. six accelerations have been performed.

Assess whether the smoke emitted from the exhaust, regardless of measured density, is likely to obscure the vision of other road users.

The measured emissions must not exceed the limits, as shown in the table below:

Engine	Before 1 st July 2008	1 st July 2008 onwards
Turbocharged	3.00m-1	1.50m-1
Non-turbocharged	2.50m-1	1.50m-1

What to record

- Test results from Test Report
- CO, HC and Lambda readings from test
- Engine temperature
- Fast and low idle speeds
- Visual inspection of emissions system – leaks not acceptable.
- All test results.
- Calibration status of test equipment.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

3. Title of Test:

Fuel Tanks / Rear Protective Devices

Installation Check

- Check tank for corrosion – corrosion not allowed
- The tank must not be situated in, or form a surface (floor, wall or bulkhead) of the occupant compartment or other compartment integral with it.
- A partition must be provided to separate the occupant compartment from the tank. There must not be an aperture in the partition that would allow fuel to flow freely into the occupant compartment.
- The tank must be securely fixed and placed to ensure that any fuel leaking from the tank or its accessories will escape to the ground and not into the occupant compartment.
- The tank must be positioned to protect it from damage from protruding parts or sharp edges in the event of a frontal or rear impact.
- The tank must be mounted in such a way to protect it from abrasion from adjacent parts.
- The tank must be fitted with a vent device which must be designed in such a way as to prevent any fire risk.
- Metal fuel tanks must be installed with a path for the discharge of static electricity either directly through its mountings or by the provision of a separate means of discharge.
- The filler hole must not be located in the occupant, luggage or engine compartment.
- The fuel must not escape through the tank cap or through the devices provided to compensate for excess pressure.

Pressure Test

- The tank must be completely filled with a non-flammable liquid (water, for example).
- After all communication with the outside has been cut off, the pressure must be gradually increased, through the pipe connection through which fuel is fed to the engine.
- The tank must be brought up to an internal pressure equal to double the working pressure used and in any case to not less than an excess pressure of 0,3 bar.
- This pressure must be maintained for one minute.
- During this time the tank shell must not crack or leak, however, it may be permanently deformed.

Overturn Test

- The tank and all its accessories must be mounted on to a test fixture in a manner corresponding to the mode of installation on the vehicle for which the tank is intended, this also applies to systems for the compensation of the interior excess pressure.
- The test fixture shall rotate about an axis lying parallel to the longitudinal vehicle axis.
- The test will be carried out with the tank filled to 90 % of its capacity and also 30 % of its capacity with a non-flammable liquid having a density and a viscosity close to those of the fuel normally used (water is acceptable).
- The tank must be turned from its installed position 90° to the right. The tank must remain in this position for at least five minutes.
- The tank must then be turned 90° further in the same direction. The tank must be held in this position, in which it is completely inverted, for at least another five minutes.
- The tank must be rotated back to its normal position. Testing liquid which has not flowed back from the venting system into the tank must be drained and replenished if necessary.
- The tank must be rotated 90° in the opposite direction and left for at least five minutes in this position.
- The tank must be rotated 90° further in the same direction. This completely inverted position must be maintained for at least five minutes. Afterwards, the tank must be rotated back to its normal position.

What to Record

- Test results
- Corrosion check.
- Pressure test.
- Overturn test.
- Installation check.
- Equipment

What needs to be reported (following format in ISO17025):

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details

-Personnel responsible for the test

REAR PROTECTIVE DEVICES

Installation Check

- The width of the rear protective device is not less than the width of the widest rear axle by more than 100mm on either side.
- The ground clearance must not exceed 550mm over its width.
- It is securely attached to the vehicle so it can withstand the loads likely to be imposed on it.

Vehicle Rear Construction Forms The Rear Protective Device

- The vehicle as presented is accompanied by satisfactory evidence of compliance regarding the protective system
- When the construction of the rear of the vehicle forms the rear under run protection device, then the ground clearance of the rear part of the vehicle must not exceed 550mm over a width which is not shorter than that of the rear axle by more than 100mm on either side (excluding any tyre bulging close to the ground).

What to Record

- Installation check.
- Equipment

What needs to be reported (following format in ISO17025):

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

Test Procedure
<p data-bbox="521 319 1101 352" style="text-align: center;">Positional, Dimensional and Visibility Check</p> <ul style="list-style-type: none"><li data-bbox="204 359 1403 499">• The space for mounting the rear registration plate shall comprise an even or virtually even rectangular surface with the following dimensions:<ul style="list-style-type: none"><li data-bbox="302 432 532 466">○ width 520mm.<li data-bbox="302 470 537 504">○ height 120mm.<li data-bbox="302 541 345 575" style="text-align: center;">OR<li data-bbox="302 613 537 684"><ul style="list-style-type: none"><li data-bbox="302 613 532 646">○ width 340mm.<li data-bbox="302 651 537 684">○ height 240mm.<li data-bbox="204 722 1451 869">• The space must allow the mounting of a plate in a position as close to vertical as is possible by the vehicle structure available.<ul style="list-style-type: none"><li data-bbox="302 800 964 833">○ $\leq 30^\circ$ from the vertical if plate is facing upwards.<li data-bbox="302 837 1003 869">○ $\leq 15^\circ$ from the vertical if plate is facing downwards.<li data-bbox="204 873 821 907">• The plate shall be visible in the whole space.
What to Record
<ul style="list-style-type: none"><li data-bbox="149 1024 602 1058">-Dimensions of the space available.<li data-bbox="149 1062 375 1096">-Position of plate.<li data-bbox="149 1100 306 1134">-Equipment. <p data-bbox="431 1167 1190 1201" style="text-align: center;">What needs to be reported (following format in ISO17025):</p> <ul style="list-style-type: none"><li data-bbox="149 1205 331 1239">-All the above<li data-bbox="149 1243 716 1276">-Vehicle identification (VIN etc), test series.<li data-bbox="149 1281 423 1314">-Manufacturer details<li data-bbox="149 1318 586 1352">-Personnel responsible for the test

5. Title of Test:

Steering Effort

- A lock to lock test. The vehicle must operate smoothly without undue stiffness.
- The safe control of the vehicle must not be impaired due to a design or construction feature or characteristic of the steering system.
- The steering must not act solely on the rear wheels.
- The steering angle must not be limited by any part of the steering transmission system unless it has been specifically designed for this purpose.
- If the vehicle is fitted with power assisted steering, the steering must still operate with the assistance disabled.
- The steering effort required to achieve a turning circle of 12 metres radius, starting from the dead ahead position, must not exceed 25kg.
- For assisted steering devices, if the auxiliary power supply fails the steering effort required must not exceed 60kg.
- The steered wheels and tyres must not foul other parts of the vehicle under normal operating conditions.
- The steering components must not foul other parts of the vehicle under normal operating conditions.
- When the vehicle is driven at speeds above 15kph, there must be a degree of steering “self centering” evident.

What to Record

- Results of lock to lock test.
- Inspection results.
- Calibration status of test equipment.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

6. Title of Test:

Door Latches and Hinges

1. All driver and passenger doors fitted to the sides of the vehicle must have a latch mechanism with both intermediate and fully latched positions. Alternatively, doors must be fitted with a safety bolt and an audible warning device, which activates when the vehicle is being driven if the bolt is not in the “secured” position (see Note 4).
2. All driver and passenger hinged doors must have a latch mechanism that will withstand a load of 30kgf in both intermediate and fully latched positions, unless fitted with a safety bolt and audible warning device where it will only need to meet this requirement in the secured (locked) position (see Note 3 and 4).
3. All driver and passenger doors fitted to the sides of the vehicle which are hinged at the top or rear of the vehicle must be
 - a. fitted with a device that automatically moves the door to the closed or intermediate latched position if unlatched when the vehicle is moving forward, or
 - b. fitted with a safety bolt and an audible warning device, that activates when the vehicle is being driven if the bolt is not in the “secured” position.

This inspection applies to doors and to other aperture covers fitted to the vehicle. Compliance may be demonstrated by submission of documentary evidence or an inspection of the vehicle.

In the case of a motor caravan, ambulance or hearse with a maximum mass equal to or exceeding 2500kg the requirements according to the category of the base or incomplete vehicle or of the corresponding N category vehicle based on maximum mass will apply.

Note 1: A side-screen which may be mounted in a structure, and which in either case is hinged to allow entry/ exit and which is permanently secured to the vehicle (ie not detachable) is considered to be a door and is subject to the requirements of this section.

Note 2: Doors designed to be easily attached to or removed from a motor vehicle manufactured for operation without doors need only comply with item 3 above.

Note 3: Doors which do not give direct access to seats that are designed for normal use while the vehicle is travelling on the road, ie where the longitudinal plane of the most inboard point of the door is more than 300mm from the longitudinal plane of the nearest edge of the seat are exempt from this requirement.

Note 4: Any power operated door where force applied by the power actuator is sufficient to keep the door completely closed even when any load is applied is exempt from this requirement.

What to Record

-Inspection results

What needs to be reported (following format in ISO17025):

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test

7. Title of Test:

Audible Warning

Test Record Number: TR007

Note: Horn means an audible warning device not being a bell, gong or siren.

Inspection Procedure

- The vehicle must be fitted with a horn.
- The horn must be securely attached to the vehicle
- The horn must emit a continuous uniform sound
- The horn must give an equivalent level of warning to other road users as that of an EC Type Approved vehicle.

Test Procedure

The characteristics of the warning device fitted to the vehicle shall be tested as follows:

- The sound pressure level of the device when fitted to the vehicle shall be measured at a point 7 m in front of the vehicle at a site which is open and as level as possible. The engine of the vehicle shall be stopped.
- Measurements shall be made on the "A" weighting scale of the Publications 179, 1st ed. (1965), of the International Electrotechnical Commission (IEC) standard.
- The maximum sound pressure level shall be determined at a height of between 0.5 and 1.5 m above ground level.
- That maximum must be not less than 93 dB (A).

What needs to be recorded

- All test results.
- Calibration status of test equipment.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

8. Title of Test:

Indirect Vision

Test Record Number: TR008

Inspection

- The vehicle must have a nearside and offside exterior mirror fitted.
- An interior mirror must be fitted, unless it would provide no rearward vision.
- All mirrors must be securely mounted to the vehicle, to ensure that the field of view does not change.
- All mirrors must be mounted so as to prevent the driver misinterpreting the image because of vibration.
- All mirrors must have an acceptable approval marking or have equivalent characteristics to a mirror approved for use on a vehicle of the same category as follows:
 - The reflective surface must be encased in a protective housing
 - surfaces contactable by a 165mm sphere (interior) or a 100mm sphere (exterior) must have a radius of curvature of at least 2.5mm – except for fixing holes or recesses less than 12mm wide, which must be blunted
- Except for mirrors fitted to a left hand drive vehicle, or those that do not protrude beyond the extreme outer edge of the vehicle, or every part of which is above 2000mm; the nearside and offside exterior mirrors must be able to rotate inwards towards the vehicle when a force of 10kg is applied horizontally at the extreme outer edge from both front and rear, and have an axis of rotation within 50mm of the vehicle surface to which they are mounted.
- The interior mirror must be adjustable from the normal driving position.
- The offside mirror fitted to a vehicle with a right hand or central driving position must be adjustable from the driving seat. Alternatively, if knocked out of alignment, it must be capable of being returned to its former position without the need for adjustment.
- All mirrors must provide the required field of view.

Minimum number of mirrors and mirror dimensions

Interior: Class I

(Must have an interior rear view mirror unless it is impossible to have a rear window – must demonstrate why it is not possible to have a rear window.

Exterior: Class II, III, IV, V, VI (see table on following pages).

Quality (e/E mark)

All rear view mirrors must have a relevant e/E mark.

Vehicle category	Exterior mirrors					
	Interior mirror	Main mirror (large) Class II	Main mirror (small) Class III	Wide-angle mirror Class IV	Close-proximity mirror Class V	Front mirror Class VI
M ₁	Compulsory Unless a mirror would not provide rearward vision (as defined in item 5.1 Annex III) Optional If the mirror does not provide rearward vision	Optional	Compulsory One on the driver's side and one on the passenger's side. Class II mirrors may be fitted as an alternative.	Optional One on the driver's side and/or one on the passenger's side	Optional One on the driver's side and one on the passenger's side (both must be fitted at least 2 m above the ground)	Optional (must be fitted at least 2 m above the ground)
M ₂	Optional (no requirements for the field of view)	Compulsory One on the driver's side and one on the passenger's side	Not permitted	Optional One on the driver's side and/or one on the passenger's side	Optional One on the driver's side and one on the passenger's side (both must be fitted at least 2 m above the ground)	Optional (must be fitted at least 2 m above the ground)
M ₃	Optional (no requirements for the field of view)	Compulsory One on the driver's side and one on the passenger's side	Not permitted	Optional One on the driver's side and/or one on the passenger's side	Optional One on the driver's side and one on the passenger's side (both must be fitted at least 2 m above the ground)	Optional (must be fitted at least 2 m above the ground)
N ₁	Compulsory Unless a mirror would not provide rearward vision (as defined in item 5.1 Annex III) Optional If the mirror does not provide rearward vision	Optional	Compulsory One on the driver's side and one on the passenger's side. Class II mirrors may be fitted as an alternative.	Optional One on the driver's side and/or one on the passenger's side	Optional One on the driver's side and one on the passenger's side (both must be fitted at least 2 m above the ground)	Optional (must be fitted at least 2 m above the ground)

Vehicle category	Exterior mirrors					
	Interior mirror	Main mirror (large) Class II	Main mirror (small) Class III	Wide-angle mirror Class IV	Close-proximity mirror Class V	Front mirror Class VI
$N_1 \leq 7,5\text{ t}$	Optional (no requirements for the field of view)	Compulsory One on the driver's side and one on the passenger's side	Not permitted	Optional One on the driver's side and one on the passenger's side	Optional One on the passenger's side and one on the driver's side (both must be fitted at least 2 m above the ground)	Optional One front mirror (must be fitted at least 2 m above the ground)
$N_1 > 7,5\text{ t}$	Optional (no requirements for the field of view)	Compulsory One on the driver's side and one on the passenger's side	Not permitted	Compulsory One on the driver's side and one on the passenger's side	Compulsory, see Annex III items 3.7 and 5.5.5 One on the passenger's side Optional One on the driver's side (both must be fitted at least 2 m above the ground)	Compulsory, see Annex III item 2.1.2 One front mirror (must be fitted at least 2 m above the ground)
N_2	Optional (no requirements for the field of view)	Compulsory One on the driver's side and one on the passenger's side	Not permitted	Compulsory One on the driver's side and one on the passenger's side	Compulsory, see Annex III items 3.7 and 5.5.5 One on the passenger's side Optional One on the driver's side (both must be fitted at least 2 m above the ground)	Compulsory, see Annex III item 2.1.2 One front mirror (must be fitted at least 2 m above the ground)

5. Fields of vision

5.1. Interior rear-view mirror (Class I)

The field of vision must be such that the driver can see at least a 20 m wide, flat, horizontal portion of the road centred on the vertical longitudinal median plane of the vehicle and extending from 60 m behind the driver's ocular points (Figure 6) to the horizon.

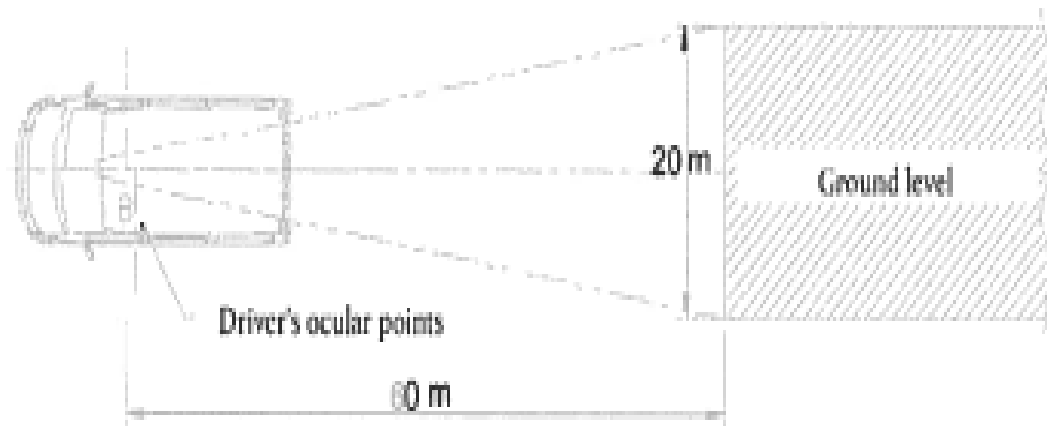


Figure 6: Field of vision of Class I mirror

5.2. Main exterior rear-view mirrors Class II

5.2.1. Exterior rear-view mirror on the driver's side

The field of vision must be such that the driver can see at least a 5 m wide, flat, horizontal portion of the road, which is bounded by a plane which is parallel to the median longitudinal vertical plane and passing through the outermost point of the vehicle on the driver's side of the vehicle and extends from 30 m behind the driver's ocular points to the horizon.

In addition, the road must be visible to the driver over a width of 1 m, which is bounded by a plane parallel to the median longitudinal vertical plane and passing through the outermost point of the vehicle starting from a point 4 m behind the vertical plane passing through the driver's ocular points (see Figure 7).

5.2.2. Exterior rear-view mirror on the passenger's side

The field of vision must be such that the driver can see at least a 5 m wide, flat, horizontal portion of the road, which is bounded on the passenger's side by a plane parallel to the median longitudinal vertical plane of the vehicle and passing through the outermost point of the vehicle on the passenger's side and which extends from 30 m behind the driver's ocular points to the horizon.

In addition, the road must be visible to the driver over a width of 1 m, which is bounded by a plane parallel to the median longitudinal vertical plane and passing through the outermost point of the vehicle starting from a point 4 m behind the vertical plane passing through the driver's ocular points (see Figure 7).

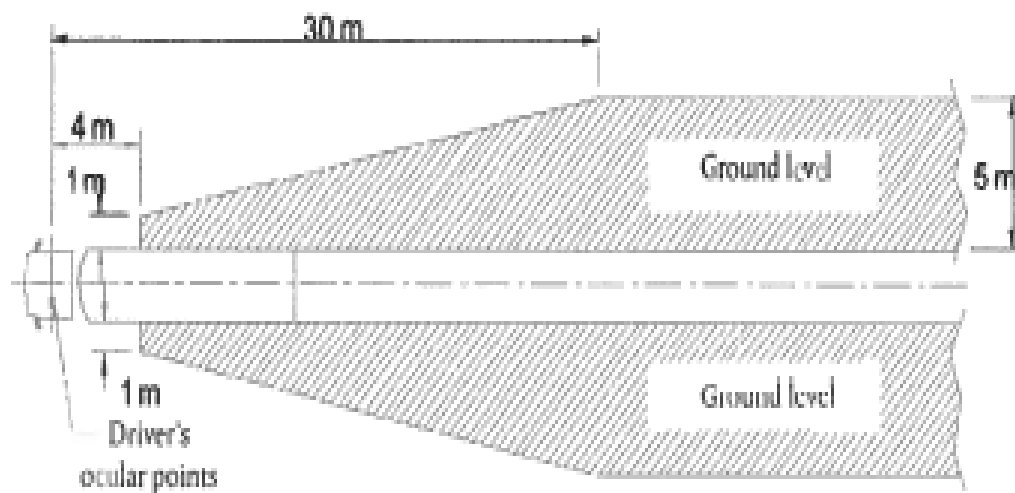


Figure 7: Field of vision of Class II mirrors

5.3. Main exterior rear-view mirrors Class III

5.3.1. Exterior rear-view mirror on the driver's side

The field of vision must be such that the driver can see at least a 4 m wide, flat, horizontal portion of the road, which is bounded by a plane parallel to the median longitudinal vertical plane and passing through the outermost point of the vehicle on the driver's side of the vehicle and extends from 20 m behind the driver's ocular points to the horizon (see Figure 8).

In addition, the road must be visible to the driver over a width of 1 m, which is bounded by a plane parallel to the median longitudinal vertical plane and passing through the outermost point of the vehicle starting from a point 4 m behind the vertical plane passing through the driver's ocular points.

5.3.2. Exterior rear-view mirror on the passenger's side

The field of vision must be such that the driver can see at least a 4 m wide flat, horizontal portion of the road which is bounded by a plane parallel to the median longitudinal vertical plane passing through the outermost point of the vehicle on the passenger's side and which extends from 20 m behind the driver's ocular points to the horizon (see Figure 8).

In addition, the road must be visible to the driver over a width of 1 m which is bounded by a plane which is parallel to the median longitudinal vertical plane and passing through the outermost point of the vehicle starting from a point 4 m behind the vertical plane passing through the driver's ocular points.

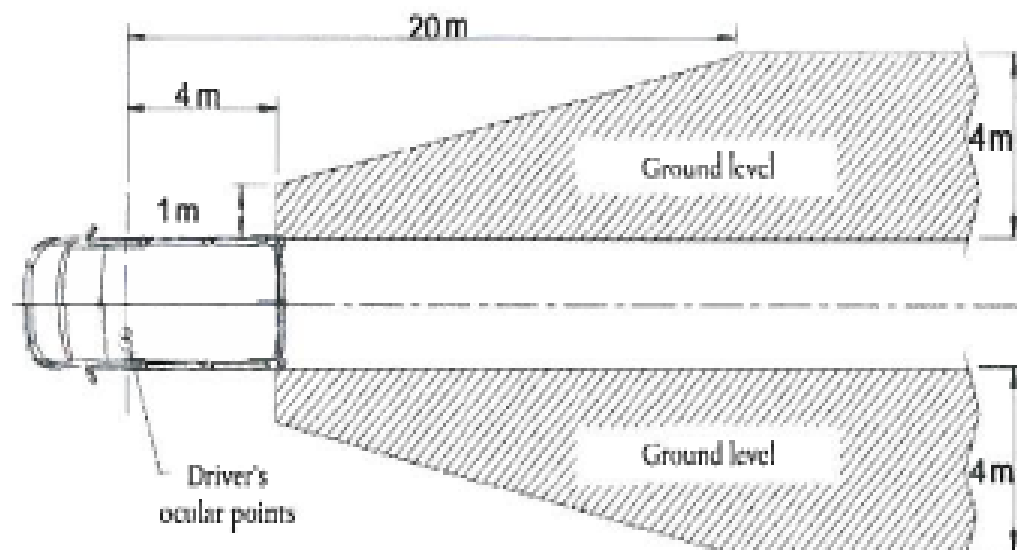


Figure 8: Field of vision of Class III mirrors

5.4. 'Wide-angle' exterior mirror (Class IV)

5.4.1. 'Wide-angle' exterior mirror on the driver's side

The field of vision must be such that the driver can see at least a 15 m-wide, flat, horizontal portion of the road, which is bounded by a plane parallel to the median longitudinal vertical plane of the vehicle and passing through the outermost point of the vehicle on the driver's side and which extends from at least 10 to 25 m behind the driver's ocular points.

In addition, the road must be visible to the driver over a width of 4,5 m, which is bounded by a plane parallel to the median longitudinal vertical plane and passing through the outermost point of the vehicle starting from a point 1,5 m behind the vertical plane passing through the driver's ocular points (see Figure 9).

5.4.2. 'Wide-angle' exterior mirror on the passenger's side

The field of vision must be such that the driver can see at least a 15 m-wide, flat, horizontal portion of the road, which is bounded by a plane parallel to the median longitudinal vertical plane of the vehicle and passing through the outermost point of the vehicle on the passenger's side and which extends from at least 10 to 25 m behind the driver's ocular points.

In addition, the road must be visible to the driver over a width of 4,5 m, which is bounded by a plane parallel to the median longitudinal vertical plane and passing through the outermost point of the vehicle starting from a point 1,5 m behind the vertical plane passing through the driver's ocular points (see Figure 9).

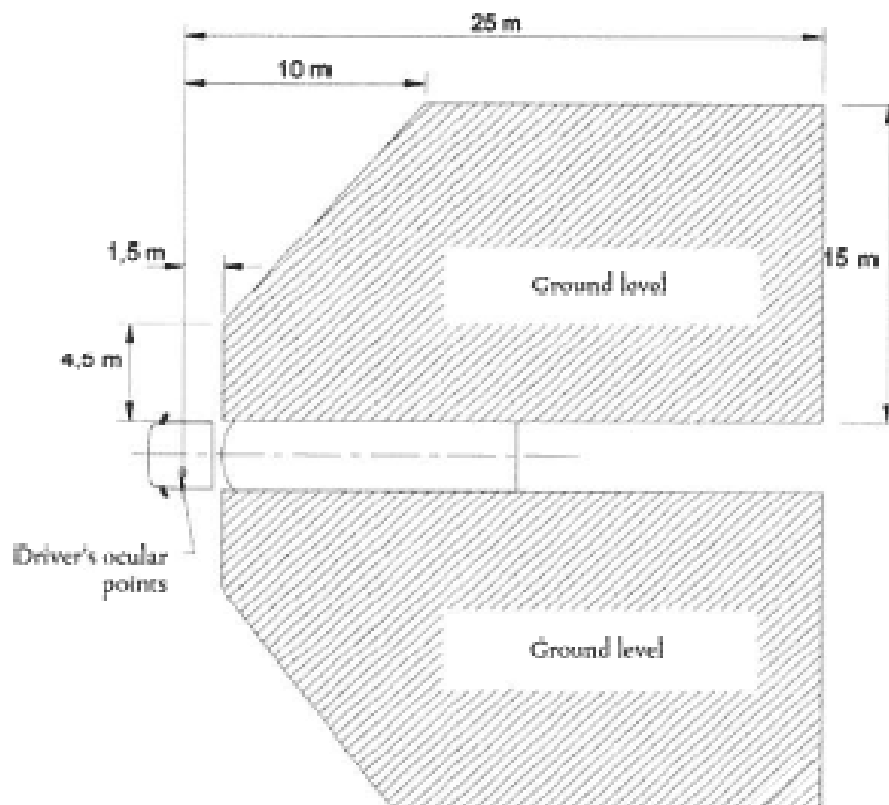
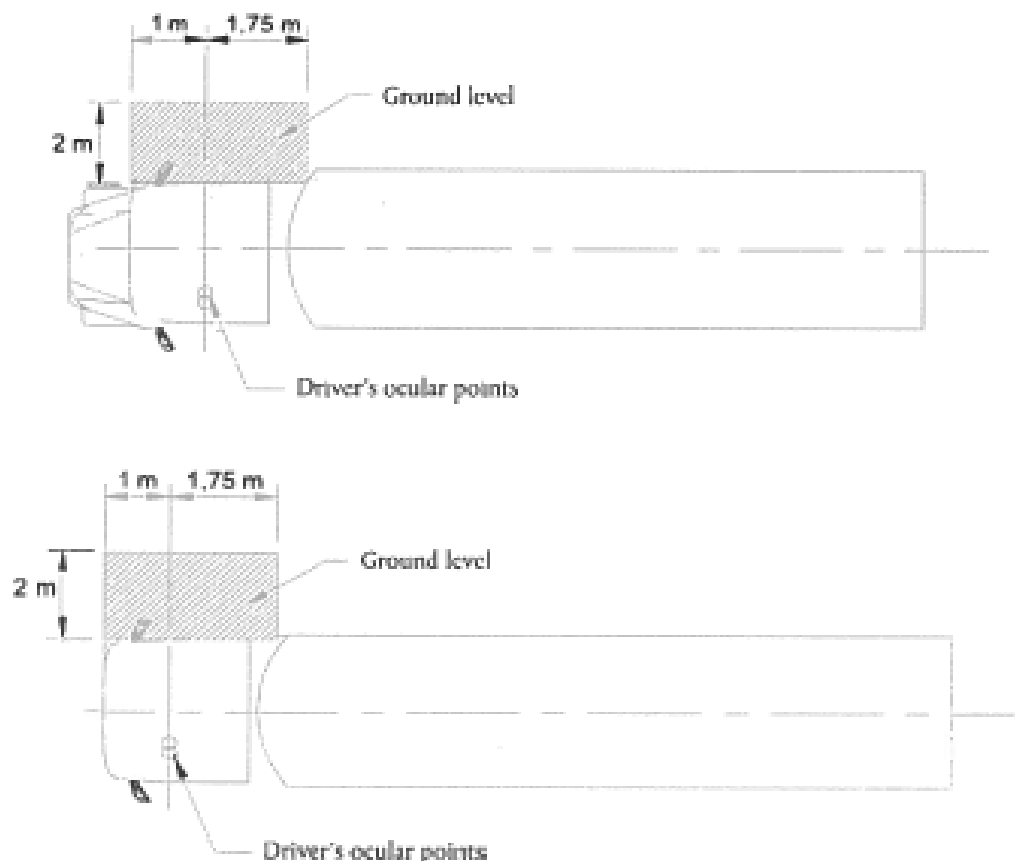


Figure 9: Field of vision of Class IV wide-angle mirrors

5.5. 'Close-proximity' exterior mirror (Class V)

The field of vision must be such that the driver can see a flat horizontal portion of the road along the side of the vehicle, bounded by the following vertical planes (see Figures 10a and 10b):

- 5.5.1. the plane parallel to the median longitudinal vertical plane of the vehicle which passes through the outermost point of the vehicle cab on the passenger's side;
- 5.5.2. in the transverse direction, the parallel plane passing at a distance of 2 m in front of the plane mentioned in point 5.5.1;
- 5.5.3. to the rear, the plane parallel to the vertical plane passing through the driver's ocular points and situated at a distance of 1,75 m behind that plane;
- 5.5.4. to the front, the plane parallel to the vertical plane passing through the driver's ocular points and situated at a distance of 1 m in front of that plane. If the vertical transverse plane passing through the leading edge of the vehicle bumper is less than 1 m in front of the vertical plane passing through the driver's ocular points, the field of vision shall be limited to that plane.
- 5.5.5. In case the field of vision described in Figures 10a and 10b can be perceived through the combination of the field of vision from a Class IV wide-angle mirror and that of a Class VI front mirror, the installation of a Class V close proximity mirror is not compulsory.



Figures 10a and 10b. Field of vision of Class V close-proximity mirror

5.8. Obstructions

5.8.1. Interior rear-view mirror (Class I)

The field of vision may be reduced by the presence of headrest and devices such as, in particular, sun visors, rear windscreen wipers, heating elements and stop lamp of category S3 or by components of bodywork such as window columns of rear split doors, provided that all these devices together do not obscure more than 15 per cent of the prescribed field of vision when projected onto a vertical plane perpendicular to the longitudinal median plane of the vehicle. The degree of obstruction shall be measured with the headrests adjusted to their lowest possible position and with the sun visors folded back.

5.8.2. Exterior mirrors (Classes II, III, IV, V and VI)

In the fields of vision specified above, obstruction due to the bodywork and some of its components, such as other mirrors, door handles, outline marker lights, direction indicators and rear bumpers, as well as reflective-surface cleaning components, shall not be taken into account if they are responsible for a total obstruction of less than 10 % of the specified field of vision.

Devices for indirect vision other than mirrors

6. A device for indirect vision shall give such performances that a critical object can be observed within the described field of vision, taking into account the critical perception.
7. Obstruction of the driver's direct view caused by the installation of a device for indirect vision shall be restricted to a minimum.
8. For the determination of the detection distance in case of camera-monitor devices for indirect vision, the procedure of the Appendix to this Annex shall be applied.

9. **Installation requirements for the monitor**

The viewing direction of the monitor shall roughly be the same direction as the one for the main mirror.

10. Vehicles of category M₂ and M₃ and complete or completed vehicles of categories N₃>7,5 t and N₃ having a special bodywork for refuse collection may be equipped on the rear part of their bodywork with a device for indirect vision other than a mirror in order to ensure the following field of vision.

- 10.1. The field of vision (see figure 12) must be such that the driver can see at least a flat horizontal portion of the road, which is bounded by:

- a vertical plane aligned on the furthest rear point of the complete vehicle and perpendicular to the longitudinal vertical median plane of the vehicle;
- a vertical plane which is parallel to and positioned 2 000 mm to the rear of the previous plane (with respect to the rear of the vehicle);
- two longitudinal vertical planes defined at the outermost sides of the vehicle and which are parallel to the longitudinal vertical median plane of the vehicle.

- 10.2. If vehicles of these categories cannot fulfil the requirements of point 10.1 by using a camera/monitor device, other devices for indirect vision can be used. In this case the device must be able to detect an object of 50 cm height and with a diameter of 30 cm within the field defined in point 10.1.



Figure 12: Field of vision of rear devices for indirect vision

What needs to be recorded

- Number of mirrors
- Classes of mirrors
- Field of view

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test

9. Title of Test:

Brakes

Service

1. The vehicle must be fitted with a service braking system that is completely independent of the control of the parking brake, capable of functioning on all wheels by a single means of operation, which will gradually increase or reduce the braking force through action of the control.
2. The 'service' braking system must be capable of being operated from the driving seat, whilst keeping both hands on the steering wheel. This does not apply to the controls for use by a disabled driver, providing the adaptation allows him/her to control the steering at all times while operating either braking system.
3. The 'service' braking system must be capable of being operated to slow down the vehicle when it is moving in a forward or reverse direction.

Secondary

4. The vehicle must be fitted with a split (dual) circuit brake system with each part of the system operating on at least 50% of the wheels (on each side), capable of operating in the event of a failure of the service brake or its power assistance. Vehicles equipped to tow braked trailers must be fitted with a trailer brake valve.

Parking

5. The 'parking' braking system must be capable of being operated from the driving seat, whilst keeping one hand on the steering wheel.
6. The 'parking' braking system must be capable of being operated and released whether the vehicle is stationary or moving.
7. The 'parking' braking system must be capable of being operated on at least 50% of the wheels enabling the vehicle to be held on an up or down gradient even in the absence of the driver.
8. The 'parking' braking system must be capable of being operated using a control which is independent of the service brake, and once applied capable of being maintained in the 'on' position solely by mechanical means.

Service Brake Control – Mechanical Components

Note 1: A linkage that incorporates a device that allows adjustment of the front/rear braking ratio (longitudinal braking distribution) may require adjustment prior to the brake performance test.

Hydraulic systems (including servo assisted):

Fully apply the control twice, first slowly and then rapidly each time to a point where sustained pressure can be held. Check for creep and sponginess.

If a vacuum servo is fitted, with the engine off, totally deplete the stored vacuum. Fully apply the service brake. Note whether the control can be felt to travel further when the engine is started. If operation is not detected, the vehicle should be re-checked with the brake partially applied.

Full power hydraulic braking systems:

Check that a warning system is fitted and is audible or visible to the driver.

All systems: Check security of all mechanical components, and where possible (without dismantling) that each brake assembly incorporates an adjustment/compensation capability to compensate for friction wear. Assess the ability of the brake friction surfaces to dissipate energy sufficiently to maintain the required braking performance under all normal conditions (including long descents) without the occurrence of brake fade.

1. The brake pedal must be capable of being operated easily from the driving position without obstruction or abnormal hand/foot position and that the pedal (where fitted) has an anti-slip provision.
2. A brake control, actuating linkage or associated component must be fully accessible for maintenance purposes.
3. A brake control, actuating linkage or associated component must be complete, so that it functions correctly.
4. A brake control, actuating linkage or associated component must be of adequate strength so as not to be likely to fail prematurely.
5. A brake control, actuating linkage or associated component must be made of a material sufficiently durable so as not to be likely to fail prematurely.
6. A brake control, actuating linkage or associated component must not be obstructed in its travel nor foul parts of the vehicle.
7. A brake control, actuating linkage or associated component mounting/bracket must be of adequate strength so as not to be likely to fail prematurely.
8. A brake control, actuating linkage or associated component mounting/bracket must be secure to the vehicle structure.
9. A brake control, actuating linkage or associated component mounting/bracket securing method must be of adequate strength so as not to be likely to fail prematurely.
10. A brake control, actuating linkage or associated component pivot bearing/bush must be of adequate

strength so as not to be likely to fail prematurely.

11. A brake control, actuating linkage or associated component pivot bearing/bush must be secure such that it is unlikely to become displaced.
12. Any brake control, actuating linkage or associated component pivot/linkage pins must be present and secure.
13. Any brake control, actuating linkage or associated component locking/retaining devices must be present and secure.
14. With the brake control fully applied there must be sufficient reserve travel.
15. The brake control must not creep down while it is held under pressure.
16. There must not be an indication of 'sponginess' when the brake control is operated, indicating air in the system.
17. The brake control must be applied with no air/hydraulic leak.
18. When the brake control is applied and the engine started a dip must be felt, indicating that vacuum assistance is working satisfactorily.
19. On a full power hydraulic braking system a warning device must be fitted, operative, and visible to the driver, including in darkness.
20. All brake mechanical components must be secure, with relevant securing bolts, locking devices, retaining device etc present and secure.
21. A brake assembly on a FRONT axle of a vehicle must incorporate a means of automatically compensating for friction material wear.
22. A brake assembly on a REAR axle of a vehicle must incorporate either a manual or automatic means of compensating for friction material wear.
23. The brake friction surfaces must have sufficient capacity to dissipate heat and prevent fade.
24. It must not be possible to manually adjust braking rates between axles.

Park Brake Control – Mechanical Components

With the brake in both the on and off positions, check the lever, actuating linkage, cables and associated components for suitability of design, construction methods/materials, location, and mounting/fixing to vehicle structure.

1. A parking brake lever, actuating linkage, cable or associated component must be complete so that it functions correctly.
2. A parking brake lever, actuating linkage, cable or associated component must be of adequate strength so as not to be likely to fail prematurely.
3. A parking brake lever, actuating linkage, cable or associated component must be made of a material sufficiently durable so as not to be likely to fail prematurely.
4. A parking brake lever, actuating linkage, cable or associated component must not be obstructed in its travel nor foul parts of the vehicle.
5. A parking brake lever, actuating linkage, cable or associated component mounting / bracket must be secure to the vehicle structure.
6. A parking brake lever, actuating linkage, cable or associated component mounting / bracket securing method must be of adequate strength so as not to be likely to fail prematurely.
7. A parking brake lever, actuating linkage, cable or associated component pivot bearing / bush must be of adequate strength so as not to be likely to fail prematurely.
8. A parking brake lever, actuating linkage, cable or associated component pivot bearing / bush must be secure such that it is unlikely to become displaced.
9. A parking brake lever, actuating linkage, cable or associated component pivot / linkage pins must be present and secure.
10. A parking brake lever, actuating linkage, cable or associated component locking / retaining devices must be present and secure.
11. The parking brake ratchet pawl must engage positively with the ratchet teeth.
12. A lever operated parking brake must not disengage when the lever is knocked on each side and on the top.
13. A lever operated brake must be able to be positively held at a position of further travel.
14. An electrically operated parking brake switch must be protected from inadvertent use. As an alternative, with the ignition off, the switch must be capable of applying the brake, but must not be capable of releasing the brake.
15. The parking brake mechanism must incorporate a means of compensation between all brake assemblies operated by the parking brake control, and a means of adjustment to compensate for wear.

Hydraulic and Vacuum Systems

Where practicable, check all hydraulic and vacuum components for suitability of design, construction methods and materials, location, and mountings/fixings to the vehicle structure or other components.

All components must be suitable to withstand the stresses, vibration, corrosion and ageing (allowing for routine maintenance) to which they may be subject.

Compression joints of the type using separate ferrules are not considered suitable for joints on hydraulic brake lines other than in the case of a hose designed for a high pressure application that incorporates an inner sleeve in the compression fitting.

Check for leaks in any part of the braking system, with or without the brake applied. For vehicles fitted with a vacuum servo or power braking system, the engine must be running during the inspection.

1. A hydraulic and vacuum component must be complete, so that it functions correctly.
2. A hydraulic and vacuum component must be of adequate strength so as not to be likely to fail prematurely.
3. A hydraulic and vacuum component must be made of a material sufficiently durable so that it is unlikely to fail prematurely.
4. A hydraulic and vacuum component mounting/bracket must be secure to the vehicle structure or other components.
5. A hydraulic and vacuum component mounting/bracket must be of adequate strength so as not to be likely to fail prematurely.
6. A hydraulic and vacuum component mounting/bracket securing method must be of adequate strength and unlikely to fail prematurely.
7. A brake pipe or hose must not be fouled by moving parts.
8. A brake pipe or hose must not be kinked, stretched, or twisted.
9. A brake pipe or hose must be adequately clipped or otherwise supported.
10. A brake pipe or hose must have suitable joint fittings.
11. A brake pipe or hose must not be exposed to excessive heat.
12. A hydraulic/vacuum component must not be subject to a corrosive environment and likely to fail prematurely.
13. Components must not leak due to constructional defects.
14. A fluid reservoir filling port must be easily accessible.

15. A fluid reservoir cap must be present and secure.

16. It must be possible to check the fluid relative to the manufacturer's specified minimum level on all brake fluid reservoirs by the actual fluid level being visible through a transparent section of the reservoir, with the minimum level marked permanently on or adjacent to this section. As an alternative, a red warning lamp must be capable of illuminating when the reservoir fluid falls to the minimum level.

17. Where a warning lamp is provided as the only means of checking the fluid level without opening the reservoir it must be secure, operational, visible during daylight and darkness from the driving position, and fitted with a "test facility" that enables its operation to be checked from the driving position without opening the reservoir.

18. The hydraulic system must be fitted with a red warning lamp, sensitive to line pressure and capable of signalling the failure of any part of the hydraulic system as soon as the brake is applied and remaining lit as long as the failure exists (with the ignition switched on). As an alternative, the warning lamp must be sensitive to the reservoir fluid level, providing the reservoir is directly connected to supply the pressure side of the master cylinder when the piston is in the "brakes off" position, so that a failure of either part of a split system would result in a continuous draining of the reservoir fluid when the control is released (see Note 2).

19. The hydraulic system failure warning lamp must be secure, operational, visible during daylight and darkness from the driving position, identifiable (i.e. labelled in a recognised form – see diagram 1 for an example) and fitted with a "test facility" that enables its operation to be checked from the driving position without opening the reservoir.

20. If the vehicle is fitted with an anti-lock braking system, all components must be present, undamaged, secure, and connected so that the system is likely to function as intended.

21. If the vehicle is fitted with an anti-lock braking system an operational warning lamp must be fitted to monitor the system, visible from the driving position, which operates when the anti-lock is energised, and extinguishes at the latest when the vehicle speed reaches 18km/h.

Note 2: in the case of a conventional split system (with or without vacuum assistance) it will be assumed that a failure will result in the draining of the fluid.
Evidence will be required, for example, in the case of a full power hydraulic system.

Note 3: It may be necessary to confirm the fluid circuit through the master cylinder by documentary evidence.

Note 4 : One reservoir fluid warning lamp may fulfil the function of checking the fluid level and monitoring the hydraulic system providing both criteria are met.

Brake Performance

All vehicles must meet the following standards except:

1. A Disabled Person's vehicle where any adaptation or part of the system affected by an adaptation is subject to the requirements of this sub-section.
2. "Mass produced vehicles, or vehicles based on a mass produced vehicle", the requirement of test 9 shall not apply if the brakes on the rear are fitted with an anti-lock device which was fitted at the time of manufacture, and it appears that the anti-lock device complies with the definition of Directive 71/320/EEC, eg it comprises of sensors, control valves, and/or modulators to modulate the braking force of any wheel that is about to lock.

Certain vehicles must not be tested on a roller brake tester:

- a. vehicles with more than one driving axle permanently engaged
- b. vehicles with belt driven transmission
- c. vehicles with brakes for which the servo only operates when the vehicle is moving.

These vehicles should be tested using a decelerometer. Vehicles fitted with an LSD must be tested on the roller brake tester, unless it cannot be used due to design. A decelerometer should then be used.

Roller Brake Test

- The engine must be idling when conducting the roller brake test for all vehicles fitted with a servo or full power hydraulic braking systems except for the brake distribution test (9), the depleted servo test (10) and the power hydraulic test (11). In some cases it may be necessary to chock the wheels not under test. The rear wheels of light weight vehicles must be chocked when testing the front axle. This helps prevent the front of the vehicle 'lifting' in the rollers and may improve the efficiency reading obtained before wheel lock.
- The brake performance should be assessed with the braking surfaces at working temperature. It is acceptable to induce heat into the braking surfaces prior to conducting the test particularly where the vehicle has been transported to the test site.
- Position the front wheels in the rollers of the brake tester and then run both sets of rollers together to align the vehicle. With one set of rollers revolving at a time, gradually depress the service brake until maximum effort is achieved, or until the wheel locks.
- Record the reading at which the maximum braking effort is achieved for each wheel and whether lock-up occurs. Release the service brake.
- Start both sets of rollers and note whether a significant brake effort is recorded from any wheel without a brake being applied.
- Gradually depress the service brake and watch how the braking effort for each wheel increases. From the previous tests you will know the value at which wheel slip occurs. Aim to stop just short of this.

- Gradually release the service brake and observe how the braking effort at each wheel reduces checking that the pedal returns to the fully off position.
- Stop the rollers, and record the out-of-balance braking effort between wheels on either side of the vehicle.
- Fit the brake pedal effort measuring device, and deplete the vacuum from the servo reservoir (if fitted). In the case of the full power hydraulic system the pressure should not be depleted.
- Start both sets of rollers and observing the load cell, progressively apply the service brake in increments, for example, of 10kg. Aim to stop short of the value at which wheel-slip occurs.
- Record the brake effort obtained for each wheel for every increment of effort applied to the brake pedal.
- Stop the rollers.

Where the vehicle is fitted with a servo

- With one set of rollers revolving at a time and with the vacuum depleted, apply a load of:
 1. Foot control – 50kg (490 N)
 2. Other than foot control 40 kg (392 N)
- Record the effort obtained from each wheel. If the control reaches the end of its travel before the full effort is applied the assessment is made from the reading obtained at that point.
- This test applies to all service brake controls, eg any additional control fitted to a disabled persons vehicle that operates the system.

Where the vehicle is fitted with a full power hydraulic braking system

- Gradually deplete the stored energy until the pressure warning device operates.
- Carry out four full stroke applications of the service brake.
- Start both sets of rollers and gradually depress the service brake until maximum effort is achieved, or until wheel lock.
- Record the readings at which maximum effort is achieved.

Parking brake

- If the vehicle has a parking brake which operates on the axle being tested, with one set of rollers revolving at a time, gradually operate the parking brake until maximum effort is achieved, or until the wheel locks.
- Record the reading at which the maximum braking effort is achieved for each wheel and whether lock-up occurs.

- Carry out this test with the vehicle in both directions.

- Drive the vehicle forward until the next axle is in the rollers. Repeat the above operations, record the figures obtained and calculate the braking performance values.

Decelerometer test

- This method must only be used where the vehicle cannot be tested in the roller brake tester due to a design characteristic.
- Set up the decelerometer according to the manufacturer's instructions.
- Drive the vehicle on a level road at a steady speed of approximately 30kph and note the brake efficiency recorded when progressively applying the service brake and the parking brake separately.
- During the service brake test observe (using an assistant if necessary) whether braking is progressive, if there is grab or judder, whether the vehicle deviates to the left or right during braking, and if the pedal returns to the fully off position.
- Drive the vehicle on a level road at a steady speed of approximately 30kph and apply the service brake sufficient only to obtain wheel lock.
- Observe whether all the wheels of the rear axle(s) lock prior to both wheels of the front axle. The presenter or another person may be required to drive the vehicle under the direction of the examiner.

Transmission handbrake

- Place the wheels to be tested in the rollers, and run both set together to align the vehicle. Chock the other wheels of the vehicle in front of and behind each wheel.
- Run both sets of rollers together, and apply the brake slowly and progressively keeping the ratchet disengaged.
- Record and calculate readings.

Test Requirements

1. A low braking effort must not be recorded from any wheel, indicating clearly that the brake is not functioning correctly.
2. The calculated brake efficiency must be at least 60% for passenger vehicles and at least 50% for goods vehicles.
3. A significant braking effort must not be recorded from a road wheel without application of the brakes, indicating brake bind.
4. There must be no evidence of severe brake grab or judder as the brake is applied.

5. The braking efforts at the road wheels must increase progressively at about the same rate when the

service brake is applied gradually.

6. The braking efforts at the road wheels must reduce at about the same rate when the service brake is released gradually.
7. The brake pedal must return to the fully off position.
8. The brake effort of one wheel must not be less than 70% of the effort recorded from the other wheel on any steering axle (an axle that provides the main source of directional control of the vehicle).
9. The braking ratio of the axles, for all values of total brake force must be less than the friction force ratio (taking into account of weight transfer) between axles in running order.
10. The calculated service efficiency with the servo depleted must be at least 30%.
11. Where a vehicle is fitted with a full power hydraulic system, the calculated service brake efficiency after four full applications must be at least 30%
12. A low braking effort must not be recorded from any wheel, indicating clearly that the parking brake is not functioning correctly.
13. The calculated parking brake efficiency must be at least 18%, or more than half of the wheels lock that are braked by the parking brake.

Decelerometer Test

14. The service brake recorded must be a minimum of 60%
15. The parking brake recorded must be a minimum of 18% of the vehicles overall braking efficiency.
16. When the service brake is applied the brake must be capable of progressive operation.
17. When the service brake is applied there must not be severe grab or judder.
18. When the service brake is applied the vehicle should not deviate to the left or right.
19. When the service brake is applied the pedal must return to the fully off position.
20. All wheels of the rear axle(s) must not lock prior to both wheels of the front axle.

Transmission Handbrakes

21. The transmission parking brake efficiency must be at least 18%

What needs to be recorded

- Results of all inspections.
- Results of all tests.
- Calibration status of all test equipment

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

10. Title of Test:

Suppression (Radio) / Electro-magnetic Compatibility

No Alterations or variations to NSSTA except the manufacturer may submit a declaration of compliance that the vehicle as a whole, or the relevant components, complies with the requirements.

Additional equipment must be e-marked where appropriate.

Installation check:

- Manufacturer's declaration
- Sample of installed components.

What needs to be recorded

-Installation check

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

11. Title of Test:**Diesel Smoke**

Test Record Number: TR011

No Alterations or Variations to NSSTA except for Schedule 7 vehicles.

These vehicles are subject to the free acceleration test and must not exceed the limits as shown in the table below:

Vehicles manufactured:	Before 1 st July 2008	1 st July 2008 onwards
Turbocharged	3.00m-1	1.50m-1
Non-turbocharged	2.50m-1	1.50m-1

What needs to be recorded

- All test results
- Calibration status of test equipment

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test

12. Title of Test:**Interior Fittings**

Test Record Number: TR012

1. No surface (other than a surface of a window) of the vehicle interior which can be contacted by a sphere of 165mm diameter and which is within the specified zone, shall include any fittings (eg controls, including steering controls, and instruments) or design features which have any dangerous roughness or sharp edges.
2. Switches and other controls mounted on the instrument panel which project by more than 9.5mm from the surface of the panel, can be contacted by a sphere of 165mm diameter and which are within the specified zone, shall be so constructed and mounted that they would either retract into the surface of the panel or become detached from the panel when a horizontal force of 40kg is applied to them.
3. The lower edge of the instrument panel which is within the specified zone shall be rounded to a radius of curvature of not less than 19mm, or if it is covered with non-rigid material, not less than 5mm.
4. The rearward and upward facing parts of seat frames behind which there is a designated seating position, and which are within the head impact zone shall be both covered with non-rigid material and have a radius of curvature of not less than 5mm.
5. The handbrake control in the fully released position and the gear-lever control in any forward gear position shall not have any radius of curvature of less than 3.2mm on surfaces which can be contacted by a sphere of 165mm diameter.
6. Shelves and other similar items fitted below the level of the highest part of the instrument panel shall be so constructed that their supports have no protruding edges and that all parts facing into the vehicle present a surface not less than 25mm high with edges rounded to a radius of curvature of not less than 3.2mm. This surface shall also be covered with non-rigid material.
7. On that part of the inner surface of the roof which is situated above or forward of the occupants and can be contacted by a sphere of 165mm diameter, the width of projecting parts made of rigid material, shall not be less than the length of their projection from the surface and their edges shall have a radius of curvature of not less than 5mm. Roof sticks or ribs made of rigid material with the exception of the header rail of the glazed surfaces and door frames, shall not project downwards by more than 19mm.

What needs to be recorded

- All test results.
- Calibration status of test equipment.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

13. Title of Test: Anti-theft and Immobiliser

Test Record Number: TR013

No Alterations or Variations to NSSTA except for Schedule 7 vehicles.

The vehicle shall be fitted with some form of anti-theft device, that is to say, a mechanical, electrical or electronic immobiliser or a combination of these (in addition to any key operated switch normally used to start the engine) that prevents the vehicle being driven or moved under its own power. Such device(s) shall comply with the following:

- (a) No anti-theft device shall operate on the braking system.
- (b) If any anti-theft device is, or incorporates, any mechanical device that acts upon a system that affects the control of the vehicle (eg the steering control):
 - (i) it shall not be possible to start the engine in the normal way until every such mechanical device has been deactivated,
 - (ii) it shall not be possible to activate any such mechanical device while the engine is running,
 - (iii) the action of activating any such mechanical device shall be distinct and separate from that of stopping the engine.

Any alarm system or immobiliser fitted to a vehicle shall comply with paragraph 1 or 2 as applicable.

Optional panic alarm not forming part of an alarm system shall comply with the following:

- (a) The alarm signal shall be audible and in addition may include optical alarm devices, or be a radio alarm, or any combination of the above.
- (b) unsetting the panic alarm shall immediately cut the alarm signal.
- (c) any reference to “alarm” or “AS” shall be taken to mean “panic alarm”.
- (d) The technical requirements of Directive 74/61/EEC as last amended by Directive 95/56/EC, Annex VI, Part II, paragraphs 8.2 to 8.8, 9.1.2 to 9.2.1, 9.2.3 to 9.4, 9.6, 9.9 to 9.10, and 9.11.2 to 11. inclusive. These are:

8. General specifications for Alarm Systems

8.2. Vehicles which are equipped with alarm systems shall comply with the relevant technical requirements, especially with regard to electromagnetic compatibility (EMC).

8.3. If the AS includes the possibility of a radio transmission, e. g. for setting or unsetting of the alarm or for alarm transmission, it shall comply with the relevant ETSI standards (see footnote 3 pertinent to item 3.3). The frequency must be 433,92 MHz and the maximum radiated power 25 mW.

8.4. The AS and components thereof shall not activate inadvertently, particularly whilst the engine is in its running mode.

8.5. Failure of the AS, or failure of its electrical supply, shall not affect the safe operation of the vehicle.

8.6. The alarm system, its components and the parts controlled by them shall be so installed as to minimize the risk for anyone to make them inoperative or to destroy them rapidly and without calling attention, e. g. using low-cost, easily-concealed tools, equipment or fabrications readily available to the public at large.

8.7. The system shall be so arranged that the shorting out of any alarm signal circuit shall not render inoperative any aspects of the alarm system, other than the circuit which is shorted out.

8.8. The AS may include an immobilizer which shall comply with the requirements of Annex V.

9. Particular specifications

9.1.2. Safety against false alarm

9.1.2.1. It shall be ensured that the AS both in set and unset conditions, cannot cause the alarm signal to sound unnecessarily, in the event of:

- an impact on the vehicle: test specified in item 5.2.13,
- reduction of battery voltage by continuous discharge; test specified in item 5.2.14,
- false alarm of the passenger compartment control: test specified in item 5.2.15.

9.1.2.2. If the applicant for approval can demonstrate, e. g. by technical data, that safety against false alarm is satisfactorily ensured, the technical service responsible for conduction approval tests may not require some of the above tests.

9.2.3. Specifications concerning the audible alarm signal.

9.2.3.1. Constant tone alarm signal device (constant frequency spectrum), e. g. horns: acoustical, etc. data according to Appendix 4 of this Annex.

Intermittent alarm signal (on/off):

Trigger frequency $2 \text{ Hz} \pm 1 \text{ Hz}$

On time = off time $\pm 10 \%$

9.2.3.2. Audible alarm signal device with frequency modulation:

acoustical, etc. data according to Appendix 4 of this Annex but equal passage of a significant frequency range with the abovementioned range (1 800 through 3 550 Hz) in both directions.

Passage frequency $2 \text{ Hz} \pm 1 \text{ Hz}$

9.2.3.3. Sound level

The sound source shall be:

- either an audible warning device approved under Directive 70/388/EEC, Section 1 or a device meeting the requirements of items 1 and 2 of Appendix 4 to this Annex,
- however, in the case of a sound source different from the original equipment audible warning device, the minimum sound level may be reduced to 100 dB (A), measured under the conditions of Appendix 4 of this Annex.

9.3. Optical alarm - if fitted

9.3.1. General

In the event of intrusion into or interference with the vehicle the device shall activate an optical alarm as specified in items 9.3.2 and 9.3.3.

9.3.2. Duration of the optical alarm signal

The optical alarm signal shall have a duration between 25 s and 5 minutes after the alarm has been

activated. The unsetting of the alarm system shall immediately stop the alarm signal.

9.3.3. Type of optical alarm signal

Flashing of all direction indicators and/or passenger compartment light of the vehicle including all lamps in the same electrical circuit.

Trigger frequency $2 \text{ Hz} \pm 1 \text{ Hz}$

In relation to the audible signal, also asynchronous signals are allowed.

One time = off time $\pm 10 \%$

9.4. Radio alarm (pager) - if fitted

The AS may include a facility generating an alarm signal by radio transmission.

9.6. Setting and unsetting of the alarm system

9.6.1. Setting

Any suitable means of setting of the AS is allowed, provided that such means does not inadvertently cause false alarms.

9.6.2. Unsetting

Unsetting of the AS shall be achieved by one or a combination of the following devices.

Other devices giving equivalent performance are permitted.

9.6.2.1. A mechanical key (complying with requirements of Appendix 3 to this Annex) which can be coupled with a centralized vehicle locking system comprising at least 1 000 variants, operated from the outside.

9.6.2.2. Electrical/electronic device, e. g. remote control, with at least 50 000 variants which shall incorporate a rolling code and/or have a minimum scan time of 10 days, e. g. a maximum of 5 000 variants per 24 hours for 50 000 variants minimum.

9.6.2.3. A mechanical key or an electrical/electronic device within the protected passenger compartment, with time exit/entry delay.

9.9. Status display

9.9.1. To provide information on the status of the AS (set, unset, alarm setting period alarm has been activated), the installation of optical displays is allowed inside and outside the passenger compartment. The light intensity of optical signals installed outside the passenger compartment shall not exceed 0,5 cd.

9.9.2. If an indication of short-term 'dynamic' processes such as changes from 'set' to 'unset' and vice versa is provided, it shall be optical, according to paragraph 9.9.1. Such optical indication may also be produced by the simultaneous operation of direction indicators and/or passenger compartment lamp(s), provided that the duration of the optical indication by direction indicators does not exceed 3 seconds.

9.10. Power supply

The source of power for the AS may be the vehicle battery.

Where provided, an additional battery shall be rechargeable and it shall by no means supply energy to the other parts of the vehicle's electrical system.

9.11.2. Panic alarm

An optical and/or audible and/or radio alarm is allowed independent of the state (set or unset) and/or function of the AS. Such an alarm shall be triggered from within the vehicle and shall not affect the state (set or unset) of the AS. Also it must be possible for the vehicle user to switch off the panic alarm. In the case of an audible alarm, its sounding duration per activation shall not be restricted. A panic alarm shall not immobilize the engine or stop it if it is running.

10. Test conditions

All components of the VAS or AS shall be tested in accordance with procedures described in item 5.

This requirement does not apply to:

10.1. Those components that are fitted and tested as part of the vehicle, whether or not a VAS/AS is fitted (e. g. lamps); or

10.2. Those components that have previously been tested as part of the vehicle and documentary evidence has been provided.

11. Instructions

Each vehicle shall be accompanied by:

11.1. Instructions for use

11.2. Instructions for maintenance

11.3. A general warning regarding the danger of making any alterations or additions to the system.

What needs to be recorded

- EU / UNECE approval marks.
- Results of inspections

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the inspection
- Attach evidence of compliance

14. Title of Test:

Protective Steering

This inspection is to assess the behaviour of the steering mechanism in the event of a frontal impact. Vehicles that comply with Test 53 of this manual are exempt from this inspection.

Ambulances, motor caravans and hearses that are derived from an N1 category vehicle with maximum mass greater than 1500kg are exempt from this inspection.

Examine the steering control for sharp points or edges. Check for parts of the steering control likely to catch in clothing. Examine the steering wheel and column assembly for evidence of energy absorbing properties. The steering control, the steering column, the steering shaft, the steering gear housing and all other components designed to contribute to the absorption of energy in the event of impact against the steering control may be considered. This may involve the removal of body and trim panels.

1. Any part of the steering control directed towards the driver which is contactable with a sphere of 165mm diameter must have a radius of curvature of at least 2.5mm. This does not apply if the vehicle is a mass-produced vehicle and has an airbag fitted to the steering control which was fitted at the time of manufacture. However in this case all parts of the steering control must be blunted.
2. The steering control must be designed, constructed and fitted in such a way that it is not possible to catch the driver's clothing or jewellery during normal driving movements.
3. The steering control and column assembly must provide adequate protection to the driver by absorbing energy from a driver-steering wheel impact. This is the case if the steering control has an approval (evidence may be markings or documents), or is similar to an approved steering control. The vehicle should be assessed using the material in Annex 1.
4. The vehicle and steering column assembly must be designed such that in the event of a frontal impact at 48km/h (30mph) the rearward horizontal displacement and vertical displacement of the top of the steering column and its shaft do not exceed 127mm. The vehicle should be assessed using the material in Annex 1.
5. Airbags are not permitted on vehicles which are not mass-produced.

What needs to be recorded

- All test results.
- Calibration status of test equipment.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

Annex 1

The vehicle structure ahead of the steering rack or box of primary concern is the position of the steering rack or box. If the rack or box is ahead of the axle centreline, there will clearly be less of the vehicle structure available to deform and absorb energy than if the rack is behind the axle. Check for some energy absorbing device such as:

1. an energy absorbing bumper, or bumper mounting (eg mounted on hydraulic dampers or telescopic tubes);
2. a crushable section of chassis comprising one or more deliberate weaknesses;
3. in the case of a tubular chassis, a deliberately un-triangulated bay or arrangement of tubes likely to deform progressively;
4. in the case of a composite monocoque an area of bodywork which the presenter can demonstrate has been designed to crush progressively and dissipate energy;
5. in the case of any vehicle, a non-structural nose cone of any material which the presenter can demonstrate has been designed to absorb energy.

Note 1: The first area of the vehicle to make contact with a barrier in a crash test may not be the chassis. The front wheels may do this. If this is the case, the load path from the hub carrier to its mountings on the chassis should be examined. The initial deformation might take place to the sides rather than the front of the chassis.

Note 2: If the steering rack or box is mounted behind the axle centreline, then there is far more room for the chassis to deform before moving the steering column backwards. A well designed vehicle will minimise further deformation once the impact has reached the steering rack or box.

Note 3: In cases where the steering rack or box is mounted behind the axle centreline, it may well be behind part of the engine or gearbox. In this case, check that no rigid part of the powerplant is likely to bear directly against the end of the steering shaft as it enters the rack or box and in so doing, transmit a force up the column towards the driver.

An offset between the steering column and the input shaft of the steering rack or box.

In cases where an intermediate shaft is used, it will be connected to the steering column at one end and the steering rack or box at the other, by means of universal joints and/or flexible couplings. The greater the angle through which the joints run, the more effective they will be in preventing movement being transmitted up the steering column. While it is unlikely that joints of this type will work at angles above 30 degrees, they are unlikely to be effective if the angle between the steering column and the intermediate shaft (when viewed from the side or the top of the vehicle) is less than 10 degrees.

A telescopic intermediate shaft.

This is a common arrangement and may take the form for example of a sliding splined shaft, a sliding clamp arrangement on a non circular shaft (eg triangular), or a device that permits disengagement of the upper column from the lower column.

A collapsible element in the upper column

This may take many forms. Expanded metal tubes or convoluted tubes (in association with sheer pins in the column shaft) or sliding splines are three of the most common. These are designed primarily to allow the steering wheel and column to move away from the driver while absorbing some of his or her deceleration if the driver were to hit the steering wheel.

Note: Driver impact against the wheel is still possible even when wearing a seat belt, particularly a fixed type rather than an inertia reel type.

A steering wheel incorporating an airbag

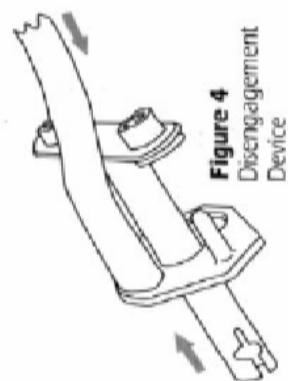
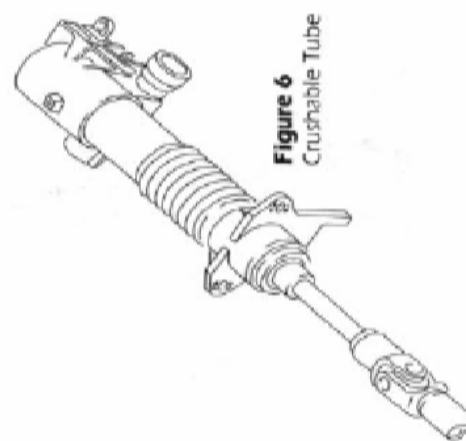
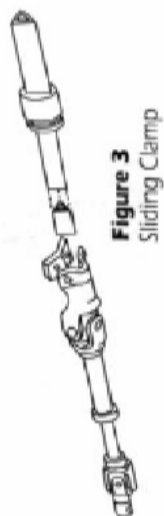
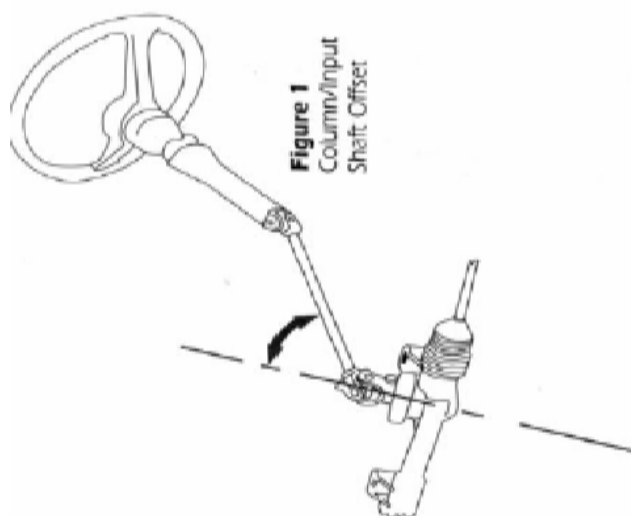
In cases where the vehicle was designed and fitted with an air bag as manufacturers original equipment, there should be no reason to doubt its effectiveness providing the vehicle has not subsequently been modified.

Steering wheel construction

It is vital that the wheel is constructed so as to minimise the risk of facial injuries or concussion. The rim of the wheel should be padded or at least made from a material which when deformed does not splinter or fragment. The centre boss should be padded or recessed below the level of the rim. Wheels with a very deep dish are stiffer than flatter wheels and, as such will absorb less energy. The centre boss will often be of a collapsible type comprising a convoluted crushable section or a series of metal fingers with a deliberate fold introduced to initiate a collapse. Bolts used to secure the wheel to its boss (if exposed) should ideally be flush with the wheel surface but otherwise are required to meet the radius requirements if contactable.

Bare metal spokes are allowed as long as they conform to the edge radius requirements. Components likely to catch in the driver's clothing or jewellery are not permitted.

Note: It is possible to fit an 'aftermarket' steering wheel which has been approved for use on any design of column. These will be referred to as "Separate Technical Units". If the presenter can provide satisfactory documentary evidence that this is the case, a "Separate Technical Unit" may be acceptable.



15. Title of Test:

Seat Strength

- Check that seats in the vehicle have approval to Directive 74/408/EEC as amended by Directive 2005/39/EC or UNECE Regulation 17.06.
- For vehicles with a maximum mass equal to or exceeding 2500kg the requirements according to the category of the base or incomplete vehicle or of the corresponding N category vehicle based on maximum mass may apply. This does not apply to seats not intended for normal use while the vehicle is travelling on a road. The installation of side facing seats shall be prohibited in vehicles of categories M₂ (Class B or III) and M₃ (Class B or III).

Visual Inspection

Check each forward facing seat is firmly attached to the vehicle structure. In the case of a Motor-caravan, Ambulance, or Hearse:

- (a) the requirements in this section do not apply to seats intended for use solely while the vehicle is stationary; and
- (b) any seats which are not for use when travelling on a road must be clearly identified to users by means of a pictogram or a sign with appropriate text,
- (c) the requirements according to the category of the base or incomplete vehicle based on maximum mass will apply.

Note 1: Does not apply to any seating intended solely for use while the vehicle is stationary. If attached to a non-metallic floor pan separate from the chassis, adequate support to spread the load of the anchorage is required, eg spreader plates/stiffening ribs etc.

Note 2: In respect of a seat that comprises of a “lift-out” backrest and/or squab it will be considered secure providing, when in the operational position, it is located such that there no possibility of lateral or longitudinal movement within the vehicle.

Note 3: On a seat to which a seat belt is mounted (integral seat belt) consideration must be given to the seat mounting as part of the seat belt anchorage.

Check that each seat, seat back adjustment and seat displacement system operates and functions as per requirements.

Note 4: A seat/seat back INERTIA locking device is acceptable, ie a device that operates during the deceleration the vehicle.

Check the surface of the rear parts of the seats for rough or sharp edges.

The function of the head restraint is to limit the rearward displacement of an adult occupant’s head in relation in relation to their torso in order to reduce the danger of injury to the cervical vertebrae of that occupant in the event of an accident. Head restraints can either form part of the seat itself, or be detachable and adjustable for height.

Check that head restraints are fitted on every outboard front seat.

Check that the height of the top of the head restraint above the H point should be at least 800mm for

the front outboard seats, and 750mm when optional headrests are fitted to other seats.

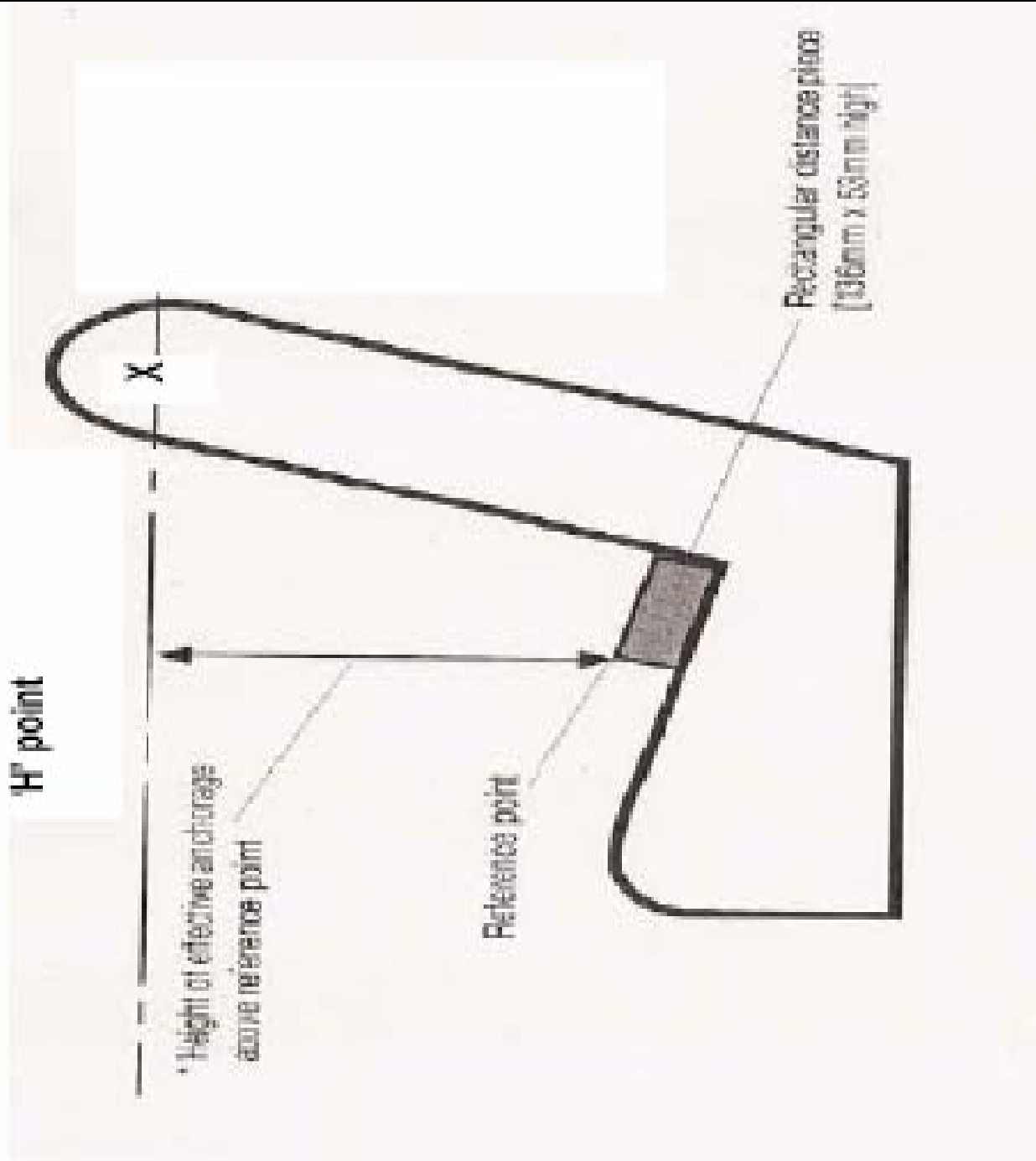
Check that the head restraint dimensions, security of the restraint, and the suitability of the padding.

Note 5: Height adjustable head restraints must achieve this dimension at a position between the highest and lowest positions to which adjustment is possible. There should also not be any in use position resulting in a height of less than 750mm.

Note 6: The above dimensions may be reduced to leave adequate clearance between the head restraint and the interior surface of the roof, the windows, or any other part of vehicle structure, however the clearance shall not exceed 25mm. For seats fitted with displacement and / or adjustment systems, this applies to all the positions to which adjustment is possible. There should also not be any in use position of the head restraint that results in a height of less than 700 mm.

1. Each forward facing seat must be securely attached to the vehicle structure, or other obvious suitable load bearing parts of the vehicle (see notes 1, 2, and 3).
2. Each forward facing seat mounting must be of adequate strength to support the loads likely to be imposed (see notes 1, 2, and 3).
3. Each seat, seat back adjustment and seat displacement system must incorporate an automatic locking system which operates in all positions provided for normal use.
4. A seat fitted with a displacement device to facilitate access by passengers must be fitted with an unlocking control which is accessible from outside the vehicle when the door is open. Where the seat immediately behind the seat concerned is designated for an adult, the unlocking control must also be easily accessible from this position.
5. The rear parts of the seats must not have rough or sharp edges likely to increase the risk of injury to the occupants.
6. A system of head restraint must be fitted on every outboard front seat.
7. For outboard front seats the height of the top of the head restraint above the H point must be at least 800mm, taking into account notes 5 and 6.
8. Where optional headrests are fitted to seats other than outboard front seats, the height of the top of the head restraint above the H point must be at least 750mm taking into account notes 5 and 6.
9. The head restraint must be at least 85 mm wide each side of the vertical centre line of the seat and at least 100mm high.
10. The head restraint must be securely attached to the seat.
11. The head restraint must not have any roughness or sharp edges likely to increase the risk of severity of injury.
12. The padding of the head restraint must be sufficient so as to prevent any contact by a head with any of the internal hard parts of the head restraint.

'H' point



What needs to be recorded

-Inspection results

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

16. Title of Test:

Exterior Projections

Exterior projections will be assessed between the 'floor line' and a height of 2 metres and includes damaged or repaired bodywork. The floor line is determined by the series of contact points formed between the vehicle and the curved area of a cone segment. The curved area is at an angle of 30 degrees from the vertical. Jacking points, exhaust pipes (only where the tail pipe protrudes from under the body – side mounted exhausts may actually provide the points of contact that form the bodyline), and wheels are not taken into consideration when the floor line is being determined. Wheel arches are assumed to be filled in – exempting any projection inboard of the turned in edge of the wheel arch.

Those parts of a Motor caravan, Ambulance or Hearse, other than the driver's cab, shall be exempted from any requirement of this section if it can be demonstrated to the satisfaction of the Approval Authority that it is impossible for the vehicle to comply due to its special purpose.

An Armoured vehicle shall be exempted from any requirement of this section if it can be demonstrated to the satisfaction of the Approval Authority that it is impossible for the vehicle to comply due to its special purpose.

The assessment will not apply to exterior mirrors or to the ball only of towing devices, a Frontal protection system will be deemed to have met the requirements if it complies with test item 60

'Radius' refers to the external radius of curvature.

Where a vehicle is not fitted with a facility to attach a hood/roof the interior/exterior boundary should be taken to be the mid point between interior and exterior on, for example the windscreen pillar, top edge of body side and top edge of door.

Where the rear of the passenger compartment abuts a body panel that extends towards the rear of the vehicle (or front of the passenger compartment abuts the front scuttle/bonnet panel where a windscreen is not fitted) the interior/exterior boundary shall be 25mm outwards from the abutment of the panel being assessed. This is a subjective judgement to be made by the examiner. The interior is the passenger compartment including any luggage space within the same compartment. Other areas of the vehicle are considered to be exterior including open luggage areas. Where the vehicle has a detachable/fold back hood/roof, the interior shall be taken to be the area covered by the hood/roof.

On a vehicle which consists of a frame structure or holes/sections without body panels fitted, all parts that are accessible from the exterior of the vehicle must be assessed against the criteria of this section. This includes components mounted in the interior, if they are accessible from the exterior. If no roof is fitted to the vehicle, or it has a detachable/fold back hood/roof, this criterion does not apply to the area above the upper chassis rail. Roll cage/bars are not considered to be chassis rails.

Mesh is only considered to be external surface if it is made of a rigid material.

A dummy registration plate will be used in order to assess the contactable parts of any number plate brackets fitted.

A 'hard' feature is a feature which has a hardness of at least 60 Shore A (as a guide, deemed to be harder than the average pencil eraser).

The measurement of a protrusion is taken from the "external surface". The external surface is the first surface that the 100mm sphere can contact nearest to the protrusion in question.

Note 1: A frontal protection system means a separate structure or structures such as a bull bar or a supplementary bumper, which is intended to protect the external surface of the vehicle above and below the original equipment bumper from damage in the event of a collision with an object. Structures with a maximum mass of less than 0.5kg intended to protect the lights are excluded from this definition.

Note 2: Requirement 2 will not apply to any part of the external surface of

- A vehicle subject to IVA but are not Schedule 7 vehicles
- A mass produced vehicle, or a vehicle that is based on a mass produced vehicle if as originally manufactured or altered in a manner approved by the manufacturer, providing Requirement 3 is met.

The cab area of Motor ambulances, motor caravans, and hearses must comply fully with the standards. Other areas of the vehicle are exempt from the standards if the applicant can prove its special purpose makes it impossible to fully comply.

The cab is the part of the bodywork which constitutes the driver and passenger compartment including the doors.

Requirements

1. A mascot, emblem or other ornamental object must retract or detach when a reasonable force is applied, and leave a base or mounting that does not protrude from the surface by more than 10mm.
2. All 'hard' parts that are contactable with a 100mm sphere, which protrude 5mm or more from the external surface must have a radius of curvature of at least 2.5mm (see Note 2).

The criteria of Requirement 2 DOES NOT apply to the following, which must be checked to their individual requirements:

3. Items covered by 'Note 2' must have blunted edges.
4. Protrusions less than 5mm, but more than 1.5mm that are contactable with a 100mm sphere must have blunted edges.
5. Wheel arches must be 'turned inwards', or radiused to at least 2.5mm.
6. Grills, gaps, slots, grooves, channels, recesses and holes that have a width of 10mm or less as determined by the contact points of a 100mm sphere must be blunted.
7. Grills, gaps, slots, grooves, channels, recesses and holes which have a width of more than 10mm, and up to 25mm determined by the contact points of a 100mm sphere must have a radius of at least 0.5mm.
8. Grills, gaps, slots, grooves, channels, recesses and holes which have a width of more than 25mm, and up to 40mm determined by the contact points of a 100mm sphere must have a radius of at least 1mm.
9. Grills, gaps, slots, grooves, channels, recesses and holes which have a width of more than 40mm determined by the contact points of a 100mm sphere must have a radius of at least 2.5mm.

10. Sheet metal edges must be folded back on themselves (180 degrees).
11. A glass/fibre reinforced plastic panel edge must have a radius of at least 1.5mm.
12. Wiper blades fitted to the windscreen, to headlamps and to the rear window must be at least blunted.
13. Any protrusion of a wheel, wheel nut, hub cap, or wheel disc from the wheel rim must be at least blunted.
14. Wheels must not be fitted with wing nuts.
15. The upper half of a wheel must not protrude beyond the body plan form (disregarding tyres, wheel discs, and central wheel securing nuts).
16. Any wheel disc or central wheel securing nut that project beyond the body plan form must have a radius of curvature of at least 30mm, and cannot project from the plan form by more than 30mm.
17. Rain/air deflectors mounted on the sides of the vehicle must have a radius of curvature of at least 1mm on any edge capable of being directed outwards.
18. Aerial shafts must be fitted with a 'fixed capping' with a radius of at least 2.5mm.
19. Plastic or rubber parts must at least have a blunted edge.

The following Requirements must be met IN ADDITION to Requirement 2:

20. The ends of any bumper fitted to the vehicle must be turned inwards, or integrated within the bodywork.
21. Handles, hinges, push buttons on doors etc, and fuel tank filler caps must not protrude more than 50mm from the external surface if the component does not project beyond the extreme outer edge of the vehicle. This is reduced to 40mm in all other cases.
22. All handles must be enclosed in a protective surround or be recessed, unless they cannot in any circumstance project beyond the extreme outer edge of the vehicle.
23. Door handles that rotate parallel to the plane of the door must be turned inwards towards the plane of the door.
24. The open end of any door handle that rotates parallel to the plane of the door and protrudes beyond the extreme outer edge of the vehicle must face rearwards.
25. Any door handle that does not protrude beyond the extreme outer edge of the vehicle must have:

- a. The open end facing rearwards, or
- b. the open end shielded to the front by a protective surround, or
- c. the open end recessed into the bodywork, or
- d. a gap measuring a maximum of 2mm between the open end of the handle and the vehicle body.

26. Handles that pivot outwards must have the open end facing rearwards or downwards, unless they have an independent return mechanism which in event of return mechanism failure will not allow the handle to project more than 15mm.

27. Windows that open outwards from the external surface of the vehicle (other than fitted to an ambulance in the medical area to the rear of the driving seat, or the living area of a motor caravan) must not have exposed forward facing edges.

28. Windows that open outwards from the external surface of the vehicle (other than fitted to an ambulance in the medical area to the rear of the driving seat, or the living area of a motor caravan) must not protrude beyond the extreme outer edge of the vehicle.

29. Headlight visors and rims must not project more than 30mm beyond the lens surface (measured horizontally from the point of contact of a 100mm sphere touching lens and visor/rim).

30. A jacking bracket must not project beyond the floor line lying directly above it by more than 10mm.

31. An exhaust tailpipe must not project beyond the floor line lying directly above it by more than 10mm, unless it terminates in a radius of curvature of at least 2.5mm.

What needs to be recorded

-All inspection results.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

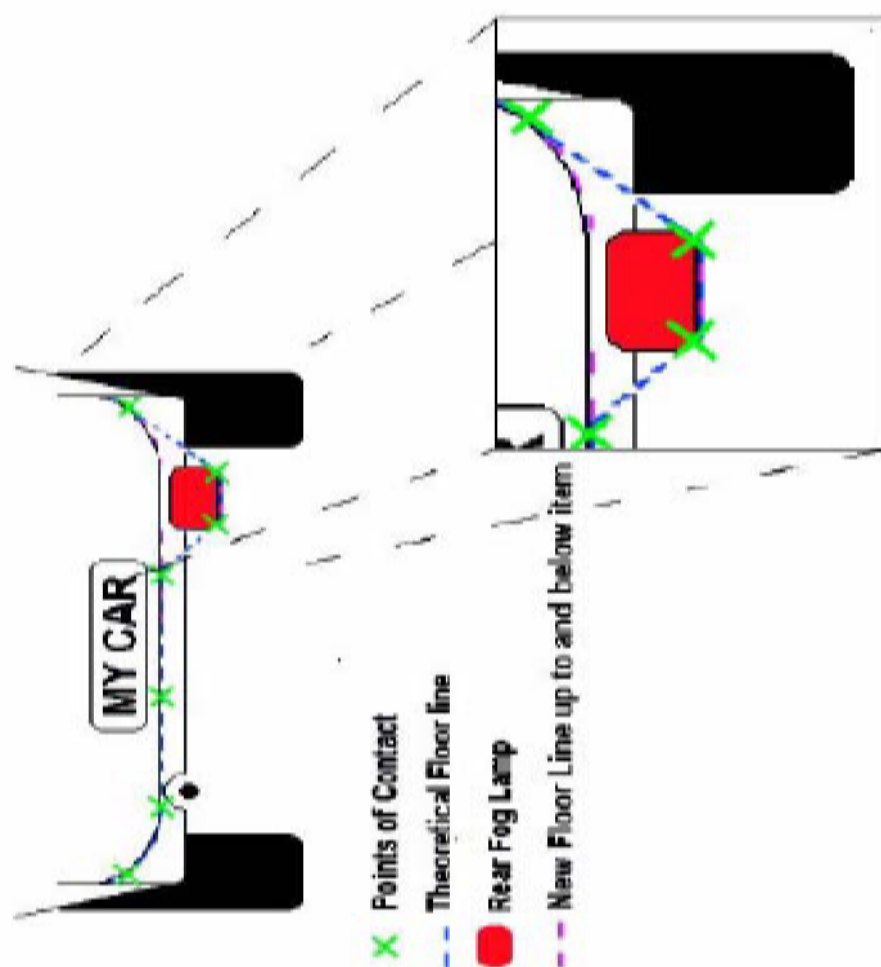
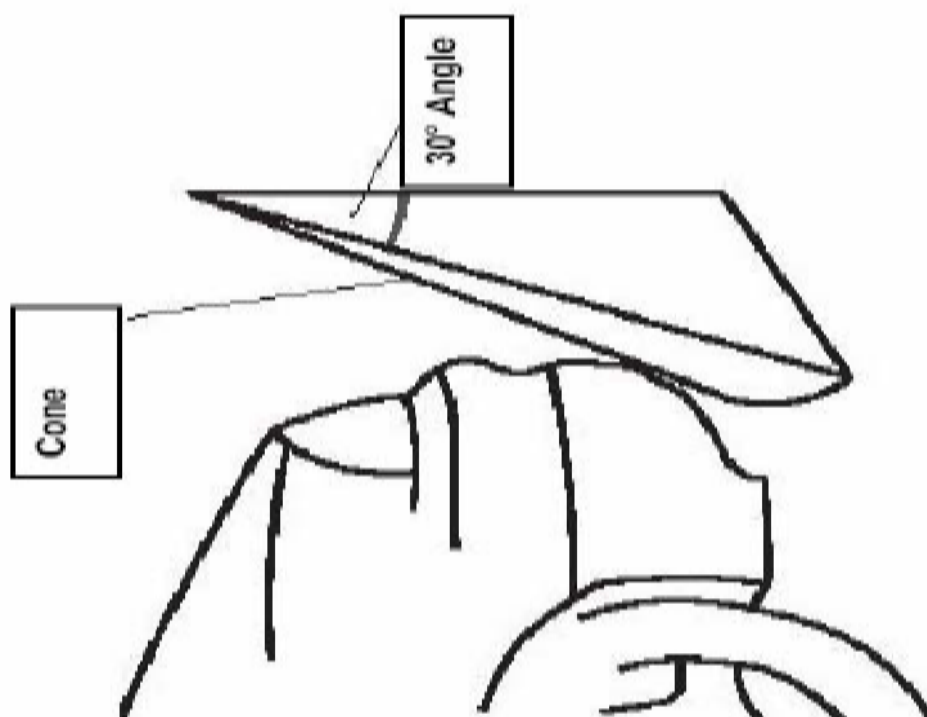
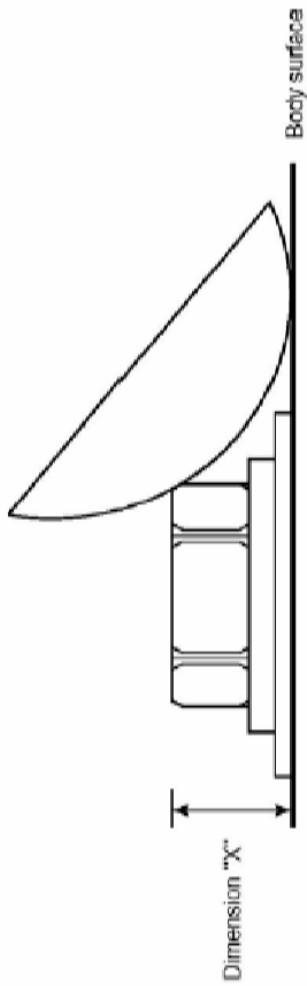
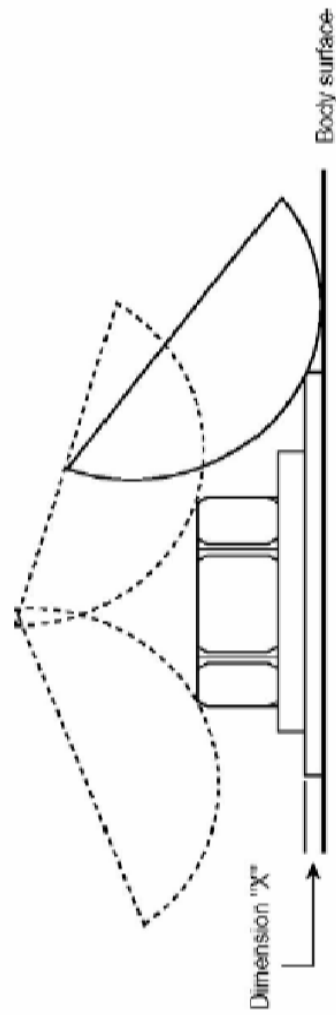


Figure 1



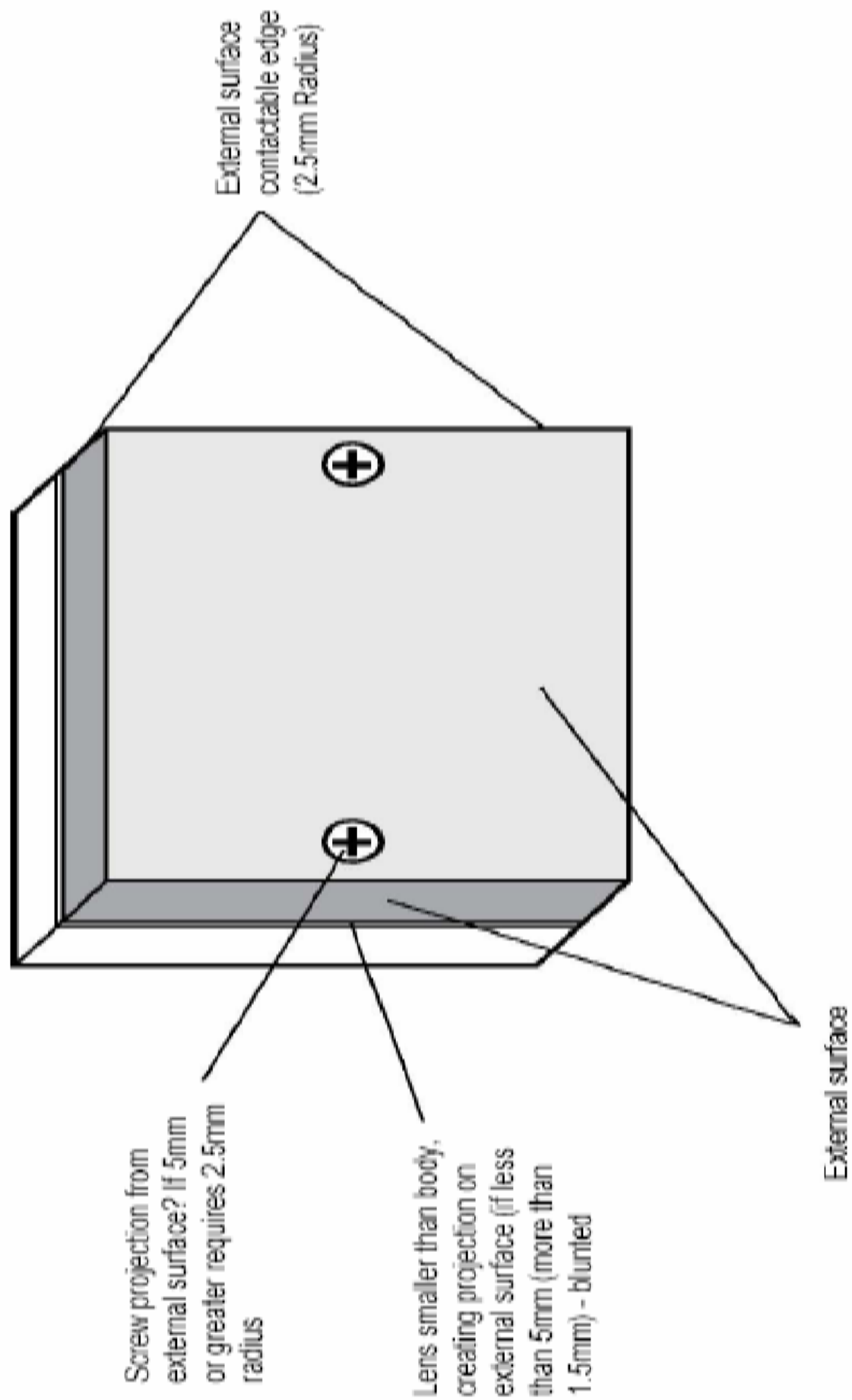
If dimension "X" is 5mm or greater, contactable edge requires a 2.5mm radius
 If dimension "X" is less than 5mm (but more than 1.5mm) contactable edge requires to be blunted

Figure 2

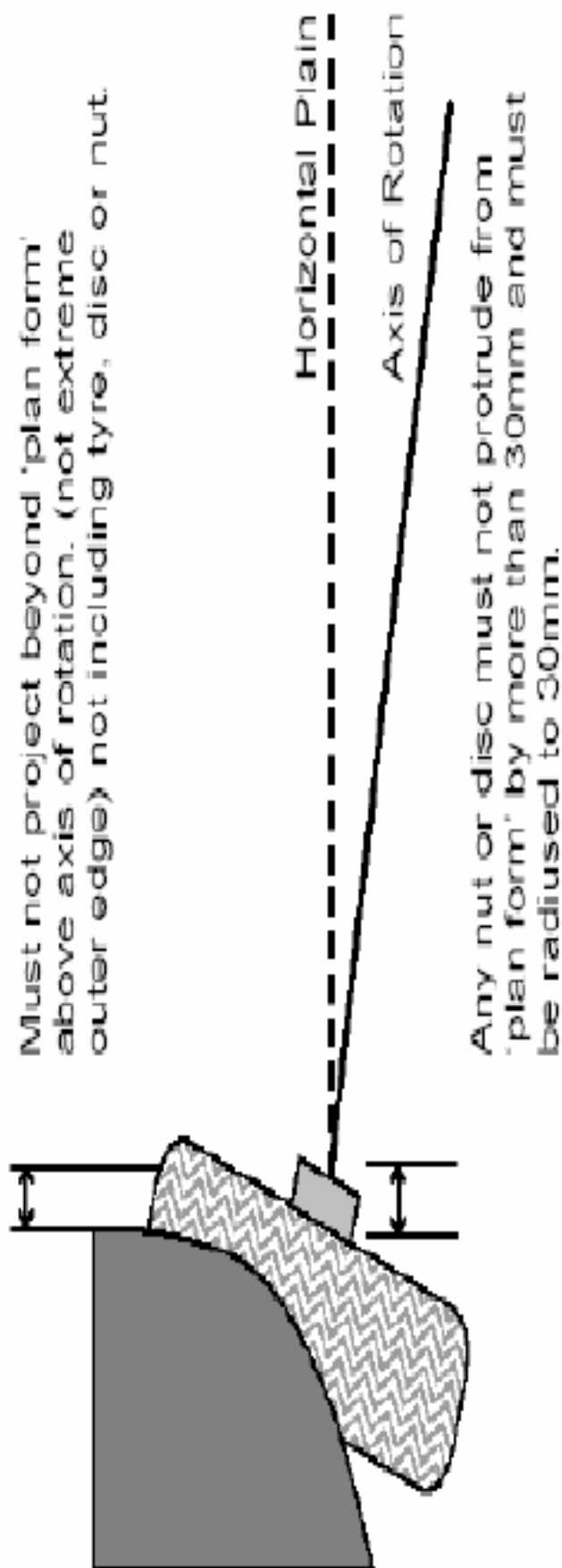


If dimension "X" is 5mm or greater, contactable edge requires a 2.5mm radius
 If dimension "X" is less than 5mm (but more than 1.5mm) contactable edge requires to be blunted

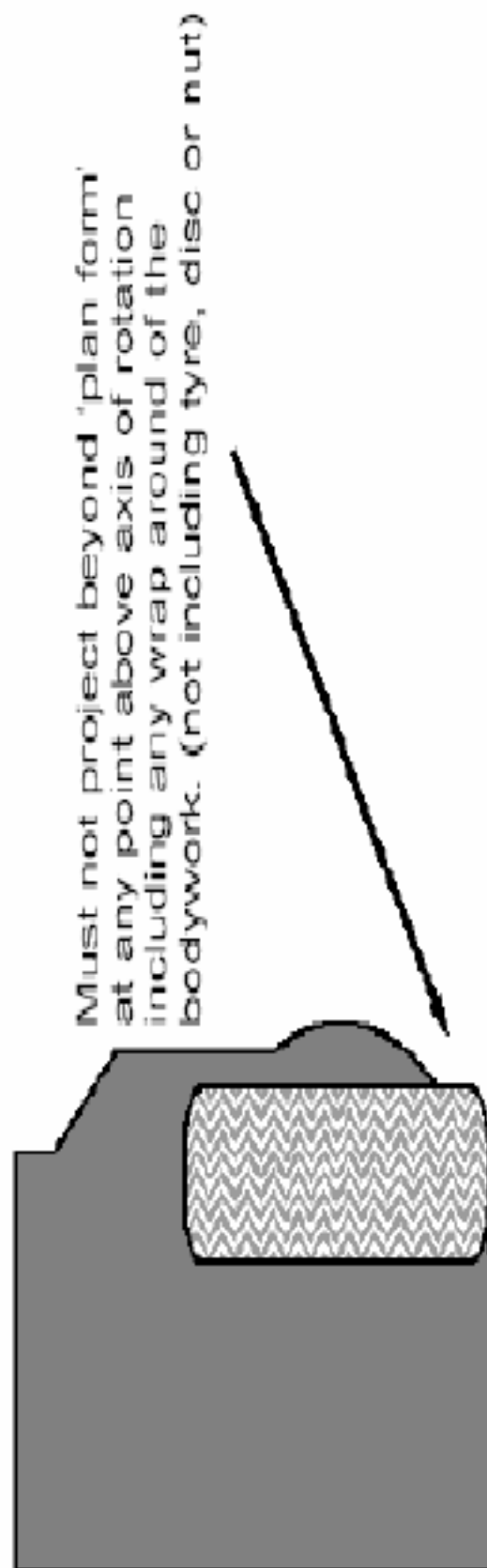
Note: In this example the measurements of the projections are all taken from the "Body surface" as no other "external surface" is provided by the components. (see Fig. 3)



Wheel Projections (viewed from front or rear)

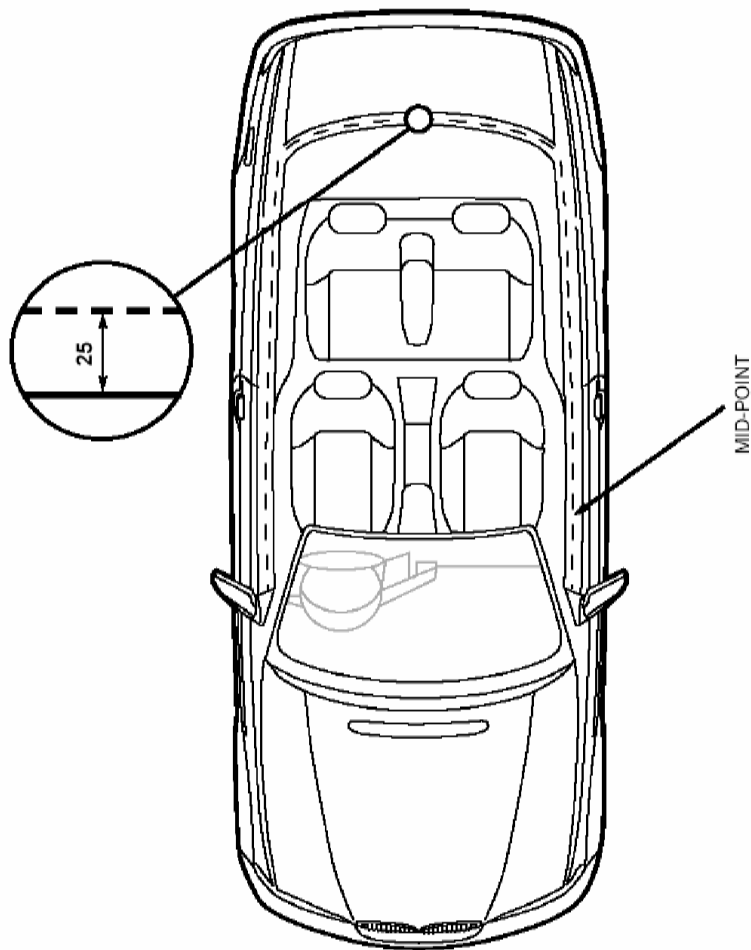


Wheel Projections (viewed from above)



Interior/Exterior Assessment

- Where the vehicle has a detachable (or fold back) hood/roof, the interior shall be taken to be the area covered by the hood/roof.
- Where a vehicle is not fitted with a facility to attach a hood/roof the interior/exterior boundary should be taken to be the mid point between interior and exterior on for example the windscreen pillar, top edge of body side and top edge of door.
- Where the rear of the passenger compartment abuts the body panel that extends towards the rear of the vehicle then the interior / exterior boundary shall be 25 mm towards the rear of the passenger compartment.
- Where the front of the passenger compartment abuts the front scuttle / bonnet panel and no windscreen is fitted then the interior / exterior boundary shall be 25 mm towards the front of the passenger compartment, a windscreen will otherwise form the boundary.
- This is a subjective judgment to be made by the examiner. The interior is the passenger compartment including any luggage space within the same compartment. Other areas of the vehicle are considered to be "exterior" including open "luggage areas".



17. Title of Test: **Speedometer and Reverse Gear (The speedometer requirement does not apply to a vehicle fitted with a tachograph if the tachograph provides adequate visual indication of speed to the driver.)**

Test Record Number: TR017

No Alternatives or Variations to NSSTA.
Speedometers require metric only units.

What needs to be recorded

What needs to be reported (including variations, uncertainties etc.)

- Record details of facilities used including calibration.
- Record any variations allowed within range of vehicles.
- Record presence of reverse gear and operation from driving position.
- All test results.
- Calibration status of test equipment.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

18. Title of Test:

Plates (statutory)

Test Record Number: TR018

Plate must contain:

- Name of manufacturer
- Type-approval number
- Vehicle Identification Number (VIN) or Unique Vehicle Identifier
- Maximum permitted laden weight of the vehicle.
- Maximum permitted laden weight of the combination, where the vehicle is used for towing.
- Maximum permitted road weight for each axle, listed in order from front to rear.
- For tractor units, the maximum permitted weight on the fifth wheel coupling.
- For semi-trailers, the maximum permitted weight on the fifth wheel king pin.

The minimum height for characters marked on the manufacturers plate is 4mm.

The minimum height for characters marked on the chassis is 7mm.

Example of manufacturers plate and character style



What needs to be recorded

What needs to be reported (including variations, uncertainties etc.)

- Record details of content of plate.
- Record method of attachment.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

19. Title of Test:**Seat Belt Anchorages**

Test Record Number: TR019

No Alternatives or Variations.

For Schedule 7 Vehicles tests need not be performed provided that the vehicle is designed to meet the strength characteristics equivalent to those needed to satisfy the requirements of this item.

Inspection

Check that each seating position is fitted with the correct number of anchorage points, (see Annex 1) and that where there is an anchorage a belt of the correct type is fitted. (compliance of the seat belt is checked under section 31). In the case of a Motor-caravan, Ambulance, or Hearse, with a maximum mass equal to or exceeding 2500kg the requirements according to the category of the base or incomplete vehicle or of the corresponding N category vehicle based on maximum mass will apply.

Check for installation of approved flooring system.

In the case of a Motor-caravan, Ambulance, Hearse, or other special purpose vehicle:

- (a) the requirements do not apply to seats intended for use solely while the vehicle is stationary; and
- (b) Any seats which are not for use when travelling on a road must be clearly identified to users by means of a pictogram or a sign with appropriate text.

In the case of a Motor-caravan, Ambulance, or Hearse, at least anchorages for lap belts are required for all rear seating positions.

In the case of Armoured vehicles exemption from any requirement of this item is permitted if it can be demonstrated to the satisfaction of the Approval Authority that it is impossible for the vehicle to comply due to its special purpose.

Sit in each seat and fasten the belt. Check there is enough spare webbing to fasten it comfortably and assess whether it would sit correctly on an average sized wearer. Check it does not rub on any sharp rigid surface that would be liable to lead to wear of the belt.

NOTE 1: The front centre seat will require 3 anchorages where the windscreen is located:

- in the case of a fixed (non-sliding) seat, within 840mm of the seat reference point,
- in the case of a sliding seat, within 840mm of the seat reference point, when the seat is 127mm forward of its rearmost position.

NOTE 2: Outboard seats require a 3 point anchorage unless there exists a passage between a seat and the nearest sidewall of the vehicle intended to permit access of passengers to other parts of the vehicle. A space between a seat and the wall is considered as a passage, if the distance between that sidewall, with all doors closed, and a vertical longitudinal plane passing through the centreline of the seat concerned is more than 500mm.

NOTE 3: Seat belt anchorage points must comply with the strength and location requirements of Directive 76/115 EEC, or to an equivalent safety standard on seats to which seat belts are directly mounted (integral seat belts) consideration must be given to the seat mounting as a belt anchorage point.

NOTE 4: Materials and construction methods must be taken into account.

NOTE 5: Comparable methods to that of a known approved vehicle type may be acceptable. Evidence

that the vehicle is of identical structure to a vehicle which has been demonstrated to comply with the requirements may be taken to confirm compliance.

NOTE 6: Vehicles (particularly high capacity vehicles with more than 2 rows of seats) may be fitted with seats that were not produced by the vehicle manufacturer but were produced by or for the vehicle converter, and are of the type used in larger capacity minibuses or buses. (For example seats having a frame of tubular design onto which the seat belts are mounted). Particular care should be taken to verify that these seats meet the requirements for an M1 category vehicle.

Where a vehicle is presented with this type of seat, the presenter will be required to provide evidence that the seats of this type fitted to the vehicle meet the requirements for an M1 category vehicle. This should be in the form of a declaration from the vehicle converter or seat manufacturer making reference to the vehicle concerned, confirming that the seats fitted (other than the original vehicle manufacturer's seats) meet the strength and positional requirements of Directive 76/115/EEC for a category M1 vehicle, and supported by documentary evidence of the seat test results.

Where the evidence provided relates to the seat only, consideration must be given to the seat mounting as a belt anchorage point.

1. Each seating position for forward or rearward facing passengers must have the minimum number of anchorage points, and a belt of the correct type fitted. See Annex 1 for Table.
2. Sideways facing seats are permitted. Seat belts are not required, but if fitted the anchorages should be spaced a suitable distance apart (no more than 500mm apart as a general rule) and should be checked for strength according to standard 5 below.
3. For motor caravans, ambulances and hearses, only seats intended for use when the vehicle is in motion are required to be fitted with seatbelts. Other seats (that are designed for use only when the vehicle is stationary) must be marked with a pictogram indicating that the seat is not to be used while the vehicle is in motion. A suggested design is circle with diagonal bar, over person on seat and arrow to indicate motion.
4. Folding seats designed for 'occasional use' are not required to be fitted with seat belts. A front centre seat on which the back rest folds down to become a driver/passenger armrest is not considered to be an occasional seat and should meet the required criteria.
5. The anchorage and surrounding structure must be of adequate strength to withstand the load likely to be imposed in the event of a vehicle frontal impact. See Annex 2
6. The seat belt anchorages must be correctly located so as to ensure the belt will sit correctly on the wearer and must not be likely to rub on sharp rigid surfaces that would lead to wear on the belt.

What needs to be recorded

-Evidence of compliance

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

Annex 1 – number of anchorages required

Front facing			Rear facing
Outboard Front	Other	Centre Front	
3	3 or 2*	2	2

Key

* Only if seat is inboard of a passageway

Annex 2 - Strength of seat belt anchorages.

Seat belt anchorages must comply with the strength requirements for M1 vehicles in Directive 76/115/EEC or an equivalent standard. This can be demonstrated in several ways:

1. Evidence of type approval
2. Documentary evidence of testing to the Directive standard
3. Comparison with a type approved vehicle
4. Visual assessment

1. Evidence of type approval - Suitable evidence of type approval will be accepted.
2. Documentary evidence of testing to the Directive standard - Suitable documentary proof will be accepted.
3. Comparison with a type approved vehicle - Evidence that the vehicle is of identical structure to a vehicle which has been demonstrated to comply with the requirements or which is type approved may be used to confirm compliance.
4. Visual Assessment - In the absence of evidence the examiner will have to determine whether the vehicle complies using a visual inspection. See Annex 3

Annex 3 - Seat Belt Anchorages Strength Assessment

In a severe accident, the seated occupant can exert huge loads upon their seatbelts (in the region of 1.5 tonnes for a 75kg person). Seatbelt anchorages together must withstand these large loads from the seatbelts. These loads in turn must be dissipated by the vehicle structure.

In assessing the strength of the anchorages, it is essential to consider

- the vehicle structure in the immediate vicinity of the anchorage, and
- the parts of the vehicle structure into which the loads from the anchorages will be dissipated.

These large loads will act in several directions as shown in Figure 1.

All Vehicles

What to look for:

- Evidence that anchorages in a vehicle of the same, or a very similar type have been subjected to a seatbelt anchorage strength test to “European Standards” by a recognised authority. This may be acceptable where there is clear evidence that the structure is identical to the vehicle originally tested.
- Welding should appear neat and of good quality; while it is impossible to judge the quality of a weld just by looking at it, messy welding is rarely strong welding.
- Bolts used in structural areas should be of grade 8.8 or better. Such bolts will be marked 8.8 or 12.9 on the hexagonal head, however, cap-head bolts or 7/16" (11mm) UNF seat belt anchorage bolts (with an anodised finish) not marked in this way may normally be considered to be of equivalent strength. Bolts should be M8 or larger.
- Threaded bushes should be welded (at both ends) through the tube, and not end mounted on the surface. (A threaded bush may be attached by its side surface to a structural component).

Cause for Concern:

- Welds of poor appearance, gaps or visible lack of penetration.
- Anchorages in thin and/or flat panels with little stiffness or reinforcing structure or in thin walled tube.
- Low grade bolts (less than grade 8.8).
- Insufficient bolt capacity, e.g. number of bolts and/or diameter of bolts

Monocoque Construction Steel Monocoques

What to look for:

- Structural box sections.

Composite Monocoques

Composite materials such as glass re-inforced plastic (GRP - also known as fibreglass) are fairly common in the specialist vehicle industry.

What to look for:

- Box Sections with heavy lay up (i.e. material thickness).
- Reinforced areas, for example using folded metal box sections laminated into the vehicle structure.
- Material lay-up of good quality with absence of air bubbles.
- 7/16" (11mm) UNF threaded fixing of suitable surface area, or welded to a spreader plate of suitable surface area.

Cause for concern:

- Threaded fixing/spreader plate of insufficient surface area.
- Threaded fixing and/or spreader plate only retained by a thin layer of laminate on the outer surface of the structure.
- Material lay-up poor with obvious air bubbles or delamination (separation of material layers).
- Cracking or flexing of structural areas.
- Loads from anchorages being transmitted to weak areas of vehicle.

Anchorage on Steel Chassis (See Figure 2)

What to look for:

- Triangulation and bracing will provide strength and spread the loads effectively into the chassis.
- Upper anchorage must be adequately braced to strong areas of the chassis.
- Threaded seatbelt anchorage fastening should be welded into tubes or onto plates of sufficient thickness.

Cause for Concern:

- Absence of sufficient structure to transmit loads from anchorages.
- Absence of bracing or triangulation from upper anchorage structure.

Steel Chassis with Anchorages on Roll Cage (See Figure 3)

What to look for:

- Triangulation and bracing which will provide strength and spread the loads effectively into the chassis.
- The joint where the roll cage joins the chassis and the chassis itself must be sufficiently strong to withstand the loads from the anchorages.
- Upper anchorage must be adequately braced from near the anchorage to strong areas of the chassis.

- Threaded seatbelt anchorage fastening should be welded into tubes or onto plates of sufficient thickness.
- Bolted joints joining the cage to the chassis and parts of the cage to each other should be of sufficient strength.

Composite Structural Body with Anchorages on Integral Roll Cage.

What to look for:

- A combination of the strength characteristics of Composite Monocoques and Steel Chassis with Anchorages on Roll Cage above.
- Where a combination of the strength of the body and cage are used to strengthen the anchorages, body and cage should be joined at regular intervals.

Cause for concern:

- As Composite Monocoques and Steel Chassis With Anchorages on Roll Cage above.

Anchorages Integral with Seat Structure

What to look for:

- Seats where the integral anchorage/s has been previously approved in a vehicle. In this case attention must still be paid to the method of fixing the seat in the vehicle.
- Seats fixed to vehicle structural areas, i.e. box sections etc.
- Use of spreader plates to spread loads into structural areas of the vehicle.
- Where lower anchorages are mounted on the seat structure, they should be welded or permanently fixed to the seat in a structurally strong area.
- Where the upper anchorage is mounted on the seat structure, the seat back must be braced to the lower seat structure. This bracing must begin as close as possible to the upper anchorage.
- Where the upper anchorage is mounted on the seat structure, the seat-to-floor fixing must be substantial to withstand the large leverage imposed upon it.
- Where the seat is mounted on runners, these must be of adequate strength.

Cause for concern:

- Seats mounted on flat panels, non-structural areas of vehicle floor or open channel section material.
- Lack of load spreading plates.
- Seat frames constructed of thin wall circular section tube in areas receiving loading from anchorages.
- Upper anchorages on seat back without bracing to strong area of seat.

Figure 1

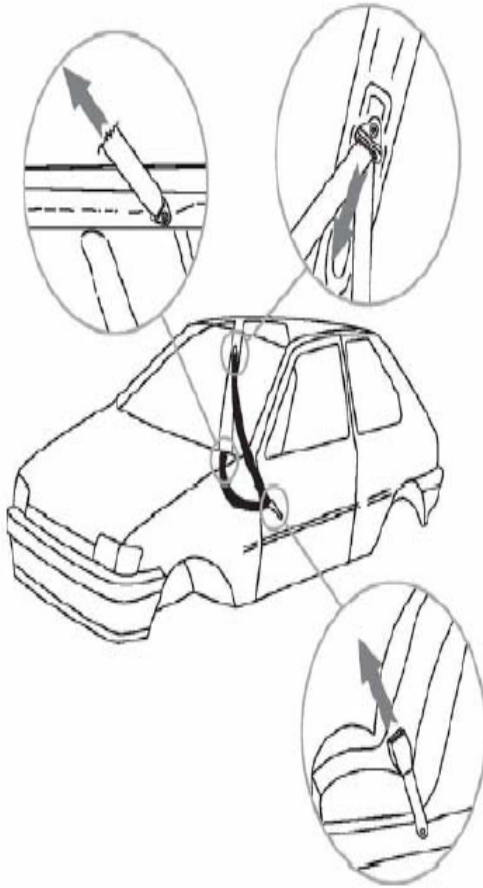


Figure 2

Shaded Areas
Show Important
Structure.

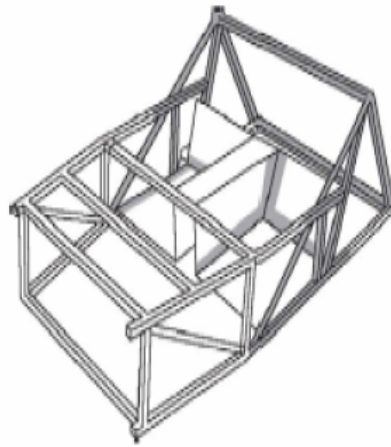
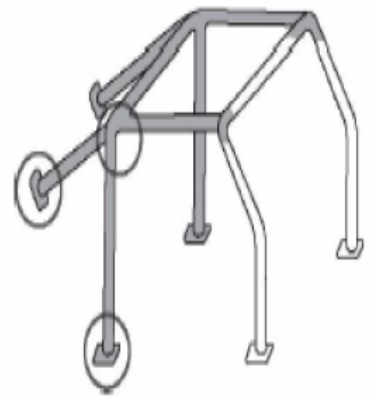


Figure 3

Shaded Areas Show Important
Structure. Pay Particular Attention
to Joints (Examples Circled).



Pedestal Seats (seats mounted on box or tubular section legs) with Integral Belt Anchorages

In this situation, the seat itself becomes part of the belt anchorage and the loads generated on a belt must be dissipated through the seat frame and into the surrounding vehicle structure.

Typical vehicles fitted with such seats might include “People Carriers” and Taxi conversions. During the anchorage Type Approval test, forces equivalent to approximately 3 tonnes per seating position are applied to the belt anchorages of all forward-facing seating positions. In the case of a double or triple seat, this might mean loads approaching the order of 9 tonnes could be transmitted through the seat pedestals and into the vehicle. In a seat with integral anchorages, this load must travel down the seat back and sides, into the pedestals and then into the floor of the vehicle. The height of the pedestals above the floor then acts as a lever causing the front seat legs to be pushed down into the vehicle floor and the rear seat legs to be pulled upwards out of the floor.

Depending on the pedestal height, the forces being fed into the floor could be considerably larger than the 3 tonnes force applied to the seat belts. On pedestals about 350mm high the upward load on the rear seat legs might well be in the region of 6 tonnes (three tonnes per seat pedestal). In view of the extremely high loads, it is important that a thorough assessment of the load path from each anchorage to the vehicle structure is made. This will begin at each of the belt anchorages and might end some considerable distance away from the attachment of the seat to the vehicle. There are a variety of ways in which a vehicle floor can be designed to cope with the loading from a seat with integral belt anchorages. One commonly used method is to secure the seats to a beam or box section or framework inside the vehicle, running the length of the saloon area. This framework is then attached to the vehicle in a variety of places spread over a large area and located close to strong points under the floor (such as junctions between chassis members). Such systems are difficult to inspect once the vehicle is assembled as the structure is normally concealed under a cosmetic “plywood” floor.

Another commonly used method is the use of load spreading plates above and below the vehicle floor. These plates effectively behave as large “washers” spreading the load from the seat pedestals into a surrounding area of vehicle floor.

Some vehicle converters choose to use a system of reinforcing members (typically channel or box section members) under the vehicle floor. The intention is to use these members in the same way as reinforcing members inside the vehicle but without the increase in floor height and loss of headroom. The disadvantage of such a system is that in order to clear under floor obstructions such as chassis members and running gear, the reinforcing members cannot be continuous and must have joints in them – which can weaken the overall structure.

What to look for:

General requirements for all vehicles

- A test certificate from a recognised test authority must be provided to show that the seat itself or the seat and tracking (where this is fitted) is capable of meeting the strength and anchorage positional requirements of the Directive 76/115/EC as amended. It should typically include at least the following information:

- Seat make and model,
- Vehicle category (M1, M2 or M3),
- Seat type (single/double or triple),
- Belts fitted (3-point or lap),
- Pedestal height,
- Mounting details (i.e. on tracking or rigidly, mounted to a base plate).

- ALL the mounting holes provided in each pedestal for securing the seat to the vehicle or tracking must be utilized.

- ALL the mounting holes provided to secure any given length of tracking to the vehicle must be utilised.
- All tracking fasteners should be M8 grade 8.8 or better.
- Tracking must be installed in a continuous length without joints.
- Seat or tracking mounting bolts that pass through hollow section reinforcing members should be fitted with “anti crush tubes”.

NOTE: Alternative mounting arrangements will be considered satisfactory where satisfactory documentary evidence of compliance can be provided by the vehicle presenter.

Fixed Single Seats

A typical single seat fixed directly to the vehicle floor is likely to require

- Load spreading plates at least 100 x 100 x 4mm thick.
 - Spreader plates fitted between the front legs and the inside of the vehicle floor
 - Spreader plates between the rear leg securing nuts and the underside of the vehicle floor.
- Where the rear mounting bolts are located within 50mm of a chassis member, the plate may be folded (not reduced in size) to clear the obstruction and the fold should abut snugly against the chassis member.

Where two or more single seats each having separate pedestals are mounted within approximately 200mm of each other, additional reinforcement should be provided as well as the load spreading plates, or the size and thickness of the load spreading plates increased.

NOTE: In many cases the mounting bolts will pass through slotted holes in the load spreading plate to allow for adjustment. Suitable arrangements must be in place (e.g. oversized washers) to prevent the nut or the head of the bolt from pulling through the slot in the plate.

Single seats with integral 3-point belt anchorages attached to the vehicle floor via offset or asymmetrical legs (i.e. to clear a wheel arch,) must be considered on a case-by-case basis. Documentary evidence from the seat manufacturer should be sought to confirm that the seat itself can withstand the forces required by the Directive when tested independently of the vehicle on its offset pedestals.

In vehicles modified to allow rear-access for a wheelchair via a ramp to a lowered central floor section having additional seats fitted either side of the lowered floor section, seats are often mounted directly to the floorpan either with very short pedestals or no pedestals at all. It is common for at least some of the original vehicle’s belt anchorages to be used in combination with one or more of the anchorages on the new seat. The inspection should take into account the reduced floor loading resulting both from the shorter pedestals and (if applicable) from the relocation of the upper anchorage from the seat backrest to the vehicle pillar. Where **only one lower** anchorage is attached to the seat, the effects of the asymmetrical loading should be considered. Some vehicles, e.g. motor homes and ambulances are equipped with swivel seats which may have some or all the belt anchorages attached to the seat itself. Such seats should only be inspected in their position of normal use when travelling.

Removable Single Seats

Removable single seats may be fitted to either

- “Low Profile” tracking or

- “Heavy Duty” tracking or
- to dedicated clamping mechanisms attached to the floor of the vehicle.

For the purposes of this inspection,

- Low Profile tracking can be regarded as any tracking system with a section depth of up to 30mm.
- Heavy Duty tracking can be regarded as any tracking system with an overall depth of 30mm or more.

Low Profile tracking systems

The seat fittings locate in cut-outs in the tracking and lock with either a plunger or “blade” arrangement. In general, a typical single seat with three-point integral belt anchorages and mounted on a typical pedestal arrangement that is itself Directive compliant is likely to satisfy the Directive requirements as long as the tracking is supported in such a way as to prevent excessive distortion of the floor.

Seat Belt Anchorages Strength Assessment

- attached to the vehicle using 8mm (grade • 8.8 or better) fasteners no more than approx. 100mm apart.
- either bolted to box or steel channel section and then secured to the vehicle floor, or secured by bolts going through the floor and into channel or box sections on the underside of the vehicle.

NOTE: Various proprietary load-spreading plates are marketed for this purpose but these are primarily aimed at the “M2” vehicle market for which the seat belt anchorage test loads are only half as great. Unless documentary evidence is provided to the contrary, simple load-spreading plates or washers should not be regarded as being satisfactory.

- (where secured into steel channel sections) secured into channel section of a minimum nominal size of 50x25x4mm which is orientated with the channel flanges facing downwards.

NOTE: The channel ends must be free of sharp edges, which may tear the vehicle floor under load.

Unless the tracking is secured to internal reinforcing members, a check should be made that the same number of fasteners are present above and below the vehicle floor. In cases where a fastener lies above a box section, heat shield, fuel tank or other obstruction, it must pass into an object of similar strength to the other reinforcing members.

- “Self-tapping” screws and “riv-nuts” are not considered as being of equivalent strength (unless documentary evidence can be provided).
- Seats should not be capable of being positioned such that the front or rear edge of either pedestal lies within 200mm of the end of a length of tracking.

Heavy Duty tracking systems.

Although these differ in appearance, they all share the same principal feature – i.e. a much deeper section than the “low profile” tracking systems. These lengths of tracking have sufficient depth of section to resist the large bending loads applied during a seat belt anchorage test. As such, they generally require no reinforcement between themselves and the inside of the vehicle floor and only minimal reinforcement beneath the vehicle floor.

Typically, such tracking is not secured at precisely defined intervals so that the converter is free to choose the pitch of the fasteners to miss underfloor obstructions such as chassis members. Often the tracking is secured by pairs of fasteners – one on each side of the centerline, rather than individual fasteners along its centerline.

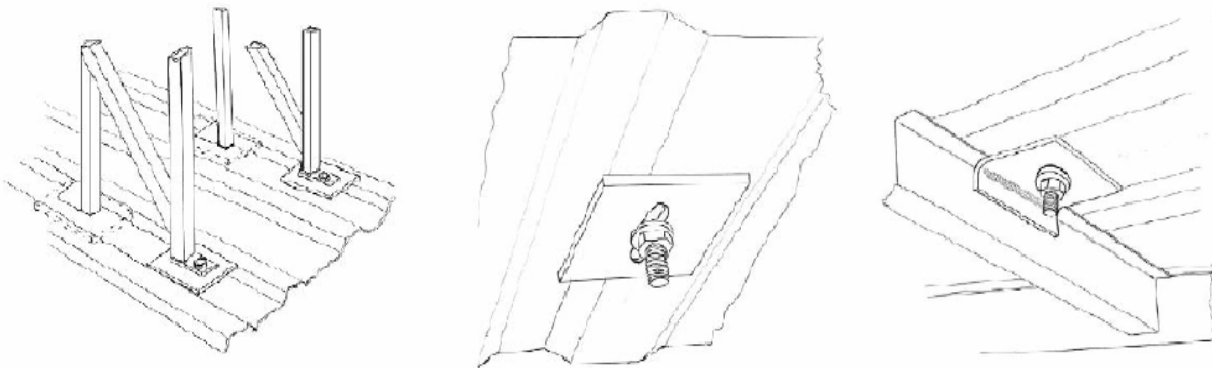
Heavy Duty tracking should be secured

- with 8mm grade 8.8 (or better) fasteners at intervals of not more than 250mm.
- with fasteners passing through a mild steel load spreading plate at least 50 x 50 x 4mm thick or an equivalent arrangement.
- such that seats are not capable of being positioned with the front or rear edge of either pedestal within less than 200mm of the first or last group of fasteners securing any length of tracking.

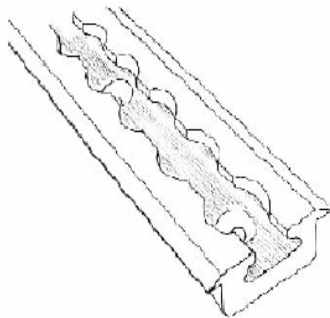
Seats with dedicated fixings.

Rear single seats in many mass-produced “people carrier” type vehicles are often removable. In general, these are attached to purpose-made latches set into the vehicle floor. If there is evidence to suggest that such an arrangement is not part of the original vehicle equipment, an assessment of the strength of the assembly should be made by comparison with a similar unmodified assembly.

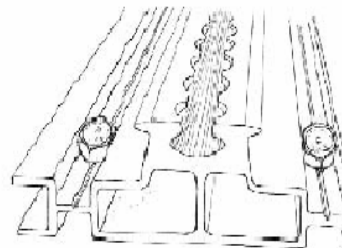
Load Spreading Plates



Low Level Tracking



Heavy Duty Tracking



a. Fixed double seats

Double seats fitted with integral three-point belts and two or three pedestals impart significantly higher loads into the vehicle floor than a single seat imparts. As a result, it is extremely difficult to restrain such a seat using simple reinforcements alone. Documentary evidence that the installation can satisfy the Directive requirements in-vehicle should be sought.

Where a double seat with integral three-point belt anchorages is fitted with four or more pedestals, approximately evenly spaced, a spreader plate extending at least the full width of the seat should be fitted between the front legs and the vehicle floor. Such a plate might typically be in the region of 5mm thick, 150mm long and at least the width of the complete seat (including cushions).

Angle or channel sections of similar or greater rigidity than the flat plate may also be used.

Where two pedestals are mounted within approx. 200mm of each other, additional reinforcement must be provided as well as the load spreading plates, or the size and thickness of the load spreading plates increased.

b. Removable double seats

Removable double seats with three point integral belt anchorages are rare. In general, such a seat fitted with two or three pedestals is unlikely to satisfy the Directive requirements in a vehicle as most currently available tracking systems will not withstand the loads required for a category “M1” vehicle. In all such cases, documentary evidence that the complete seat and tracking assembly has been successfully tested “in-vehicle” should be sought.

c. Fixed triple seats

It is common to fit triple seats across the rear of many taxi conversions and “people carrier” vehicles. It is not, generally, possible to secure such seats using simple reinforcements alone. If a triple seat is fitted with three-point integral anchorages, documentary evidence that the complete assembly has been successfully tested “in-vehicle” should be sought.

If some of the belt anchorages are located on the body structure (typically the outboard upper and lower anchorages), the load on the seat mountings will be correspondingly reduced. If the centre seating position is only equipped with a lap belt, the loads on the seat mountings are further reduced. In some cases, only the two anchorages from the centre seat belt and one of the lower anchorages from each of the outboard seating positions will transmit their load into the vehicle through the seat pedestals. Seats fitted with this arrangement of belt anchorages must be assessed on a case-by-case basis. In general terms, such a seat fitted with four pedestals (roughly evenly spaced) is likely to prove satisfactory if fitted with simple load spreading plates. If fewer pedestals are fitted (or more anchorages are located on the seat structure), additional reinforcement will be required.

d. Rear-Facing seats

Rear-facing single seats with integral belt anchorages are only required to withstand loads approximately one third of the magnitude of a forward-facing seat.

As such, mounting arrangements can be significantly less substantial than those for forward-facing seats. In many cases, rear-facing seats are mounted on a bulkhead rather than free-standing. Often, the bulkhead structure will be impossible to assess due to the presence of trim on both surfaces. In these instances, drawings or photographs of the structure should be sought. The bulkhead structure should be attached to the vehicle at least along its lower edge and sides. An assessment of the strength and number of such mountings should be made. The examiner must satisfy himself (as far as is reasonably practicable) that the attachment(s) of the bulkhead to the vehicle “B” pillars does not compromise the strength of the front seat upper belt anchorages. An inspection of the method used to attach the belt anchorages to the bulkhead (or seats) should also be made. If the belts are attached to the seats, their attachments to the bulkhead will be part of this inspection. It is common to only fit lap belts on rear-facing seats. The removal of an upper belt anchorage significantly reduces the load at the base of the seat during a test. This should be taken into consideration when assessing the structure.

e. Seats with integral Lap Belts

The fitting of a lap belt rather than a three point belt with its upper anchorage on the seat back is likely to lower the loads on the vehicle floor by approximately one third. For a typical “minibus style” single seat, the load acting to pull the rear legs out of the floor when fitted with a three-point belt is likely to be in the region of 6 tonnes. This would reduce to approximately 4 tonnes if the same single seat were

to be fitted with an integral lap belt. In view of the reduction in floor loading, less reinforcement is likely to be required than for a seat with three integral anchorages.

NOTE: In cases where three anchorages are provided but only two are attached to the seat, the load on the pedestals could be reduced still further – possibly by as much as half.

f. Sliding Seats

Some seats are fitted to a system of “runners” so as to allow fore and aft adjustment or to provide two alternative positions of use. Some of the belt anchorages for such seating positions may be attached to the seat. Before making any assessment of the belt anchorages, documentary evidence should be sought to confirm that the seat and runner assembly is capable of satisfying the requirements of the Directive when tested independently of the vehicle. Once this has been confirmed, the installation of the seat in the vehicle can be assessed.

20 –30 (- 27) Title of Test: Presence of correct design, correct number, and correct position (installation) of Lighting and Light Signalling Devices

Test Record Number: TR020

The requirements shall be limited to the installation of approved components as appropriate to the location, of the requisite number, installed in the specified positions, with the required geometric visibility and that operate in accordance with the technical requirements of UNECE Regulation 48.03.

Dipped beam headlamps shall be suitable for left hand rule of the road traffic.

For category M1 and N1:

1. Paragraphs 6.2.6.2 and 6.2.6.3 (Headlamp levelling) shall not apply except where dipped beam headlamps with light sources having an objective luminous flux which exceeds 2000 lumens is fitted;
2. The requirements relating to S3 devices in paragraph 6.7 of UNECE Regulation 48.01 shall not apply;
3. In the case of a rear direction indicator which is one of a number of lamps having a common housing and fitted to a left-hand drive vehicle, paragraph 6.5.4.1 of UNECE regulation 48 shall apply as if for "400 mm" there were substituted "480 mm".

1. Check markings to ensure components comply with requirements (for IVA check colour)
2. Count numbers to ensure sufficient and not too many components are present
3. Measure position of components to ensure in correct location
4. Observe components from required angles to ensure correct area of visibility
5. Observe components from required angles to ensure not visible in inadmissible areas
6. (for IVA check headlamp illumination area inc US spread)

What needs to be reported.

Including variations, uncertainties etc.

1. Record actual marking for each component.
2. Confirm correct number of components and any variations within range of vehicles.
3. Record actual position of components with accuracy within 1 mm and record any variations allowed within range of vehicles.
4. Record actual angles of visibility within 1 degree and record any variations allowed within range of vehicles.
5. Confirm that no component is visible in inadmissible areas.

Marking

All components must have correct e/E mark

Number of Components

Headlamps:

Dipped - minimum and maximum 2

Main – minimum 2, maximum 4

Retro Reflectors:

Rear – minimum 2, maximum any

Front (if required or fitted) – minimum 2, maximum any

Side (if required or fitted) - at least one side-reflector fitted to the middle third of the vehicle; the foremost side-reflector being not further than 3 m from the front; the distance between two adjacent side reflectors shall not exceed 3 m if the structure of the vehicle makes it impossible to comply with such a requirement, this distance may be increased to 4 m; the distance between the rearmost side-reflector and the rear of the vehicle shall not exceed 1 m.

Front Position:

minimum and maximum 2

Rear Position:

minimum 2, maximum 4

Stop:

minimum 2, maximum 4 (including optional)

Stop (optional):

minimum 1, maximum 2

End Outline Marker:

minimum and maximum 2 visible from front , minimum and maximum 2 visible from rear

Side Outline Marker:

as “Side Retro Reflectors” above

Direction Indicators and Hazard Warning:

On each side: front – 1, rear – 1, side Repeater – 1

Plus 2 optional on rear only

Rear Registration:

See section 4 Rear Registration Plate Space in conjunction with number of rear registration plate lamps

Front Fog (optional):

maximum 2

Rear Fog:

minimum 1, maximum 2

Reversing:

minimum 1, maximum 2

Dimensions

Lamp/reflector lateral position is measured from the extreme outer edge of the vehicle (disregarding tyres, mirrors, lamps and reflectors) to the edge of the illuminated area (or reflective surface on a reflector) nearest that side of the vehicle.

Lamp/reflector vertical position is measured from the ground;

In the case of the minimum height to the lower edge of the illuminated area (reflective surface on a reflector).

In the case of a Dipped Beam headlamp the minimum height is measured to the lower edge of the light emitting surface.

In the case of the maximum height to the top edge of the illuminated area (reflective surface on a reflector).

In the case of a Dipped Beam headlamp the maximum height is measured to the upper edge of the light emitting surface.

Rear Fog Lamp separation distance must be measured between the “illuminating surface” of each lamp. “Illuminating Surface” should be taken to be the area of the “reflector” to the rear of the bulbs.

Where lamps are mounted in a common housing [and are “E”Marked for IVA], the separation criteria should be assumed to be met.

Headlamps:

Dipped

Distance from side – 400 mm

Maximum height – 1200 mm

Minimum height – 500 mm

Retro Reflectors:

Rear from side – 400 mm maximum with minimum separation of 600 mm

Rear height – 900 mm maximum or 1200 if impractical, 250 mm minimum

Front from side – 150 mm maximum

Front height – 900 mm maximum or 1500 if impractical, 350 mm minimum

Side – for spacing see “Number of Components” above

Side height – 1500 mm maximum or 2100 mm if impractical, 250 mm minimum

Front Position:

Maximum distance from side – 400 mm

Height 1500 mm maximum or 2100 if impractical, 350 mm minimum

Rear Position:

Maximum distance from side – 400 mm

Height 1500 mm maximum or 2100 if impractical, 350 mm minimum

Stop:

Maximum distance from side – 400 mm

Height 1500 mm maximum or 2100 if impractical, 350 mm minimum

Stop (optional):

If 1 is fitted: as close to vehicle centre-line as practicable

If 2 are fitted: no requirement but no lower than the mandatory stop lamps

End Outline Marker:

As close as possible to the extreme edge and not more than 400mm from the edge. Maximum height compatible with the design and

Operational requirements. Front: No lower than the upper edge of the windscreen. Rear: as high as possible, where vehicle structure exists to mount the lamps on.

Side Outline Marker:

as "Side Retro Reflectors" above.

Direction Indicators and Hazard Warning:

Maximum distance from side – 400 mm

Height 1500 mm maximum or 2300 if impractical, 350 mm minimum

Rear Registration:

See section 4 Rear Registration Plate Space in conjunction with position of rear registration plate lamp

Front Fog:

1200 mm maximum, 250 mm minimum

Rear Fog:

side - At least one must be on centre line or to offside of vehicle (Min separation distance from stop lamp 100 mm)

height 1000 mm maximum, 250 mm minimum

Reversing:

side – no requirement

height 1200 mm maximum, 250 mm minimum

Installation

General

All obligatory and optional components must be securely fitted to the vehicle

The vehicle must not be fitted with a lamp or retro reflective material capable of showing a red light to the front.

The vehicle must not be fitted with a lamp or retro reflective material capable of showing a light other than red to the rear* except for

- an amber light from a direction indicator
- a white light from a work lamp, reversing lamp, interior lamp, or a registration plate lamp
- a yellow light from a registration plate
- an amber light from a side marker light
- emergency vehicles only, a blue light from a warning lamp or beacon.

* an area the sides of which are at an angle of 15 degrees out from the extreme outer edge of the vehicle, (starting from the rear corner) and extending up to 25mtrs from the rear of the vehicle (measured along the vehicle longitudinal axis)

All lamps and reflectors fitted to the vehicle must not move by swivelling, deflecting or otherwise while the vehicle is in motion, except for:

- any lamp or reflector which by design can be deflected to the side with the movement of the front wheel or wheels of the vehicle when turned for the purpose of steering the vehicle
- a headlamp for adjustment or dipping of the beam
- a headlamp which can be retracted or concealed
- a work lamp, used to illuminate a working area or the scene of an accident, breakdown or road works in the vicinity of the vehicle to which it is fitted.

When every door, tailgate, boot lid, or other movable part is in the fixed open position (any position in which the component will remain, with or without a fixed stay) the

- front and rear position lamps
- front and rear indicators
- rear retro reflectors

must have part of the apparent surface visible

Particular to Component

Headlamps:

All obligatory and optional headlamps must be fitted as “matched pairs”.

The headlamps must emit a white light.

The headlamps (when on dip or main beam) must emit sufficient light to be able to illuminate the road in front of the vehicle

The beam image ‘kick-up’ must not be to the offside.

Gas Discharge Headlamps

Must be compliant with all of the following:

- dipped beam remains on when main beam is on
- is fitted with a wash system
- is fitted with an automatic headlamp self levelling system or self levelling suspension

Retro Reflectors:

Front reflectors mandatory with concealable front lamps.

The rearmost side reflector may be red

Front Position:

Front and rear position, side marker, end outline marker, and rear registration lamps must be switched on and off with one switch.

Rear Position:

Front and rear position, side marker, end outline marker, and rear registration lamps must be switched on and off with one switch.

Stop:

They must only illuminate when the service brake is applied, and must extinguish when the service brake is released.

Stop (optional):

They must only illuminate when the service brake is applied, and must extinguish when the service brake is released.

End Outline Marker:

Front and rear position, side marker, end outline marker, and rear registration lamps must be switched on and off with one switch.

Side Outline Marker:

Front and rear position, side marker, end outline marker, and rear registration lamps must be switched on and off with one switch.

Direction Indicators and Hazard Warning:

The indicators must flash at a rate of between 60 and 120 times a minute (with all mandatory indicators working, and with the engine running if initially below the requirement).

There must be a audible or visual tell tale fitted to indicate the operation of any Indicators.

The hazard warning lights must operate with the ignition switched on and off.

The hazard warning device must operate all of the direction indicators simultaneously.

The hazard warning device must have a telltale warning light.

Rear Registration:

Front and rear position, side marker, end outline marker, and rear registration lamps must be switched on and off with one switch.

Front Fog:

They must be able to be switched on only when the position lights are on and must operate independently of the dipped and main beam headlamps.

They must only emit white or yellow light.

Rear Fog:

The rear fog lamp(s) must only illuminate when dipped beam, main beam, or front fog lamps are lit.

The rear fog lamps must not be affected by switching on or off any other lamps (except those above).

Can be switched off independently of any other lamp.

Must be fitted with an operational “tell-tale” lamp (non-flashing) visible from the driving position.

Must not be operated by a brake control.

Fitted so that the reflector is facing squarely to the rear.

An optional rear fog lamp must form a matched pair with the obligatory lamp.

An optional rear fog lamp must only operate with the obligatory rear fog lamp.

Reversing:

They must emit white light.

They must be positioned to face the rear.

Reversing lamps must operate by selection of reverse gear, or be fitted with a telltale warning device.

Performance (Angle of Visibility)

Headlamps: Not applicable as all requirements controlled by component.

Retro Reflectors:

Rear

Horizontal - 30° inwards and outwards.

Vertical - < 750mm above the ground 15° above and 5° below horizontal, otherwise 15° above and below horizontal

Front

Horizontal - 5° inwards and 30° outwards.

Vertical - < 750mm above the ground 15° above and 5° below horizontal, otherwise 15° above and below horizontal

Side

Horizontal - 45° to the left and to the right.

Vertical - < 750mm above the ground 15° above and 5° below horizontal, otherwise 15° above and below horizontal

Front Position:

Horizontal - 45° inwards, 80° outwards

Vertical - 15° above and below the horizontal (may be reduced to 5° if the lamps are less than 750mm above the ground)

Rear Position:

Horizontal - 45° inwards, 80° outwards

Vertical - 15° above and below the horizontal (may be reduced to 5° if the lamps are less than 750mm above the ground)

Stop:

Horizontal - 45° inwards and outwards

Vertical - 15° above and below the horizontal (may be reduced to 5° if the lamps are less than 750mm above the ground)

Stop (optional):

Must face the rear.

End Outline Marker:

Horizontal - 80° Outwards

Vertical - 5° above the horizontal, 20° Below the horizontal

Side Outline Marker:

Horizontal - 45° to the front and rear (Can be reduced to 30° if fitted as an optional extra)

Vertical - 10° Above and below the horizontal (The vertical angle below the horizontal may be reduced to 5° if the side marker lamp is fitted less than 750mm from the ground)

Direction Indicators and Hazard Warning:

Horizontal – 80° outwards 45° inwards (side repeater to the rear between 5° and 60° outboard).

Vertical - < 750mm above the ground 15° above and 5° below horizontal, otherwise 15° above and below horizontal.

Rear Registration:

See section 4 Rear Registration Plate Space in conjunction with visibility

Front Fog: ?

Rear Fog:

Horizontal – 25° inwards and outwards; if two lamps are fitted it is sufficient if one lamp (not necessarily the same lamp) – is visible throughout the range

Vertical – 5° above and below horizontal.

Reversing: ?

27. Title of Test: **Towing Hooks**

Test Record Number: TR027

An Installation Check.

Installation check means a check to confirm the presence of towing hooks and that they are securely attached to major structural aspects of the vehicle.

What needs to be recorded

-Results of installation check.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test

31. Title of Test:

Seat Belts and Restraint Systems

Test Record Number: TR031

- Seat belt and restraints must be “e” / “E” marked
- For the installation of seat belts:
 - Vehicle approval or
 - Test report from accredited laboratory or
 - Manufacturer’s test report.
- All Class III and Class B vehicles must be fitted with the correct type of seat belts

Class III.: vehicles having a capacity exceeding 22 passengers and constructed exclusively for the carriage of seated passengers.

Class B.: vehicles having a capacity not exceeding 22 passengers and not designed to carry standing passengers; a vehicle of this Class has no provision for standing passengers.

Inspection

M1 vehicles must have seat belts for rear facing seats.

Check each seat requiring a seat belt is fitted with a belt of the appropriate type.

Check all seat belts (mandatory and optional) fitted, for a designated approval mark (“E” or “e”)

Check that each seat belt is secured:

- to the vehicle structure or where the belt is integral with the seat to the seat structure
- using a fixing of adequate strength
- such that it can be separated from the anchorage without causing damage to the anchorage.

Check each belt for damage.

Check each belt operates correctly by fastening each belt locking mechanism (buckle) and trying to pull the locked sections apart. On retracting seat belts, check that, with the mechanism fastened and the seat unoccupied, excess webbing is wound into the retractor unit. Where a lap/diagonal retracting belt is fitted, check the position and operation of the retractor mechanism.

Check the locked mechanism releases as required.

Check that whilst sitting in each seat in turn, and wearing the seat belt, secured and correctly adjusted, that the position of the webbing on the torso and the location of the effective belt anchorage points in relation to the seated body position are correct.

Check the vehicle structure, fitments and components near each belt for sharp edges likely to cause abrasion or damage to the belt during normal use.

Check each lap belt, passive belt or three-point belt has provision for the safe and convenient storage of the belt when not in use.

Check for a easily visible warning label in pictogram form (although explanatory text may be included) where an air bag is situated in front of a passenger seat.

1. Each seat requiring a belt must be fitted with a seat belt of the appropriate type (see Annex 1).
2. Each seat belt must bear the appropriate approval marks or have the equivalent characteristics to that of a belt approved for the same category of vehicle to ensure the belt meets the required approval standards (see note 5).
3. Each seat belt must be attached by an appropriate fixing and be securely fitted (see notes 3 & 4).
4. There must be no damage to the seat belt structure that would affect its strength.
5. The lock mechanism must securely lock the belt.
6. The lock mechanism must be able to be released easily.
7. With the seat belt fastened and the seat unoccupied, retractor mechanisms must take up any excess webbing (see note 6).
8. A retractor mechanism must be correctly positioned to ensure the correct operation of the belt (see notes 7 & 8).
9. The seat belt must sit correctly across the wearer's torso so as to provide effective restraint in the event of a frontal impact (see notes 9, 10, 11 & 12).
10. There must not be any sharp edges / objects in the seat belt area likely to cause damage to the belt.
11. The seat belt must be able to be stored so it is always readily accessible to use (see note 13).
12. Where an airbag is fitted in front of a passenger position, a warning label for the airbag must be permanently fixed to the vehicle.
13. The warning label for the airbag must be visible in front of a person about to install a rearward facing child restraint.
14. The warning label for the airbag must be visible when the door is closed otherwise a permanent reference elsewhere that is visible at all times is required.



Note 1: A British Standard marking for a harness belt (BS3254:1960 or BS3254 Part 1 1988) is acceptable.

Note 2: Disabled person belts are seat belts which have been specially designed or adapted for use by an adult or young person suffering from some physical defect or disability and intended for use solely by such a person.

NOTE 3: A suitable single bolt fixing of adequate strength would be, for example, a bolt of at least 11mm (7/16") diameter of grade 8.8 (the grade may not be shown on a bolt produced for a seat belt anchorage). Other bolt fixings may be acceptable providing they are of equivalent strength. Two adjacent seat belts may be secured by one bolt. In this case consideration must be given to the additional loads on the anchorage.

NOTE 4: In order that a seat belt can be separated from the anchorage without causing damage to the anchorage, for example a mounting in the side of a tube or box section, it is a requirement that the bolt is secured into a "fixed" threaded hole or captive nut. (The presenter may be required to demonstrate this condition is met). The bolt may be secured into an alternative fixing, eg a lock nut of suitable strength, where access is provided to the "rear" of the mounting to enable separation/re-attachment of the belt.

NOTE 5: Characteristics include:

The webbing is of an equivalent type of material and where it is likely to come into contact with the body of the wearer is at least 46mm (33mm in the case of harness belt shoulder straps) in width.

All components are suitably protected against corrosion, eg plated or coated.

The locking mechanism, ie the buckle, when both under load and not under load, can be released by a single movement in one direction by either hand.

Other than a harness belt the locking mechanism contact area with the body of the wearer is not less than 46mm in width.

For a static seat belt there is a manual adjusting device:

- accessible to the wearer when seated
- convenient and easy to use
- capable of being tightened with one hand.

For a retracting belt, the retractor locks when the vehicle is subject to deceleration, tilt or the belt is pulled quickly from the retracting mechanism

NOTE 6: Some types of retracting belt might need help before they retract.

Operate the release mechanism while pulling on the belt to check that it releases when required.

NOTE 7: A belt may be fitted with retractor mechanisms on both lap and diagonal sections. If fitted with a single retractor mechanism it must act initially on the diagonal (shoulder) section.

NOTE 8: An "automatically locking" retractor (i.e. one that allows extension of the belt to the desired length and when the buckle is fastened locks on retraction but then prevents subsequent forward movement by the wearer, unlike a typical inertia reel belt), is not permitted unless the feature is only provided after **full extension** of the belt from the retractor, i.e. for use as a child restraint.

NOTE 9: The seat belt must be capable of effectively restraining the occupant:

- by the position of the lap belt (due to anchorage location) passing over the pelvic region
- in the case of a harness belt or three point belt, by being positioned across the shoulder so that it does not slip off the shoulder of the occupant.

Note 10: Where the seat is adjustable, this check must be carried out with the seat secured in the rearmost position and with the back rest in the normal driving position, in any case at a rearward angle of not more than approximately 25° from the vertical.

Note 11: The **effective belt anchorage** is the actual anchorage point to the vehicle unless a change of direction of the belt to the wearer is produced by a fixed intermediate device, for example, a belt guide fitted to the upper part of a seat back.

Note 12: Where a seat incorporates a belt guide that creates the “effective belt anchorage” consideration must be given to the strength of the seat back in relation to the loading to which it may be subject, (this being dependent on the position of the actual anchorage). The requirements of item 2 should be applied to the effective anchorage location.

Note 13: An independent belt storage facility is only necessary where it is needed to ensure the belt is always accessible for use.

Annex 1

Seat Belts – Obligatory Requirements

NOTE: “EFFECTIVE DATE”

In the case of Schedule 7 vehicles:

- With an integral chassis-body – the date of manufacture of the chassis-body.
- Having a separate chassis – the date of manufacture of the body or chassis whichever is the earlier.

In any other case:

The date of manufacture of the vehicle.

Vehicle Description / Effective Date	Seat Position		
	Driver’s and “Specified Front Passenger’s Seat (see Note 1)	Other Front Seat	Forward Facing Rear Seats
Passenger vehicles with not more than 8 passenger seats. From 1 April 1987	3 point belt (see Notes 2 and 3)	3 point belt or lap belt (see Notes 3 and 8)	3 point belt or lap belt on all seats (see Note 3)
Motor Ambulances and Motor Caravans irrespective of design gross weight. From 1 April 1997	3 point belt (see Notes 2 and 3)	3 point belt or lap belt (see Notes 3 and 8)	3 point belt or lap belt on all designated seats (see Note 3 and 7)

NOTE 1: The “specified front passenger seat” requiring a seat belt is the seat which is, foremost in the vehicle, and furthest from the driver’s seat unless there is a fixed partition separating the passenger seat from a space in front of it which is alongside the driver’s seat, eg certain types of taxis, buses etc. In the case of a vehicle having a central driving position and having passenger seats symmetrically positioned in relation to the drivers seat, one passenger seat must be nominated as the “specified.”

NOTE 2: ‘3 point belt’ means a seat belt which:

- restrains the upper and lower parts of the torso
- includes a lap belt
- is anchored at not less than three points, and
- is designed for use by an adult.

NOTE 3: Acceptable alternatives to any of the seat belt types listed are

- an adult harness belt comprising a lap belt and shoulder straps
- a passive 3 point seat belt.

NOTE 4: Outboard seats are seats closest to the vehicle sides.

NOTE 5: Rear facing seats (before 30th Sept 1999) or side facing seats are not required to be fitted with seat belts.

NOTE 6: Occasional seats that fold when not in use are not required to be fitted with seat belts. A front centre seat on which the backrest folds down to become a driver/passenger armrest is not considered to be an occasional seat and should meet the required criteria.

NOTE 7: In respect of Motor Ambulances, Motor Caravans and Hearses; only seats in the area to the rear of the driver's seated position intended for use when the vehicle is travelling on a road are required to be fitted with seat belts.

NOTE 8: A three point belt is required where, due to the seat position in relation to the windscreen, an upper anchorage is required.

NOTE 9: "Body" means a structure comprising one or more panels, with or without a roof that encloses the passenger compartment.

What needs to be recorded

- List all types of seat belts fitted.
- e/E marks.
- All inspection results.
- Calibration status of test equipment.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test

32. Title of Test:**Forward Vision**

Test Record Number: TR032

- The driver shall have a clear and un-obscured view of the road ahead and to the side.
- No vehicle shall have more than two A-pillars.
- There shall be no obstructions other than those created by A-pillars and/or vent window division bars, windscreen wipers and rear view mirrors.

What needs to be recorded

- Inspection results

What needs to be reported (including variations, uncertainties etc.)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test

33. Title of Test:**Identification of Controls**

This inspection is to ensure that any controls, Tell-tales and indicators fitted to the vehicle are readily identifiable.

In the case of unmodified Mass Produced vehicles the requirements in this section may be considered to be met.

- Where a control, tell-tail or indicator is combined, a common symbol may be used for such a combination.
- A control means that part of a device which enables the driver to bring about a change in the state or functioning of the vehicle.
- An indicator means a device which presents information on the functioning or situation of a system or part of a system. e.g., fluid level.
- A tell-tail means an optical signal which indicates the actuation of a device, correct or defective functioning or condition, or failure to function.
- Other controls, tell-tails and indicators may be marked provided there is no confusion with those marked in accordance with those on Table A or B.
- An Information Display Device is a device capable of displaying more than one type of message or information. The requirements regarding colour do not apply to tell-tails and indicators appearing on the Information Display Device.

Note: Tables A and B are for guidance only.

1. The Controls, Tell-tails and Indicators must be clearly identifiable so not to cause confusion.
2. They must be on or close to the controls, tell-tails and indicators.
3. They must stand out clearly from the background.

Information Display Device Fitted

4. It must be able to display simultaneously the warning symbols for Brake, Main beam and Direction Indicator.
5. It must provide the relevant information regarding tell – tales and indicators whenever the situation that causes them to operate arises.
6. Must repeat automatically in sequence or indicate in such a manner that it is visible to and identifiable to the driver when two or more messages are given.

Table A



































Control, Tell-tale or Indicator	Symbol	Colour	Control, Tell-tale or Indicator	Symbol	Colour	Control, Tell-tale or Indicator	Symbol	Colour
Master Light		Green	Direction Indicators		Green	Ventilating fan		
Dipped Beam Headlamps		Green	Hazard Warning		Red	Diesel Pre-heat		Yellow
Main Beam Headlamps		Blue	Windscreen Wiper		Contrast with background	Choke (cold starting device)		Yellow
Position (side) Lamps		Green	Windscreen Washer		Contrast with background	Brake Failure		Red
Front Fog lamps		Green	Windscreen Wiper and Washer		Contrast with background	Fuel Level		Yellow
Rear Fog Lamps		Yellow	Headlamp Cleaning Device (with separate operating control)		Contrast with background	Battery Charging Condition		Red
Headlamp Levelling device			Windscreen demisting and defrosting (when separate)		Yellow	Engine Coolant temperature		Red
Parking Lamps		Green	Rear Window demisting and defrosting (when separate)		Yellow			

Table B

Control, Tell-tale or Indicator	Symbol	Notes	Colour	Control, Tell-tale or Indicator	Symbol	Colour
Parking Brake		Where a single tell-tail indicates more than one brake system condition, except brake anti-lock system failure, the symbol for brake failure must be used.		Horn		
Bonnet		Outline only may be used.		Rear Window Wiper		
Boot		Outline only may be used.		Rear window Washer.		
Seat Belt		Outline only may be used.	Red	Rear Window Wiper and washer.		
Engine Oil Pressure			Red	Intermittent Windscreen wiper.		
Unleaded Petrol						

What needs to be recorded

-Inspection results

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Record all areas checked to ensure no area forgotten.

34. Title of Test:

Defrost / Demist

- Vehicles are fitted with a system/systems capable of defrosting and demisting the windscreen to allow the driver an adequate view of the road in front and forward of the nearside and offside of the vehicle.
- A system using warm air to clear the screen must employ fan assistance and ducting to direct the air onto the screen, to ensure effective operation under cold weather conditions.
- An electrically heated screen must provide adequate heat and distribution to ensure effective operation.

What needs to be recorded

- Description of Defrost / Demist system
- Fan assistance
- Ducting
- Electrically heated screens

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test

35. Title of Test:**Wash / Wipe**

Test Record Number: TR035

- The vehicle must be fitted with a windscreen washer and wiper system to give the driver an adequate view of the road.
- All front wipers must continue to move automatically over the swept area of the windscreen.
- All front wipers must have at least two sweep frequencies one of which must be of at least 45 cycles/min.
- Additional sweep frequencies must be of not less than 10 and not more than 55 cycles/minute.
- The difference between the highest and at least one of the lower sweep frequencies must be at least 15 cycles/minute.
- All front wipers must return automatically to a position of rest which is at or beyond the outer edge of the swept area.
- All front wipers must be capable of being lifted from the windscreen to allow for cleaning of the windscreen.
- The windscreen washer system must provide enough liquid to adequately clear the windscreen in conjunction with the wipers.
- The windscreen washer system must have a reservoir capacity of at least 1 litre.
- The windscreen washer system must be assessed to ensure that it is able to withstand the load applied when the nozzles are blocked and the system is operated for 3 – 5 seconds.

What needs to be recorded

- Description of Wash / Wipe system
- Wiper sweep frequencies
- Results of the above inspections
- Reservoir capacity

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test

36. Title of Test:**Heating Systems**

INSTALLATION

- There must be no obvious fire risk associated with the heating system (e.g flammable parts of the vehicle near to a source of heat or a likelihood of users placing objects liable to catch fire on a very hot surface).
- There must be no obvious injury risk associated with the heating system (e.g. likelihood of users touching a very hot surface or hot water pipes).
- If a combustion heater is fitted then it must be accompanied by documentary evidence
- It must be positioned so not likely to cause injury.
- A combustion heater utilizing a liquid or gaseous fuel must be fitted to the manufacturer's instructions.
- A combustion heater exhaust must be positioned so exhaust gases are not likely to enter the passenger compartment.

GENERAL REQUIREMENTS FOR HEATING SYSTEMS

- The general requirements for heating systems are that:
 - the heated air entering the passenger compartment shall be no more polluted than the air at the point of inlet to the vehicle,
 - the driver and passengers, during road use, will not be able to come into contact with parts of the vehicle or heated air liable to cause burns,
 - the exhaust emissions from combustion heaters are within acceptable limits.
- The following table indicates which tests apply to each type of heating system:

Heating System	Vehicle Category	Air Quality	Temperature	Exhaust	LPG Safety
Engine waste heat – water	M N O				
Engine waste heat – air See Note 1	M N O	x x	x x		
Engine waste heat – oil	M N O	x x	x x		
Gaseous fuel heater See Notes 2 and 3	M N O	x x x	x x x	x x x	x x x
Liquid fuel heater See Note 3	M N O	x x x	x x x	x x x	

Note 1: Vehicles which comply with the requirements of Annex III of EC Directive 2001/56/EC are exempt from these test requirements.

Note 2: A new Annex VIII 'Safety requirements for LPG combustion heaters' will be added to this Directive in accordance with Article 5.

Note 3: Combustion heaters located outside the passenger compartment, using water as a transfer medium, are deemed to comply with Annexes IV and V.

ANNEX III of EC Directive 2001/56/EC

REQUIREMENTS FOR WASTE HEATING SYSTEMS — AIR

- the walls of the primary circuit of the heat exchanger must be leak tight at any pressure up to

and including 2 bar;

- the walls of the primary circuit of the heat exchanger must not include any detachable component;
- the wall of the heat exchanger where the exchange of heat takes place must be at least 2 mm thick if made of non-alloy steels;
- in cases where other materials are used (including composite or coated materials), the thickness of the wall must be such as to ensure that the heat exchanger has the same service life as those made of non-alloy steels;
- if the wall of the heat exchanger where the exchange of heat takes place is enamelled, the wall where such enamel has been applied must be at least 1 mm thick and this enamel must be durable, leak tight and not porous;
- the pipe conducting the exhaust gases must include a corrosion test zone at least 30 mm long, this zone being situated directly downstream of the heat exchanger, uncovered and easily accessible;
- the wall of this corrosion test zone must not be thicker than the pipes for the exhaust gases situated inside the heat exchanger and the materials and surface properties of this section must be comparable with those of these pipes;
- if the heat exchanger forms a single unit with the vehicle exhaust silencer, the external wall of the latter must be regarded as the corrosion test zone where any corrosion should occur.
- In the case of waste heat heating systems using the cooling air of the engine for heating purposes, the general requirements for heating systems are considered satisfied without the use of a heat exchanger provided that the following conditions are satisfied:
 - the cooling air which is used for heating purposes comes into contact only with surfaces of the engine which do not include any detachable part, and
 - the connections between the walls of this cooling air circuit and the surfaces used for the transfer of heat are gastight and oil-resistant.

These conditions are considered satisfied if, for example:

- a sheath around each sparking plug draws off any gas leaks outside the heating air circuit;
- the joint between the cylinder head and the exhaust manifold is situated outside the heating air circuit;
- there is double leak protection between the cylinder head and the cylinder and any leaks from the first joint are drawn off outside the heating air circuit, or the leak protection between the cylinder head and the cylinder still holds when the cylinder head nuts are cold-tightened at one-third of the nominal torque prescribed by the manufacturer, or the area where the cylinder head is joined to the cylinder is situated outside the heating air circuit.

ANNEX IV of EC Directive 2001/56/EC
TEST PROCEDURE FOR AIR QUALITY

- In the case of complete vehicles the following test shall be carried out:
- Operate the heater for one hour at maximum output in conditions of still air (wind speed = 2 m/s), with all windows closed and, in the case of a combustion heater, the propulsion engine switched off. If, however, having selected the maximum output the heater switches off automatically in less than an hour, the measurements may be made before switch-off.
- The proportion of CO in the ambient air shall be measured by taking samples from:
 - (a) a point outside the vehicle as close as possible to the heating air inlet, and
 - (b) a point inside the vehicle less than 1 m from the heated air outlet.
- Readings shall be taken for a representative time of 10 minutes.
- The reading from position (b) shall be less than 20 ppm CO higher than from position (a).

ANNEX V of EC Directive 2001/56/EC
TEST PROCEDURE FOR TEMPERATURE

- Operate the heater for one hour at maximum output in conditions of still air (wind speed = 2 m/s), with all windows closed. If, however, having selected the maximum output the heater switches off automatically in less than an hour, the measurements may be made earlier. If the heated air is drawn from outside the vehicle the test shall be carried out at an ambient temperature of not less than 15°C.
- The surface temperature of any part of the heating system likely to come into contact with the driver of the vehicle during normal road use shall be measured with a contact thermometer. No such part or parts shall exceed a temperature of 70 °C for uncoated metal or 80 °C for other materials.
- In the case of part or parts of the heating system behind the driver's seat, and in the case of overheating, the temperature shall not exceed 110 °C.
- In the case of vehicles of categories M1 and N, no part of the system likely to come into contact with seated passengers during normal road use of the vehicle, with the exception of the outlet grille, shall exceed a temperature of 110 °C.
- In the case of vehicles of categories M2 and M3, no part of the system likely to come into contact with passengers during normal road use of the vehicle shall exceed a temperature of 70 °C for uncoated metal or 80 °C for other materials.
- The temperature of the heated air entering the passenger compartment shall not exceed 150 °C to be measured at the centre of the outlet.

ANNEX VI of EC Directive 2001/56/EC
TEST PROCEDURE FOR EXHAUST EMISSIONS

- Operate heater for one hour at maximum output in conditions of still air (wind speed = 2 m/s) and an ambient temperature of $20 \pm 10^{\circ}\text{C}$. If, however, having selected the maximum output the heater switches off automatically in less than an hour, the measurements may be made before switch-off.
- The dry and undiluted exhaust emissions, measured using an appropriate meter, shall not exceed the following values:

Parameter	Heaters using gaseous fuels	Heaters using liquid fuel
CO	$\leq 0.1 \text{ \% vol.}$	$\leq 0.1 \text{ \% vol.}$
NO _x	$\leq 200 \text{ ppm}$	$\leq 200 \text{ ppm}$
HC	$\leq 100 \text{ ppm}$	$\leq 100 \text{ ppm}$
Bacharach reference unit (*)	≤ 1	≤ 4
(*) Reference unit 'Bacharach' ASTM D 2156 is used.		

- The test shall be repeated in conditions equivalent to a vehicle speed of 100 km/h. Under these conditions the CO value must not exceed 0,2 % vol.

What needs to be recorded

- Description of Heating System.
- Results of the installation checks.
- Results of the General Requirements check.
- Results of any of the heating system tests carried out.
- All test results.
- Calibration status of test equipment.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test

37. Title of Test:

Wheel Guards

Test Record Number: TR037

1. GENERAL REQUIREMENTS

1.1. The motor vehicle must be provided with wheel guards (parts of the bodywork, mudguards, etc.).

1.2. The wheel guards must be so designed as to protect other road users, as far as possible, against thrown-up stones, mud, ice, snow and water and to reduce for those users the dangers due to contact with the moving wheels.

2. SPECIAL REQUIREMENTS

2.1 The wheel guards shall meet the following requirements when the vehicle is in running order and carrying one passenger in the front seat and the wheels are in the straight ahead position.'

2.1.1. In the part formed by radial planes at an angle of 30 to the front and 50 to the rear of the centre of the wheels (see Figure 1), the overall width (q) of the wheel guards shall be at least sufficient to cover the total tyre width (b) taking into account the extremes of tyre/wheel combination as specified by the manufacturer. In the case of twin wheels, the total width over the two tyres (t) shall be taken into account.

2.1.1.1. For the purposes of determining the widths referred to in 2.1.1, the labelling (marking) and decorations, protective bands or ribs on tyre walls are not taken into account.

2.1.2. The rear of the wheel guards must not terminate above a horizontal plane 150 mm above the axis of rotation of the wheels (as measured at the wheel centres) and furthermore the intersection of the edge of the wheel guard with this plane (point A, figure 1) must lie outside the median longitudinal plane of the tyre, or in the case of twin wheels the median longitudinal plane of the outermost tyre.

2.1.3. The contour and location of the wheel guards shall be such that they are as close to the tyre as possible ; and in particular within the part formed by the radial planes referred to in 2.1.1, they shall satisfy the following requirements:

2.1.3.1. the projection - situated in the vertical plane of the tyre axis - of the depth (p) of the outer edge of the wheel guards, measured in the vertical longitudinal plane passing through the centre of the tyre, must be at least 30 mm. This depth (p) may be reduced progressively to zero at the radial planes specified in 2.1.1;

2.1.3.2. the distance (c) between the lower edges of the wheel guards and the axis passing through the centre of the wheels must not exceed $2r$, "r" being the static radius of the tyre.

2.1.4. In the case of vehicles having adjustable suspension height, the abovementioned requirements must be met when the vehicle is in the normal running position specified by the vehicle manufacturer.

2.2. The wheel guards may consist of several components, provided no gaps exist between or within the individual parts when assembled.

2.3. The wheel guards must be firmly attached. However, they may be detachable either as a unit or in parts.

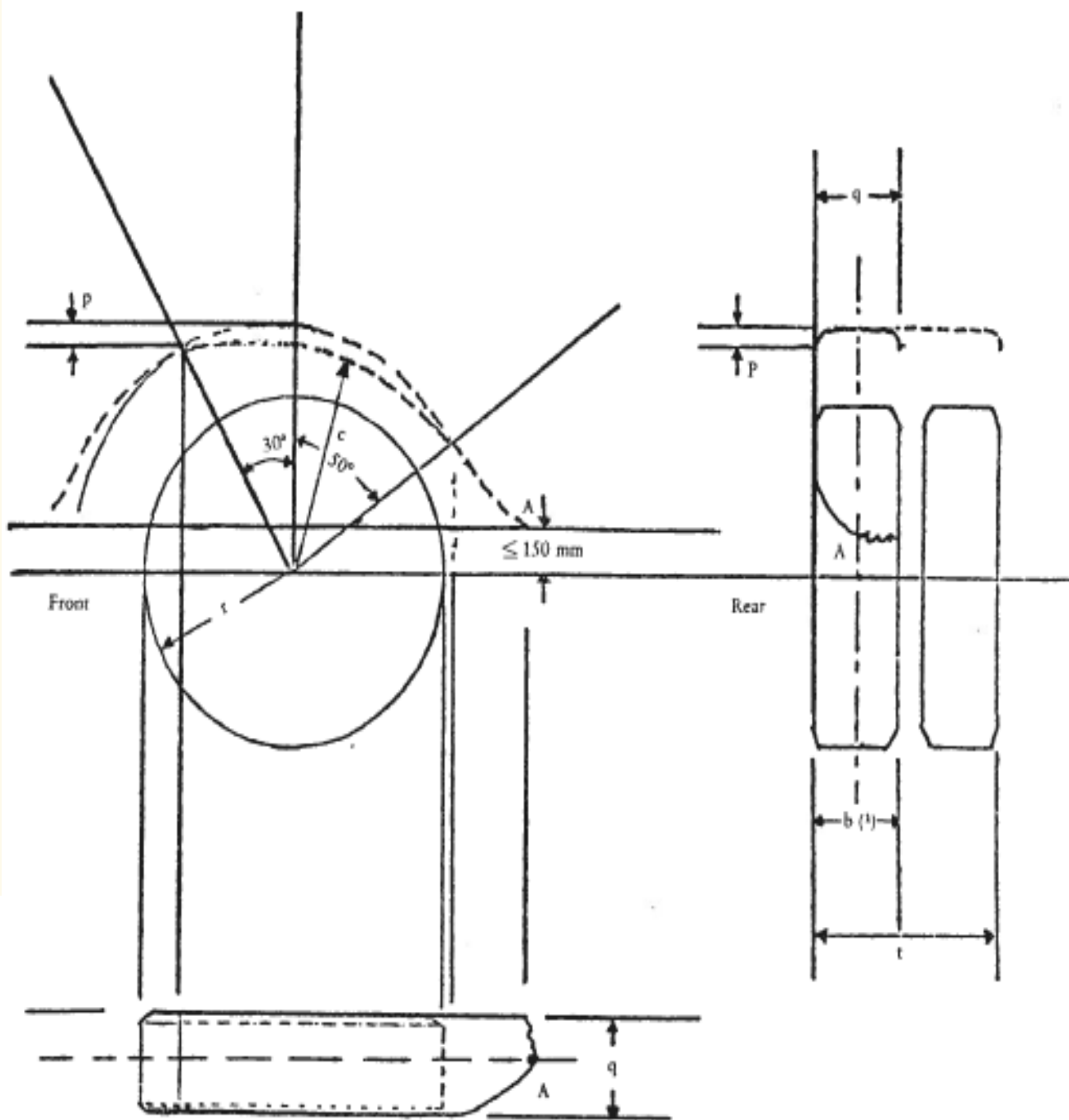


Figure 1

(1) The distance b is measured at the top of the tyre.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test

38. Title of Test:

Head Restraints

Test Record Number: TR038

No Alternatives or Variations to NSSTA.

Seats “e” / “E” approved which includes their head restraints, do not require testing to this item.

What needs to be recorded

- All test results, if applicable.
- Calibration status of test equipment, if applicable.
- Description of head restraint.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test

39. Title of Test:

CO₂ Emissions / Fuel Consumption

Test Record Number: TR039

No Alternatives or Variations to NSSTA.

Not applicable for Schedule 7 vehicles.

May accept validated test report from engine supplier or from another vehicle with proven equivalent characteristics.

- All test results, if applicable
- Calibration status of test equipment, if applicable.
- Validated test report.

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

Engine Power

- An engine power and maximum power speed shall be determined for each vehicle.
- Manufacturer's data is permitted.
- Chassis dynamometer check is permitted.

What needs to be recorded

- Description of vehicle
- Description of vehicle engine
- Engine power value from vehicle approval/test report/manufacture's declared values
- VIN
- Engine number

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test

41. Title of Test:**Diesel Emissions (Heavy Duty Emissions)**

Test Record Number: TR041

- No Alterations or Variations from NSSTA.
- Does not apply to vehicles approved under test item 2

What needs to be recorded

- All test results.
- Calibration status of test equipment.
- Engine temperature
- Fast and low idle speeds
- Visual inspection of emissions system – leaks not acceptable.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test

42. Title of Test:**Lateral Protection**

No Alterations or Variations from NSSTA.

Tests are not required where the device is designed to meet the strength characteristics specified in the NSSTA requirements.

Ensure that the vehicle conforms to the documentary evidence of compliance supplied. Check for any modifications that could invalidate the documentation which cannot be verified by an installation check

Performance of side guards

The performance of side guards must be confirmed by documentary evidence • a type approval or test report has been issued; or has been tested and witnessed by the Approval Authority.

- Calculations provided at the time of application have been submitted to the satisfaction of the Approval Authority.

Installation check:

Check that a side guard is fitted where required to the vehicle and is of adequate construction so as to provide effective protection to unprotected road users against the risk of falling under the sides of the vehicle and being caught under the wheels.

Note: The following parts, battery box, air tanks, fuel tanks, lamps, reflectors, spare wheels and tool boxes may be incorporated in the side guard as long as the dimensional requirements are met.

Characteristics of the side guard

Check that the device complies to the required dimensional standards and has no protruding parts

Note 1: If the sides of the vehicle are so designed and / or equipped that by their shape and characteristics meet the requirements of this section, they may be regarded as replacing the sideguards.

Note 2: The upper edge of the guard shall not be more than 350mm below that part of the structure of the vehicle, cut or contacted by a vertical plane tangential to the outer surface of the tyres, except in the following cases:

- Where the plane does not cut the structure of the vehicle, the upper edge shall be level with the surface of the load carrying platform OR
- 950mm from the ground, whichever is the less.
- Where the plane cuts the structure of the vehicle at a level more than 1.3m above the ground, then the upper edge of the side guard shall not be less than 950mm above the ground.

Note 3: Dome shaped bolt heads and rivets of less than 10mm in height are acceptable.

Note 4: Combinations of surfaces and rails shall be considered as a continuous side guard as long as the gaps between them are no greater than 25mm.

Note 5: If the vehicle cab is narrower than the body then the side guard must be angled to meet the cab.

If the guard complies with item **24, 25 or 26** then it does not have to comply with item **27, 28 or 29**.

Equipment fitted to the vehicle

Check that any equipment that is incorporated into the side guard area which takes on the role of the guard complies with the dimensional requirements and has no protruding parts.

1. There must be no modifications to the lateral protection system that could invalidate documentary evidence, unless the requirements can still be assured by an installation check.
2. The vehicle is accompanied by satisfactory evidence of compliance regarding the performance of the protective system.

3. A side guard device must be fitted to the vehicle (unless exempt).

Installation check:

4. A side guard device must be attached securely.
5. A side guard device must be constructed of a suitable material.
6. The side guard must have a ground clearance of 550 mm or less.
7. The side guard must be within 350 mm of the body line (see note 2).
8. The side guard must be no more than 120mm inboard from the outermost plane of the vehicle.
9. The side guard must consist of at least one horizontal rail.
10. If more than one horizontal rail is used, the rails must be not more than 300mm apart.
11. For N3 vehicles it must have a section height of at least 100 mm.
12. For N2 vehicles it must have a section height of at least 50 mm.
13. It must have a forward facing edge of at least 100 mm.
14. It must have a smooth or horizontally corrugated surface.
15. Any external edges and corners must be rounded with a radius of at least 2.5mm.
16. It must not increase the overall width of the vehicle.
17. The device must not be used for the attachment of air or hydraulic brake pipes.
18. There must be no projecting brackets or bolt heads (see note 3).
19. It must be continuous in length (see note 4).
20. The device must have the rearward edge of the guard extend to within 300mm of the tyre on the first rear axle.
21. The device must not have the rearward end more than 30mm inboard from the outermost edge of the rear tyres over at least the last 250mm of the guard.
22. The device must have the front edge of the guard within 300 mm from the rear of the tyre on the front wheel (or second wheel if two front axles are fitted).

Where the 300 mm dimension falls within or behind the vehicles cab then:

23. The guard must be constructed as to meet the cab.

24. Where required, it must be turned inwards through an angle of not more than 45 degrees (see note 5).

25. It must have a gap of 100 mm maximum between the guard and the cab panel for tilting or suspended cabs.

Where the forward edge lies in otherwise open space then it must consist of

26. A continuous vertical member extending over the whole height of the member.

27. The outer and forward faces must measure at least 50 mm rearward and be turned 100 mm inwards in the case of an N2 vehicle.

28. The outer and forward faces must measure at least 100 mm rearward and be turned 100 mm inwards in the case of an N3 vehicle.

Where equipment is incorporated into the side guard,

29. The device must have a smooth or horizontally corrugated outer surface.

30. Be substantially flat or horizontally corrugated.

31. There must not be a gap of more than 25 mm between it and the guard.

32. There must be no projecting brackets or hinges.

33. It must not have protruding bolt heads.

34. Any external edges and corners must be rounded with a radius of at least 2.5mm.

Adjacent parts may however overlap provided that:

35. They must have an overlapping edge that faces rearwards.

36. They must have an overlapping edge that faces downwards.

What needs to be recorded

-Inspection results

What needs to be reported (following format in ISO17025)

-All the above

-Vehicle identification (VIN etc), test series.

-Manufacturer details

-Personnel responsible for the test

43. Title of Test:

Spray suppression systems

Road wheels must have associated with them equipment or part of the body which, as far as is practicable, catches mud or water thrown up by the wheels as they rotate.

Check that the wing covers the whole width of the tyre especially where wide “Super Single” tyres are fitted to the front axle.

The spray suppression material must be of an approved type.

Mud flaps

If a mud flap is an extension to a wing or similar fitting, where a mud flap is fitted in place of a wing, i.e. it serves the purpose of a wing (as on some semi-trailers) it must be treated as a wing and be securely fixed to prevent excessive movement.

Spray Suppression

The test includes only a basic visual check for general compliance and it will normally not be necessary to take measurements.

Lifting axles

Where a vehicle is fitted with one or more lifting axles, the spray-suppression system must cover all the wheels when the axle is lowered and the remaining wheels which are in contact with the ground when the axle is raised.

Self-tracking axles

Where a vehicle is fitted with a self-tracking axle, the spray suppression system must satisfy the conditions applicable to non-steered wheels if mounted on the pivoting part. If not mounted on that part, it must satisfy the conditions that are applicable to steered wheels.

Note: Where the spray-suppression device meets the specifications relating to rain flaps no additional rain flap is required.

Note: In the case of single or multiple axles where the distance between the adjacent tyres is at least 250 mm. The valance should cover the area extending from the underside of the body to at least a line formed by the tangent to the top of the tyres and between the outer edge of the wheel flap, with which it should form a seal and the vertical plane formed by the tangent at the front of the tyre. An outer valance must be fitted over each wheel. The whole inner face of the outer valance, the depth of which should not be less than 100mm, must be fitted with a suppression material.

Component Check

1. Evidence must be supplied to demonstrate compliance with the approval of Spray Suppression Material.

Installation Check

Spray Suppression systems fitted with energy absorption spray suppression devices for axles fitted with non steered or self steering or steered wheels.

Mud Guards

2. The mudguards must cover the zone immediately above, ahead and behind the tyre or tyres see Figure 1 and 2.
3. The front edge of the mudguard must be no more than 20 degrees above the horizontal line of the axle (A on figure 1) (non steered axles).
4. The front edge of the mudguard must be no more than 30 degrees above the horizontal line of the axle (A on figure 1) (steered axles).
5. The rear edge of the mud guard must be no more than 100mm above the horizontal line of the axle (as in Figure 1 C).
6. The mudguard must cover at least the full width of the tyre or tyres.
7. Spray Suppression material must be fitted to the front face of the rear of the guard.
8. Where the wheel guard consists of several components there must be no gaps between or within individual parts when assembled that will permit the exit of spray when the vehicle is in motion.

Outer valance

9. In the case of steered and self-steered wheels, the distance between the tyre wall and the vertical face of the valance “C” must not exceed 100mm. see Figure 2.
10. In the case of non-steered wheels the distance between the tyre wall and the vertical face of the valance “C” must not exceed 75mm, see Figure 2.
11. The depth of the outer valance must extend to not less than 45mm, at all points behind a vertical line passing through the centre of the wheel see Figure 2.
12. The lower edge of the outer valance shall not exceed $1.5 \times$ tyre radius on steered wheel at points A,B and C as in Figure 4.
13. The lower edge of the outer valance shall not exceed $1.25 \times$ tyre radius on non-steered wheel at points A,B and C as in Figure 4.
14. There must be no openings in the outer valances or between the outer valances and other parts of the mud guard enabling spray to emerge when the vehicle is moving.

Rain Flaps

15. The rain flap must be at least the full width of the tyre/s.
16. The orientation of the flap must be basically vertical.

17. The maximum height of the bottom edge must be no more than 200 mm above the ground.
18. The flap must be no more than 300 mm from the rearmost edge of the tyre.
19. There must be no openings between the rain flap and the lower edge of the wheel guard enabling spray to emerge.
20. The whole face of the rain flap must be covered in spray suppression material.
21. In the case of multiple axles where distance between the tyres on adjacent axles is less than 250 mm, only the rear set of wheels must be fitted with rain flaps.
22. There must be a rain flap behind each wheel when distance between the tyres on adjacent axles is at least 250 mm.

Spray Suppression systems fitted with air / water separator spray suppression devices for axles fitted with steered and non steered wheels

Mud guard (items 2 - 8 must also be met)

23. In the case, of multiple axles where the distance between the tyres on adjacent axles does not exceed 300 mm the mudguards must also conform to the model shown in Figure 7.

Outer Valance

24. The lower edges of the outer valances must be fitted with air/water separator spray-suppression devices.
25. The depth of the outer valance must extend to not less than 45mm, at all points behind a vertical line passing through the centre of the wheel.
26. The lower edge of the outer valance shall not exceed $1.05 \times$ tyre radius on steered wheel Figure 7.
27. The lower edge of the outer valance shall not exceed $1.00 \times$ tyre radius on non-steered wheel Figure 7.
28. There must be no openings in the outer valances or between the outer valances and the mud guard enabling spray to emerge.

Rain Flap (standards 14, 15, 18, 20 & 21 must also be met)

29. A rain flap fitted with air / water separator must not be more than 200 mm from the rearmost edge of the tyre, measured horizontally.
30. The air / water separator spray-suppression device must be at least 100 mm deep when fitted to a rain flap.

Spray Suppression systems fitted with energy absorption spray suppression devices for axles fitted with non steered or self steering wheels that are covered by the bodywork, floor or the lower part of the load area

Mud Guards (standards 31& 32 not required if standards 2-8 & 23 are met)

31. Mud guards must cover the zone above the tyre or tyres from the front edge of the

tyre to the rain flap located behind the wheel see figure 5.

32. All the inner rear part of the mud guard must be fitted with a spray suppression device.

Outer Valance (standards 33- 36 not required if standards 9-14 & 24-28 are met)

33. In the case of multiple axles an outer valance must be located above each wheel.

34. The entire inner surface of the outer valance must be fitted with an energy absorption spray-suppression device which must be a minimum of 100mm high.

35. There must be no openings between the outer valances and the inner part of the mud guard enabling spray to emerge.

36. Where rain flaps are not fitted behind each wheel (see item 20), the outer valance must be unbroken between the outer edge of the rain flap to the vertical plane that is tangent to the point furthest to the front of the tyre (Figure 5) of the first axle.

Rain Flaps

37. These flaps must extend to the lower part of the mud guard and comply with standards 14 to 21.

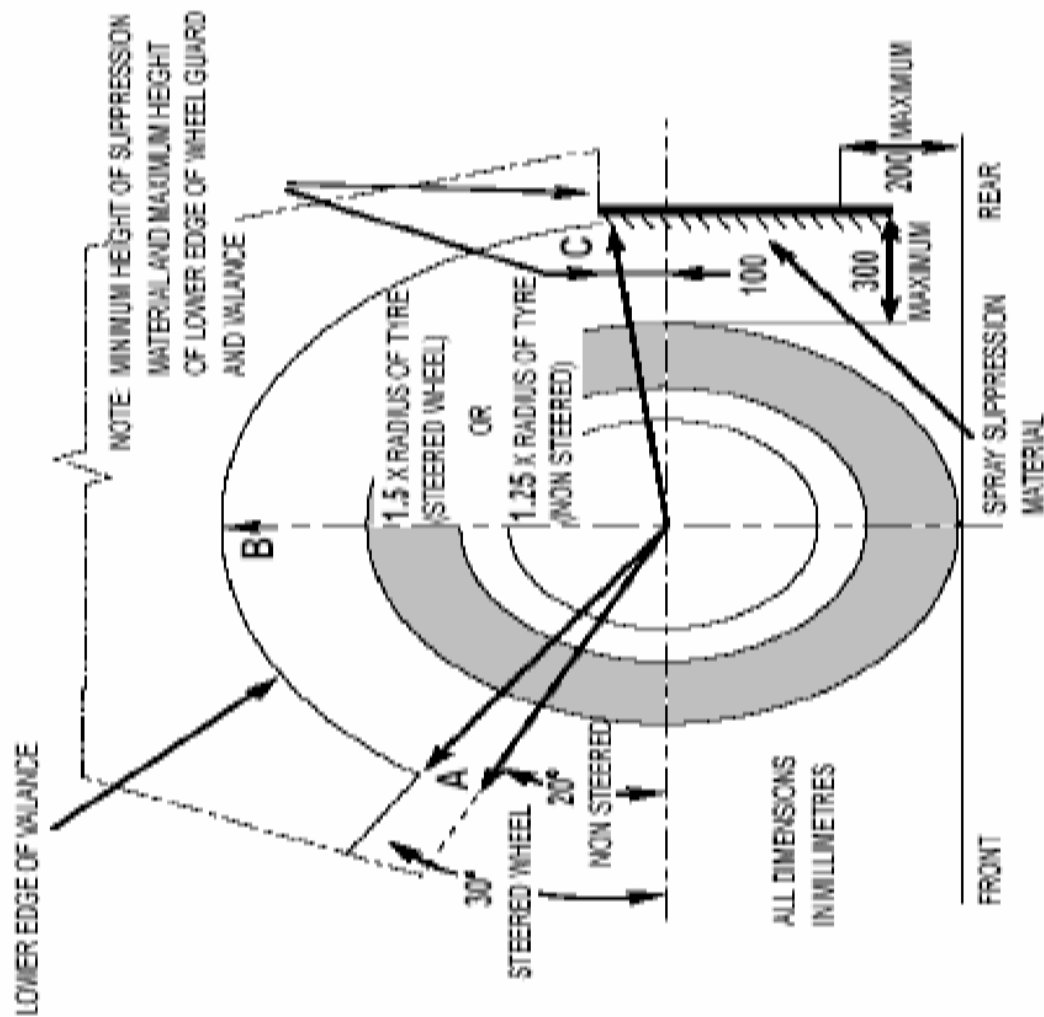


Figure 1

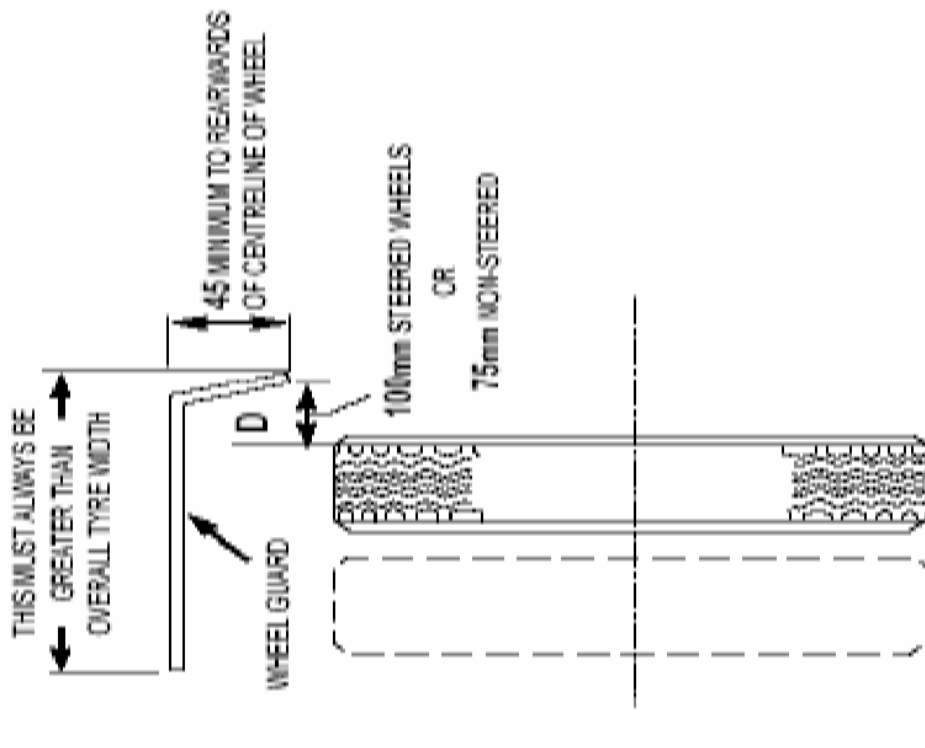


Figure 2

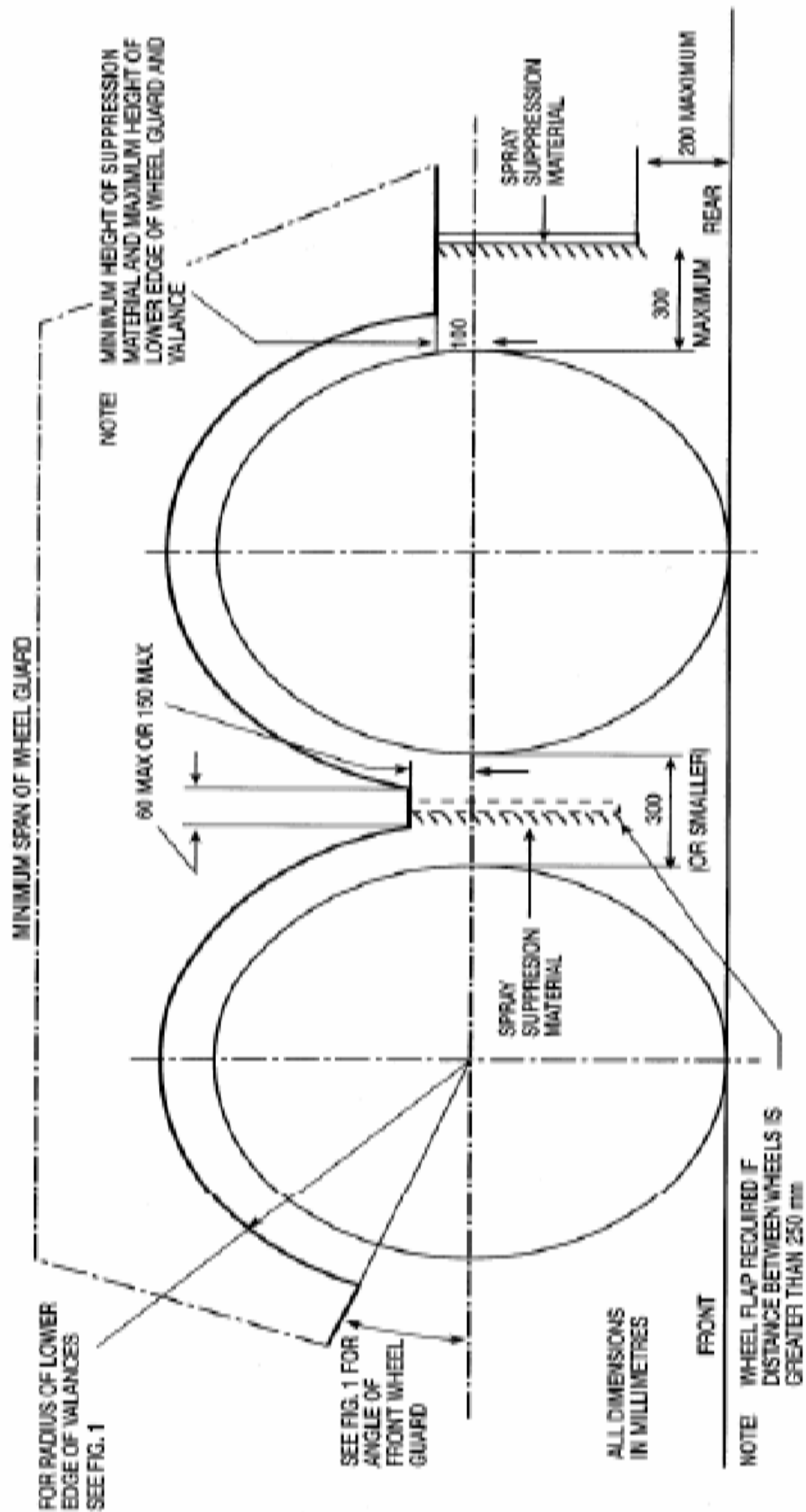


Fig. 3

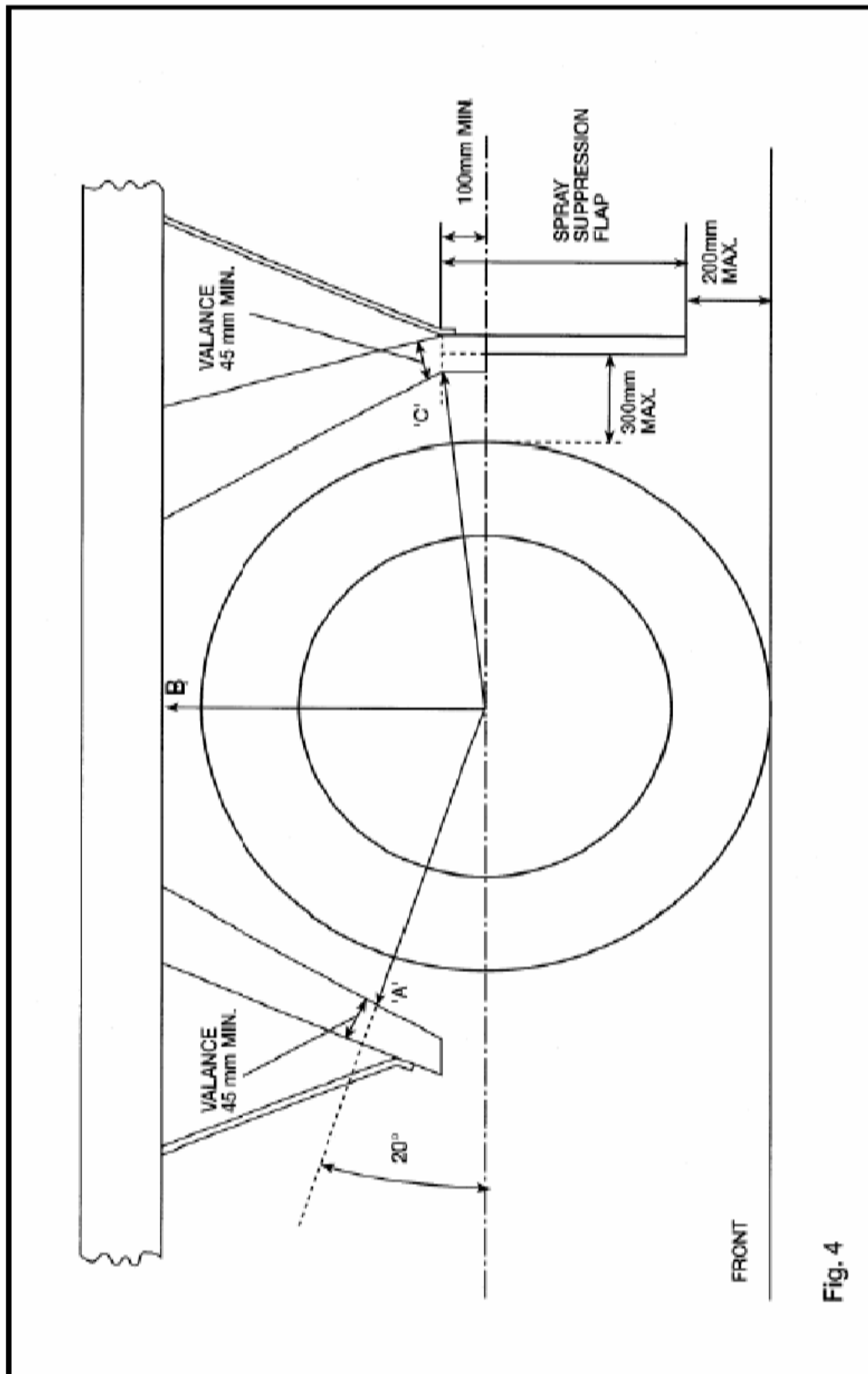


Fig. 4

The lower edge of the outer valance shall not exceed 1.5 x tyre radius on steerable wheels or 1.25 x tyre radius on non-steerable wheels at points A, B and C.

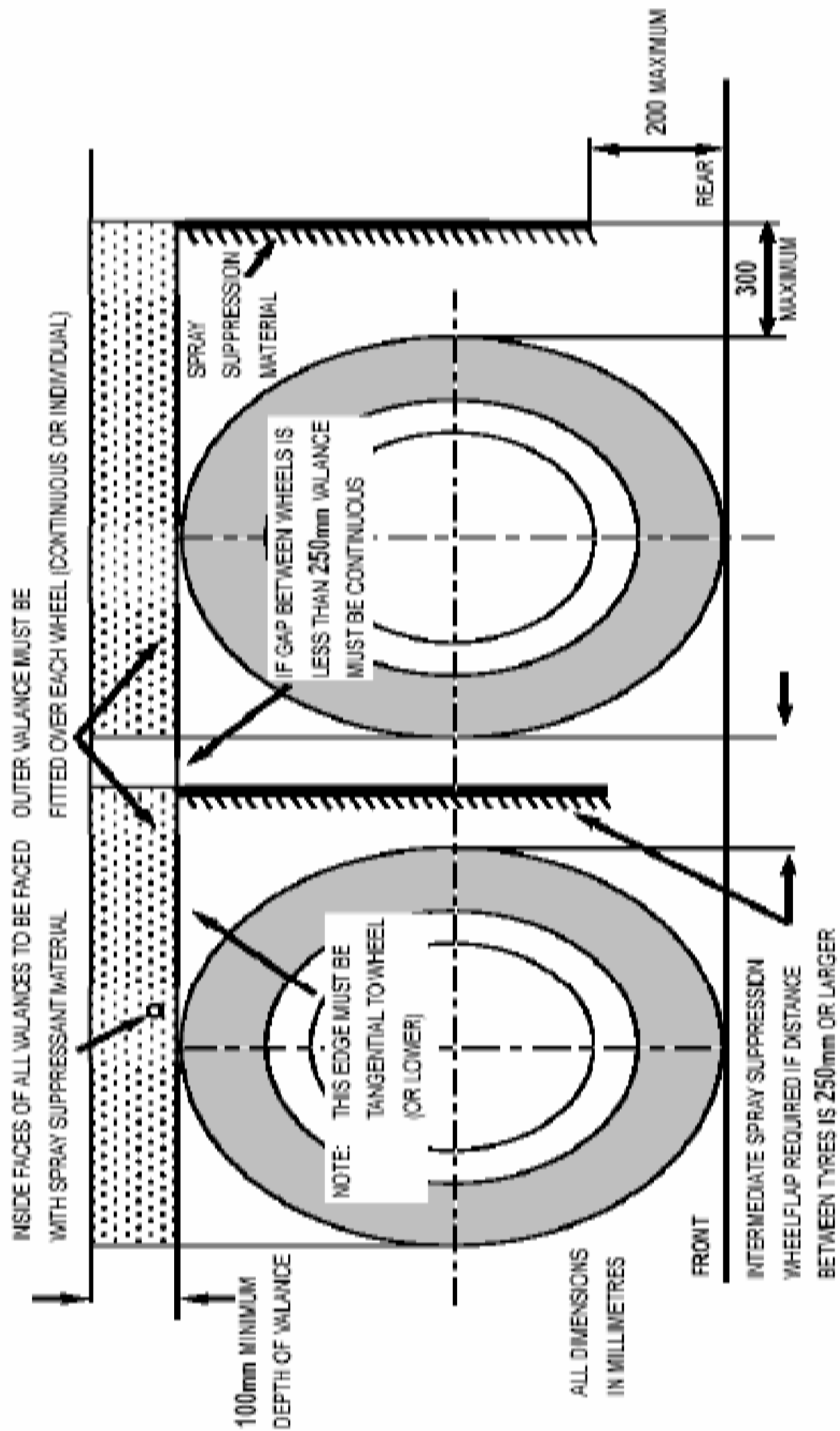
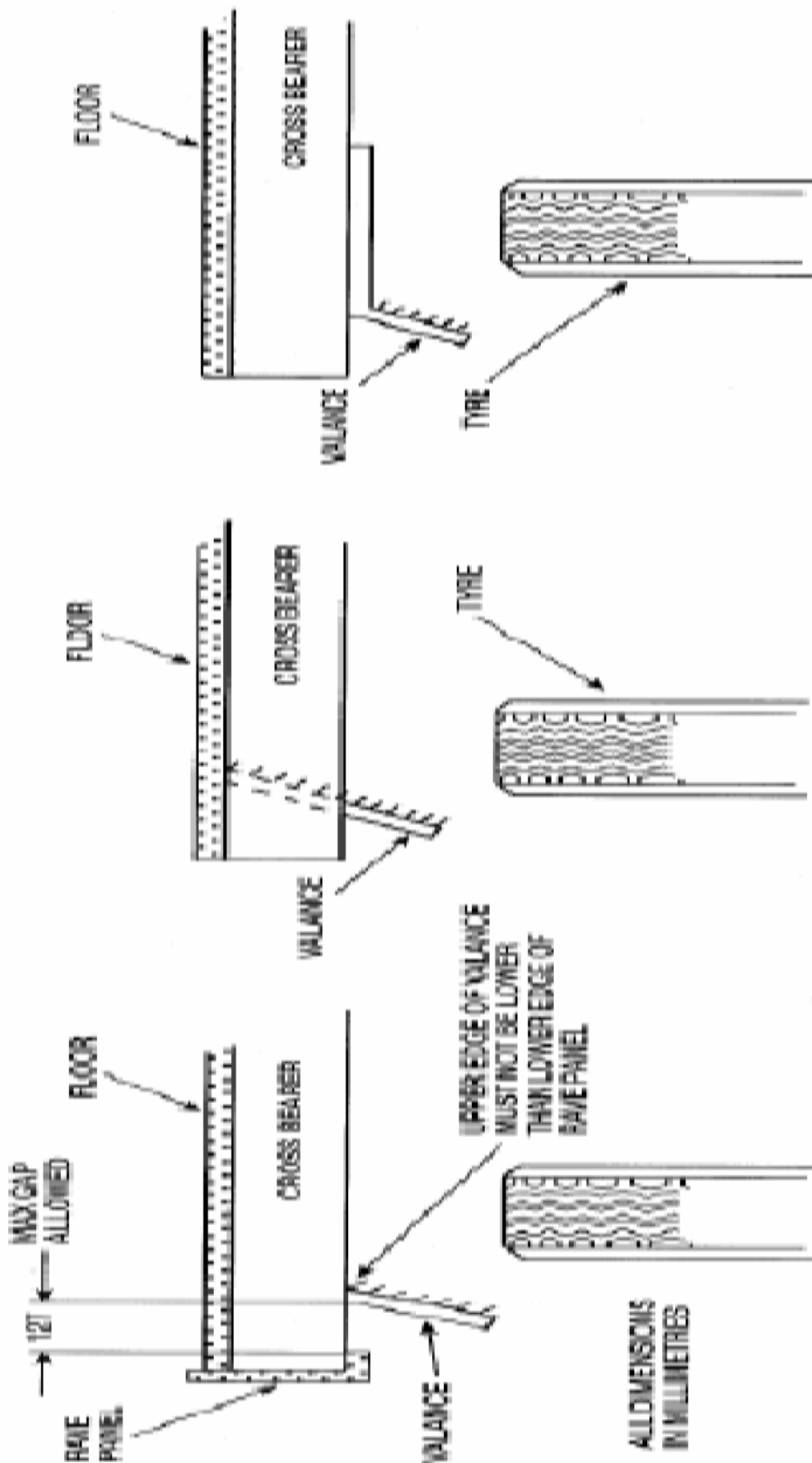


Figure 5



THIS ARRANGEMENT ALLOWS FOR
ROPE HOOKS TO BE FITTED

Fig. 5

44. Title of Test: Masses and Dimensions (passenger cars only) NOT APPLICABLE

- Check the vehicle is fitted with e or E marked components
- For vehicles with a maximum mass equal to or exceeding 2500kg the requirements according to the category of the base or incomplete vehicle or of the corresponding N category vehicle based on maximum mass may apply.
- Directive 92/22/EEC, Annex III, paragraph 2.1.1 and 2.1.2 (the windscreen is approved for the particular vehicle, and is correctly located with reference to the R point) do not apply provided that driver's forward vision is not distorted and that light transmission of at least 70% is maintained.

What needs to be recorded

- List of all e / E marks.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

46. Title of Test:**Tyres**

Test Record Number: TR046

- Inspection to check the vehicle is fitted with e or E marked tyres
- Inspection to check that all tyres (except those that are not accessible) are marked with the appropriate speed and load ratings for their particular axle locations and the intended use of the vehicle.
- In addition check to ensure that there is sufficient clearance laden and unladen including at maximum lock.
- Each tyre fitted must have the same structure (eg bias-belted, crossply or radial), nominal size and aspect ratio as any other tyre on the same axle.

For vehicles with a maximum mass equal to or exceeding 2500kg the requirements according to the category of the base or incomplete vehicle or of the corresponding N category vehicle based on maximum mass may apply.

What needs to be recorded

- All inspection checks

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

Annex 1 Speed Categories**TABLE 1**

For speeds not exceeding 130mph the maximum load rating shall not exceed the value associated with the load capacity index of the tyre.

TABLE 2

For speeds higher than 130mph, but not exceeding 149mph, (tyres classified with speed category symbol “V”) the maximum load rating shall not exceed the percentage of the value associated with the load capacity index of the tyre, indicated in the table below, with reference to the speed capability of the car to which the tyre is fitted.

TABLE 3

For speeds higher than 149mph, but not exceeding 168mph (tyres classified with speed category symbol “W”) the maximum load rating shall not exceed the percentage of the value associated with the load capacity index of the tyre, indicated in the table below, with reference to the speed capability of the car to which the tyre is fitted.

TABLE 4

For speeds higher than 168mph, but not exceeding 186mph (tyres classified with speed category symbol “Y”) the maximum load rating shall not exceed the percentage of the value associated with the load capacity index of the tyre, indicated in the table below, with reference to the speed capability of the car to which the tyre is fitted.

Table 1

Speed Category Symbol	Corresponding Speed	
	(km/h)	(mph)
L	120	75
M	130	81
N	140	87
P	150	93
Q	160	99
R	170	106
S	180	112
T	190	118
U	200	124
H	210	130
V	240	149 - see Table II
W	270	168 - see Table III
Y	300	186 - see Table IV

Table 2

Maximum Speed		Load (%)
(km/h)	(mph)	
215	134	98.5
220	137	97
225	140	95.5
230	143	94
235	146	92.5
240	149	91

Table 4

Maximum Speed		Load (%)
(km/h)	(mph)	
270	168	100
280	174	95
290	180	90
300	186	85

Table 3

Maximum Speed		Load (%)
(km/h)	(mph)	
240	149	100
250	155	95
260	162	90
270	168	85

Annex 3 Tyre Capacity Tables (Load Index Tyres)

Load Index	Single Kg	Twin Kg	Load Index	Single Kg	Twin Kg	Load Index	Single Kg	Twin Kg
70	670	1340	107	1950	3900	144	5600	11200
71	690	1380	108	2000	4000	145	5800	11600
72	710	1420	109	2060	4120	146	6000	12000
73	730	1460	110	2120	4240	147	6150	12300
74	750	1500	111	2180	4360	148	6300	12600
75	774	1548	112	2240	4480	149	6500	13000
76	800	1600	113	2300	4600	150	6700	13400
77	824	1648	114	2360	4720	151	6900	13800
78	850	1700	115	2430	4860	152	7100	14200
79	874	1748	116	2500	5000	153	7300	14600
80	900	1800	117	2570	5140	154	7500	15000
81	924	1848	118	2640	5280	155	7750	15500
82	950	1900	119	2720	5440	156	8000	16000
83	974	1948	120	2800	5600	157	8250	16500
84	1000	2000	121	2900	5800	158	8500	17000
85	1030	2060	122	3000	6000	159	8750	17500
86	1060	2120	123	3100	6200	160	9000	18000
87	1090	2180	124	3200	6400	161	9250	18500
88	1120	2240	125	3300	6600	162	9500	19000
89	1160	2320	126	3400	6800	163	9750	19500
90	1200	2400	127	3500	7000	164	10000	20000
91	1230	2460	128	3600	7200	165	10300	20600
92	1260	2520	129	3700	7400	166	10600	21200
93	1300	2600	130	3800	7600	167	10900	21800
94	1340	2680	131	3900	7800	168	11200	22400
95	1380	2760	132	4000	8000	169	11600	23200
96	1420	2840	133	4120	8240	170	12000	24000
97	1460	2920	134	4240	8480	171	12300	24600
98	1500	3000	135	4360	8720	172	12600	25200
99	1550	3100	136	4480	8960	173	13000	26000
101	1600	3200	137	4600	9200	174	13400	26800
101	1650	3300	138	4720	9440	175	13800	27600
102	1700	3400	139	4860	9720	176	14200	28400
103	1750	3500	140	5000	10000	177	14600	29200
104	1800	3600	141	5150	10300	178	15000	30000
105	1850	3700	142	5300	10600	179	15500	31000
106	1900	3800	143	5450	10900			

47. Title of Test:**Speed Limiters**

Test Record Number: TR047

- No Alternatives or Variations to NSSTA.
- Check the vehicle is fitted with “e” or “E” marked speed limiter.

What needs to be recorded

- Speed limiter “e” or “E” marking.
- Set limiter plaque.
- Set speed.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

48. Title of Test:**Masses and Dimensions (vehicles other than passenger cars)**

2.4. “Vehicle dimensions” means the dimensions of the vehicle based on its construction, as stated by the manufacturer.

2.4.1. “Vehicle length” is a dimension which is measured according to ISO standard 612-1978, term No 6.1.

In addition to the provisions of that standard, when measuring the vehicle length the following devices must not be taken into account:

- wiper and washer devices,
- front or rear marking plates,
- customs sealing devices and their protection,
- devices for securing the tarpaulin and their protection,
- lighting equipment,
- rear-view mirrors,
- rear-space watching aids,
- air-intake pipes,
- length stops for demountable bodies,
- access steps,
- ram rubbers,
- lifting platforms, access ramps and similar equipment in running order, not exceeding 200 mm, provided that the loading capacity of the vehicle is not increased,
- coupling devices for motor vehicles.

2.4.2. 'Vehicle width' is a dimension which is measured according to ISO standard 612-1978, term No 6.2.

In addition to the provisions of that standard, when measuring the vehicle width the following devices must not be taken into account:

- customs sealing devices and their protection,
- devices for securing the tarpaulin and their protection,
- tyre failure tell-tale devices,
- protruding flexible parts of a spray-suppression system
- lighting equipment,
- for vehicles of categories M2 and M3, access ramps in running order, lifting platforms and similar equipment in running order provided that they do not exceed 10 mm from the side of the vehicle and the

corners of the ramps facing forwards or rearwards are rounded to a radius of not less than 5 mm; the edges must be rounded to a radius of not less than 2,5 mm,

- rear-view mirrors,
- tyre-pressure indicators,
- retractable steps,
- the deflected part of the tyre walls immediately above the point of contact with the ground.

2.4.3. 'Vehicle height' is a dimension which is measured according to ISO standard 612-1978, term No 6.3.

In addition to the provisions of that standard, when measuring the vehicle height the following devices must not be taken into account:

- aerials,
- pantographs in their elevated position.

For vehicles with an axle-lift device, the effect of this device must be taken into account.

2.4.4. 'Length of the loading area' of a vehicle other than a semi-trailer, tractor or semi-trailer means the distance from the foremost external point of the loading area to the rearmost external point of the vehicle, measured horizontally in the longitudinal plane of the vehicle.

The distance is to be measured not taking into account:

- the loading area forward of the rearmost point of the cabin,
- the devices mentioned in 2.4.1, or
- protruding cooling units and other auxiliaries situated forward of the loading area.

3. Criteria for the categorisation of vehicles in Category N

3.1. The categorisation of a vehicle type in category N shall be based on the technical features of the vehicle as referred to in points 3.2 to 3.6.

3.2. As a matter of principle, the compartment(s) where all the seating positions are located shall be completely separated from the loading area.

3.3. By way of derogation from the requirements of point 3.2, persons and goods may be transported in the same compartment under the condition that the loading area is provided with securing devices designed to protect persons transported against the displacement of the load during driving, including severe braking and cornering.

3.4. Securing devices - lashing devices - intended for securing the load as required in point 3.3 as well as partitioning systems, intended for vehicles up to 7,5 tonnes shall be designed in accordance with the provisions of Sections 3 and 4 of Standard ISO 27956:2009 'Road vehicles – Securing of cargo in delivery vans – Requirements and test methods'.

3.4.1. The requirements referred to in point 3.4 may be verified by a statement of compliance provided by the manufacturer.

3.4.2. As an alternative to the requirements of point 3.4, the manufacturer may demonstrate to the

satisfaction of the approval authority that the securing devices fitted show an equivalent level of protection as provided in the referred standard.

3.5. The number of seating positions excluding the driver's seating position shall not exceed: (a) 6 in the case of N1 vehicles; (b) 8 in the case of N2 or N3 vehicles.

3.6. Vehicles shall show a goods-carrying capacity equal or higher than the person-carrying capacity expressed in kg.

3.6.1. For such purposes, the following equations shall be satisfied in all configurations, in particular when all seating positions are occupied:

(a) when $N = 0$: $P - M \geq 100 \text{ kg}$

(b) when $0 < N \leq 2$: $P - (M + N \times 68) \geq 150 \text{ kg}$;

(c) when $N > 2$: $P - (M + N \times 68) \geq N \times 68$;

where the letters have the following meaning:

'P' is the technically permissible maximum laden mass;

'M' is the mass in running order;

'N' is the number of seating positions excluding the driver's seating position.

3.6.2. The mass of equipment that is fitted to the vehicle in order to accommodate goods (e.g. tank, bodywork, etc.), to handle goods (e.g. crane, lift, etc.) and to secure goods (e.g. cargo securing devices) shall be included in M. The mass of equipment that is not used for the purposes referred to above (such as a compressor, a winch, an electric power generator, broadcasting equipment, etc.) shall not be included in M for the purposes of the application of the above formulae.

3.8. Criteria for the categorisation of vehicles as N1.

3.8.1. A vehicle shall be categorised as N1 when all the applicable criteria are met. When one or more of the criteria are not met, the vehicle shall be categorised as M1.

3.8.2. In addition to the general criteria referred to in points 3.2 to 3.6, the criteria specified in points 3.8.2.1 to 3.8.2.3.5 shall be met for the categorisation of vehicles for which the compartment where the driver is located and the load are within a single unit (i.e. bodywork 'BB').

3.8.2.1. The fact that a wall or a partition, complete or partial, is fitted between a seat row and the cargo area shall not rule out the obligation to meet the required criteria.

3.8.2.2. The criteria shall be as follows:

(a) the loading of the goods shall be possible by a rear door, a tailgate or a side-door designed and constructed for that purposes;

(b) in the case of a rear door or a tailgate, the loading aperture shall meet the following requirements:

(i) in the case the vehicle is fitted with only one row of seats or with only the driver seat, the minimum height of the loading aperture shall be at least 600 mm;

(ii) in the case the vehicle is fitted with two or more rows of seats, the minimum height of the

loading aperture shall be at least 800 mm and the aperture shall show a surface of at least 12 800 cm² ;

(c) The cargo area shall meet the following requirements: '*cargo area*' means the part of the vehicle located behind the row(s) of seats or behind the driver seat when the vehicle is fitted with only one driver seat;

(i) the loading surface of the cargo area shall be generally flat;

(ii) where the vehicle is fitted with only one row of seats or with one seat, the minimum length of the cargo area shall be at least 40 % of the wheelbase;

(iii) where the vehicle is fitted with two or more rows of seats, the minimum length of the cargo area shall be at least 30 % of the wheelbase. Where the seats of the last row of seats can be easily removed from the vehicle without the use of special tools, the requirements regarding the length of the cargo area shall be met with all the seats installed in the vehicle;

(iv) the requirements regarding the length of the cargo area shall be met when the seats of the first row or of the last row, as the case may be, are upright in their normal position for use by the vehicle occupants.

3.8.2.3. Specific conditions for measurement

3.8.2.3.1. Definitions

(a) '*Height of the loading aperture*', means the vertical distance between two horizontal planes tangent respectively to the highest point of the lower part of the doorway and the lowest point of the upper part of the doorway;

(b) '*surface of the loading aperture*' means the greatest surface of the orthogonal projection on a vertical plane, perpendicular to the centreline of the vehicle, of the maximum aperture permitted when the rear door(s) or tailgate is (are) wide open;

(c) '*wheelbase*', for the purposes of application of the formulae in points 3.8.2.2 and 3.8.3.1, means the distance between:

(i) the centreline of the front axle and the centreline of the second axle in the case of a two axle vehicle; or

(ii) the centreline of the front axle and the centreline of a virtual axle equally distant from the second and third axle in the case of a three axle vehicle.

3.8.2.3.2. Seat adjustments

(a) the seats shall be adjusted at their rear outermost positions;

(b) the seat back, if adjustable, shall be adjusted to accommodate a torso angle of 25 degrees;

(c) the seat back, if not adjustable, shall be in the position designed by the vehicle manufacturer;

(d) when the seat is adjustable in height, it shall be adjusted to its lowest position.

3.8.2.3.3. Vehicle conditions

(a) the vehicle shall be in loaded conditions corresponding to its maximum mass;

(b) the vehicle shall be with its wheels straight ahead.

3.8.2.3.4. The requirements of point 3.8.2.3.2 shall not apply when the vehicle is fitted with a wall or a partition.

3.8.2.3.5. Measurement of the length of the cargo area

- (a) When the vehicle is not fitted with a partition or a wall, the length shall be measured from a vertical plane tangent to the rear outermost point of the top of the seat back to the rear internal pane or door or tailgate, in closed position;
- (b) when the vehicle is fitted with a partition or a wall, the length shall be measured from a vertical plane tangent to the rear outermost point of the partition or the wall to the rear internal pane or door or tailgate, as the case may be, in closed position;
- (c) the requirements concerning the length shall be fulfilled at least along an horizontal line situated in the longitudinal vertical plane passing through the centreline of the vehicle, at the level of the load floor.

3.8.3. In addition to the general criteria referred to in points 3.2 to 3.6, the criteria specified in points 3.8.3.1 to 3.8.3.4 shall be met for the categorisation of vehicles for which the compartment where the driver is located and the load are not within a single unit (i.e. bodywork 'BE').

3.8.3.1. Where the vehicle is fitted with an enclosure type body, the following shall apply:

- (a) the loading of the goods shall be possible by a rear door, a tailgate or a panel or other means;
- (b) the minimum height of the loading aperture shall be at least 800 mm and the aperture shall show a surface of at least 12 800 cm² ;
- (c) The minimum length of the cargo area shall be at least 40 % of the wheelbase.

3.8.3.2. Where the vehicle is fitted with an open type cargo area, only the provisions referred to in points 3.8.3.1(a) and (c) shall apply.

3.8.3.3. For the application of the provisions referred to in point 3.8.3, the definitions in point 3.8.2 shall apply *mutatis mutandis*.

3.8.3.4. However, the requirements concerning the length of the cargo area shall be fulfilled along a horizontal line situated in the longitudinal plane passing through the centreline of the vehicle at the level of the load floor.

Rear Overhang:

Single axle trailer: rear overhang is the distance between a vertical plane at right angles to such axis passing through the centre point of the rear axle and a vertical plane at right angles to such axis passing through the rearmost point of the vehicle, not including any ladder, devices for securing tarpaulin, lighting equipment, ram rubbers, etc.

3 or more axle trailer: rear overhang is the distance between a vertical plane at right angles to such axis passing through the centre point of a straight line joining the centre points of the rear and second rearmost axles and a vertical plane at right angles to such axis passing through the rearmost point of the vehicle, not including any ladder, devices for securing tarpaulin, lighting equipment, ram rubbers, etc.

7. REQUIREMENTS

7.1. Measurement of the mass of the vehicle in running order and of its distribution among the axles

The mass of the vehicle in running order and its distribution on the axles are measured on the vehicles placed in a stationary position with their wheels set straight ahead.

If the measured masses differ by no more than 3 % from the masses stated by the manufacturer for the corresponding technical configurations within the type, or by no more than 5 % if the vehicle is of category M2 not exceeding 3,5 t, the masses in running order and their distribution among the axles as stated by the manufacturer are used for the purpose of the requirements below. Otherwise the measured masses must be used.

7.2. Measurement of dimensions

Measurement of the overall length, width and height is carried out in accordance with the provisions of 2.4 on the vehicle in running order.

If the measured dimensions differ from those stated by the manufacturer for the corresponding technical configurations within the type, the measured dimensions are used for the purpose of the requirements below.

7.3. Maximum authorized dimensions for vehicles

7.3.1. Maximum length

7.3.1.1. Motor vehicle: as per section 1.1 of Annex I to Directive 96/53/EC.

7.3.2. Maximum width

7.3.2.1. Any vehicle: as per section 1.2 of Annex I to Directive 96/53/EC.

7.3.3. Maximum height

7.3.3.1. Any vehicle: as per section 1.3 of Annex I to Directive 96/53/EC.

7.4. Mass distribution calculations

7.4.1. Calculation procedure

7.4.1.3. In the following requirements, the notations M , m_i , μ_j , T_M , and M_C respectively designate the following parameters, for which the requirements of 7.4 must be fulfilled:

M = the technically permissible maximum laden mass of the vehicle,

m_i = the technically permissible maximum mass on the axle designated 'i', where 'i' varies from 1 to the total number of axles of the vehicle,

μ_j = the technically permissible maximum mass on the solo axle or group of axles designated 'j', where 'j' varies from 1 to the total number of solo axles and groups of axles,

T_M = the technically permissible maximum towable mass, and

M_C = the technically permissible maximum laden mass of the combination.

7.4.2. Requirements for vehicles of categories N and O, except trailer caravans

7.4.2.1. The sum of the masses m_i must not be less than the mass M .

7.4.2.2. For each group of axles designated 'j', the sum of the masses m_i on its axles must not be less

than the mass μ_j . In addition, each of the masses m_i must not be less than the part of μ_j applying on the axle 'i' as determined by the mass distribution laws for that group of axles.

7.4.2.3. The sum of the masses μ_j must not be less than the mass M.

7.4.2.4. The mass in running order, plus the mass corresponding to 75 kg multiplied by the number of passengers, plus the technically permissible maximum mass on the coupling point, must not exceed the mass M.

7.4.2.5. When the vehicle is laden to its mass M according to any one of the relevant situations described in 7.4.2.5.1 to 7.4.2.5.3, the mass corresponding to the load on the axle 'i' must not exceed the mass m_i on that axle, and the mass corresponding to the load on the solo axle or group of axles 'j' must not exceed the mass μ_j . Moreover, the mass corresponding to the load on the driving axle or the sum of the masses corresponding to the loads on the driving axles must be at least 25 % of M.

7.4.2.5.1. Towed vehicles and motor vehicles other than towing vehicles:

7.4.2.5.1.1. Uniform distribution of mass in the case of complete or completed vehicles with the exception of those referred to in 7.4.2.5.1.2: the vehicle in running order with a mass of 75 kg positioned on every passenger seat is laden to its mass M, the payload being uniformly distributed on the area designed for the transportation of goods.

7.4.2.5.1.2. Extreme distribution of mass (non-uniform load) in the case of vehicles either incomplete or intended for a special purpose involving the carriage of only non-uniformly distributed loads: the manufacturer must state the extreme permissible possible positions of the centre of gravity of the payload and/or body and/or equipment or interior fittings (for instance: from 0,50 m to 1,30 m in front of the first rear axle). The verification must be carried out in such a way as to cover all the possible positions of this centre of gravity, the vehicle in running order with a mass of 75 kg positioned on every passenger seat being laden to its mass M.

7.4.2.5.2. Trailer towing vehicles (road tractors) and lorries also intended to tow a centre-axle trailer.

7.4.2.5.2.1. The same calculations as per 7.4.2.5.1.1 in the case of complete or completed vehicles other than special purpose vehicles, or 7.4.2.5.1.2 in the case of incomplete or special purpose vehicles, are carried out in all those of the following possible scenarios which are relevant:

(a) without any load on the coupling point (except, for road tractors, that corresponding to the mass of the coupling device if fitted by the manufacturer, which is included in the mass in running order in accordance with 2.5);

(b) a load corresponding to the maximum mass of the coupling device stated by the manufacturer, if he does not fit the coupling device, being applied on to the coupling point (and deducted from the payload);

(c) a load corresponding to the technically permissible maximum mass on the coupling point being applied on to the coupling point (and deducted from the payload).

7.4.4. Requirements for vehicles of category M2 or M3 other than buses and coaches, and for trailer caravans

The requirements of 7.4.2.1 to 7.4.2.4 and of 7.4.2.7 apply. In addition, when the incomplete vehicle is laden to its mass M according to the situation described in 7.4.2.5.1.2, or when the complete or completed vehicle in running order is laden to its mass M as described in the Appendix to Annex II to Council Directive 92/21/EEC (2), the mass corresponding to the load on each axle must not exceed the

mass m_i on this axle, and the mass corresponding to the load on each solo axle or on the group of axles must not exceed the mass μ_j on this group of axles. Moreover, the mass corresponding to the load on the driving axle or the sum of the masses corresponding to the loads on the driving axles must be at least 25 % of M.

7.5. Conditions to be verified for the classification of a vehicle as an off-road vehicle (Annex II, section 4 of Directive 70/156/EEC)

7.5.1. The technical service must verify if the complete or completed vehicle, or the semi-trailer towing vehicle (semi-trailer tractor) without fifth wheel is to be considered as an off-road vehicle according to the requirements laid down in Annex II to Directive 70/156/EEC.

7.5.2. For other incomplete vehicles, this verification is carried out only at the request of the manufacturer.

7.6. Manoeuvrability

7.6.1. Any motor vehicle and any semi-trailer must be able to manoeuvre on either side for a complete circular trajectory of 360 ° inside an area defined by two concentric circles, the outer circle having a radius of 12,50 m and the inner circle having a radius of 5,30 m, without any of the vehicle's outermost points (with the exception of the protruding parts prescribed for the vehicle width in 2.4.2) projecting outside the circumferences of the circles.

For motor vehicles and semi-trailers with axle-lift device (see 2.14) this requirement also applies with the axle(s) in the lifted position (within the meaning of 2.14).

The abovementioned requirements must be verified as follows:

7.6.1.1. Motor vehicles

The outermost front point of the motor vehicle must be guided along the contour of the outer circle (see figure A).

7.6.2. Additional requirements for vehicles of categories M2 or M3

When the vehicle is stationary and has its steered wheels so directed that if the vehicle moved, its outermost forward point would describe a circle of 12,50 m radius, a vertical plane tangential to the side of the vehicle which faces outwards from the circle must be established by marking a line on the ground. In the case of an articulated vehicle of category M2 or M3, the two rigid portions must be aligned with the plane.

When the vehicle moves forward on either side following the circle of 12,50 m radius, no part of it may move outside the vertical plane by more than 0,80 m (see figure B) in the case of a rigid vehicle or by more than 1,20 m (see figure C) in the case of an articulated vehicle of category M2 or M3.

For vehicles with an axle-lift device this requirement also applies with the axle(s) in the lifted position.

7.6.3. The requirements of 7.6.1 and 7.6.2 may also be verified, at the request of the manufacturer, with an appropriate equivalent calculation or geometric demonstration.

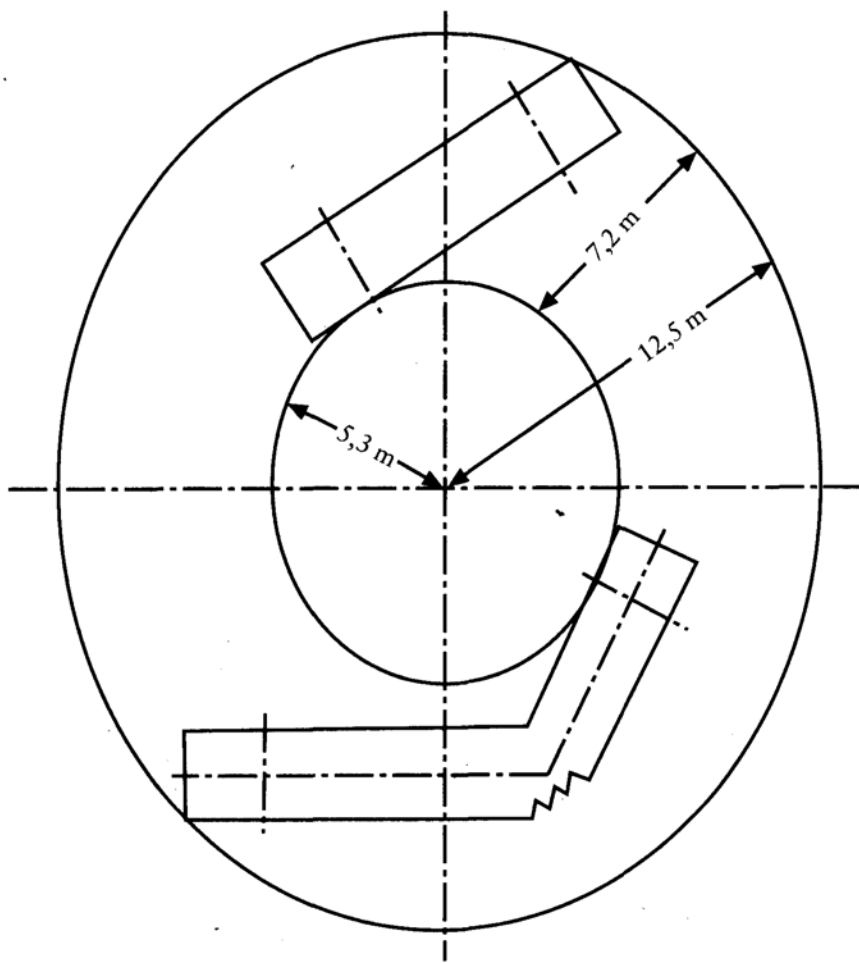


Figure A

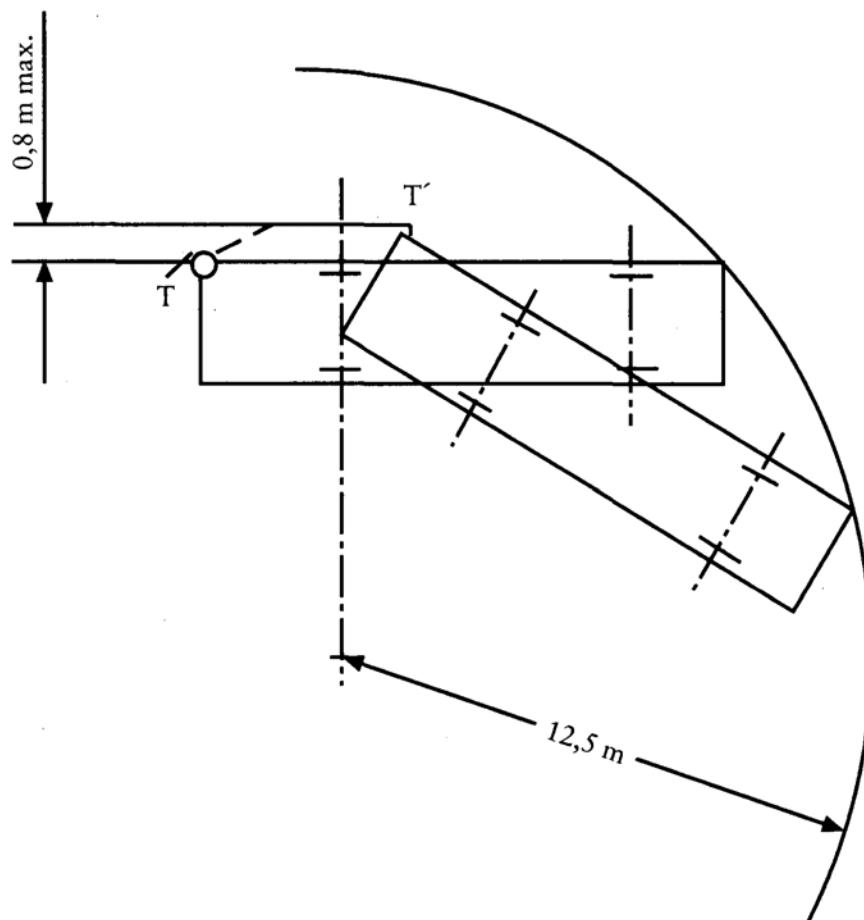


Figure B

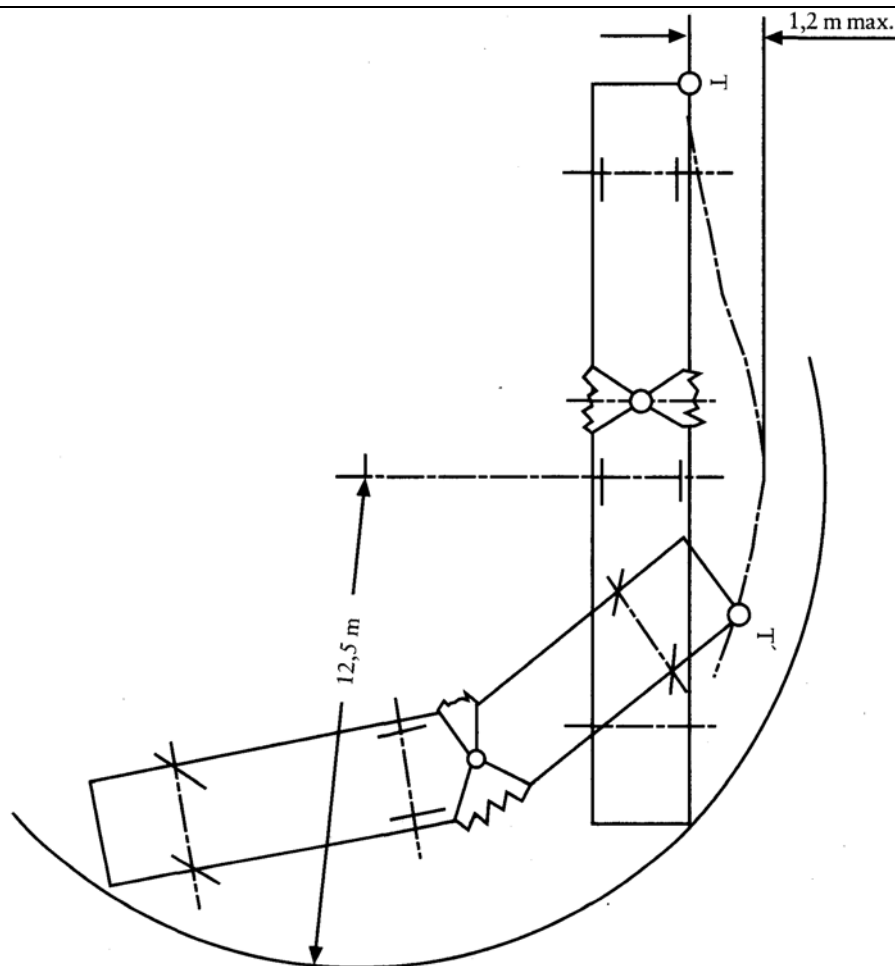


Figure C

7.7. Additional requirements for motor vehicles of categories M2 and M3

The technically permissible maximum towable mass must not exceed 3 500 kg.

7.9. Hill-starting ability

Motor vehicles towing a trailer and laden to their technically permissible maximum laden mass of the combination, must be capable of starting five times within five minutes at an up-hill gradient of at least 12 %.

What needs to be recorded

- Overall dimensions (length, width, height).
- Mass distribution.
- Manoeuvrability.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

49. Title of Test:

External Projections of Cabs

Test Record Number: TR049

No Alternatives or Variations from NSSTA.

Does not apply to category M vehicles.

The purpose of these provisions is to reduce the risk or seriousness of bodily injury to a person hit by the bodywork or brushing against it in the event of a collision. This is valid both when the vehicle is stationary and in motion.

A vehicle cab is defined as that part of the bodywork which constitutes the driver and passenger compartment, including the doors.

The external projections requirements for N category vehicles (Goods carrying vehicles) apply only to the cab of the vehicle within the following defined boundaries:

- From the 'floor line' or 'reference plane' to a height of 2 metres above the 'Floor line'
- To the rear of the cab of the vehicle (with the exception of the rear panel itself).

FLOOR LINE is defined as:

When a vertical-axis cone of undetermined height having its side at an angle of 30° to the vertical is moved about the external surface of the loaded vehicle so as to remain in contact with the external surface of the body at its lowest point, the floor line is the trace of the points of contact. In determining the floor line, no account is taken of the exhaust pipes or wheels, or of mechanical features attached to the under-body such as jacking points, suspension mounting or attachments for use in towing or in case of breakdown. In the spaces at the outside of wheel arches an imaginary surface extending the adjacent external surfaces without change of position is assumed. The front bumpers are taken into account in determining the floor line. Depending on the type of vehicles, the trace of the floor line may be at either the lower outer edge of the bumper profile or at the body panel below the bumper. Where there are two or more points of contact at the same time, the lowest point of contact is used to determine the floor line.

OR

A 'reference plane' means a horizontal plane passing through the centre of the front wheels or a horizontal plane situated at the height of 50 cm above the ground, whichever is lower. This plane is defined for the laden state of the vehicle.

REAR OF CAB is defined as:

Cab rear panel means the rearmost part of the external surface of the driver and passenger compartment. Where it is not possible to determine the position of the rear cab panel it would be deemed to be the vertical transversal plane situated 50 cm to the rear of the R point of the drivers seat, with the drivers seat, if adjustable, located at its rearmost driving position. If the cab is fitted with more than one row of seats, the rearmost passenger seat in its rearmost position has to be taken into account for the definition of the rear cab panel. These requirements do not apply to exterior rear view mirrors, including their supports, or to the accessories such as aerials and luggage racks. (The materials and radii will have been assessed when the components have themselves been Type Approved and 'e' marked).

Radius of curvature:

means the radius of the arc of a circle which comes closest to the rounded form of the component under consideration.

Laden vehicle:

means the vehicle at its technically permissible maximum laden mass and the distribution of this mass among the axles as stated by the manufacturer.

METHOD OF DETERMINING THE DIMENSIONS OF THE PROJECTION OF A PART FITTED ON THE EXTERNAL SURFACE

The dimensions of the projection of a part mounted on a convex panel may be determined either directly or by reference to a drawing of an appropriate section of the part in the fitted position. If the projection of a part mounted on a panel other than convex cannot be determined by simple measurement, it is determined by the maximum variation in the distance between the reference line of the panel and the centre of a sphere of 100 mm diameter when the sphere is moved in constant contact with the part. For grab handles the projection is measured in relation to a plane passing through the

points of attachment.

METHOD OF DETERMINING THE PROJECTION OF HEADLAMP VISORS AND RIMS

The projection from the outer surface of the headlamp is measured horizontally from the point of contact of a sphere of 100 mm diameter.

METHOD OF DETERMINING THE DISTANCE BETWEEN PARTS OF A GRILLE

The distance between parts of a grille is the distance between two planes passing through the points of contact of the sphere and perpendicular to the line joining the points of contact.

Requirements

1. Ornaments, commercial symbols, letters and numbers of commercial markings, which project more than 10mm from the surrounding surface must retract, become detached or bend over when a maximum load of 10kgf is applied, and leave a base or mounting that does not protrude from the surface by more than 10mm and have no pointed, sharp or cutting edges.
2. Projecting headlamp visors and rims are permitted on headlamps provided that their projection as measured in relation to the external transparent surface of the headlamp does not exceed 30mm and the radius of curvature is at least 2.5mm throughout. Retracting headlamps must meet the requirements in both operative and retracted positions. This does not apply to headlamps recessed into the body or where the headlamp is overhung by the body provided the bodywork meets the requirements.
3. Parts of grilles must exhibit a radius of curvature of:
 - a. not less than 2.5 mm if the distance between adjacent parts is more than 40 mm,
 - b. not less than 1 mm if the distance is between 25 and 40 mm,
 - c. not less than 0.5 mm if the distance is less than 25 mm.
4. Windscreen and Headlamp cleaning devices must be such that the wiper shafts have a protective covering with a radius of curvature of not less than 2.5 mm and a surface area of not less than 150 mm².
5. Nozzles for windscreen washer and headlamp cleaning devices must have a radius of curvature of not less than 2.5 mm. Those protruding less than 5 mm must have blunted outward facing edges.

6. The ends of front protective devices (bumpers) must be turned in towards the external surface of the body.

7. The components of the bumpers must be so designed that all rigid surfaces facing outwards have a radius of curvature of not less than 5 mm.

8. Equipment such as towing hitches and winches must not protrude beyond the foremost surface of the bumper. However, winches may protrude beyond the foremost surface of the bumper provided they are covered when not in use by a suitable protective covering having a radius of curvature of not less than 2.5 mm.

9. The requirements of standard 9 do not apply to parts of the bumper or parts mounted on or inset in the bumper which project less than 5 mm. The edges of devices projecting less than 5 mm must be blunted.

10. Handles, hinges, pushbuttons or doors, luggage compartments, bonnets, vents, access flaps and grab handles must not protrude more than: 30 mm in the case of pushbuttons, 70 mm in the case of grab handles and bonnet fasteners, and 50 mm in all other cases. They must have radii of curvature of not less than 2.5 mm.

11. If lateral door handles rotate to operate, they must meet one or other of the following requirements:

- a. in the case of handles which rotate parallel to the plane of the door the open end of handles must be directed towards the rear. The end of such handles must be turned back towards the plane of the door fitted into a protective surround or be recessed,
- b. Handles which pivot outwards in any direction which are not parallel to the plane of the door must, when in the closed position, be enclosed in a protective surround or be recessed. The open end must face either rearwards or downwards.

12. Nevertheless, handles which do not comply with this condition may be accepted if:

- a. they have an independent return mechanism,
- b. should the return mechanisms fail, they cannot project more than 15 mm,
- c. they, in such opened position, have a radius of curvature not less than 2.5 mm (this requirement does not apply if in maximum opened position the projection is less than 5 mm, in which case the angles of the parts facing outwards must be blunted),
- d. their end surface area, when measured not more than 6.5 mm from the point projecting furthest, is not less than 150 mm².

13. The edges of running boards and steps must be rounded.

14. The edges on lateral air and rain deflectors and window anti-smear air deflectors, capable of being directed outwards must have a radius of curvature of not less than 1 mm.

15. Sheet metal edges are permitted provided that the edge is folded back towards the body so that it cannot be touched by a sphere of 100mm diameter or is provided with a protective covering having a radius of not less than 2.5 mm.

16. The wheel nuts, hub caps and protective devices must not exhibit any fin-shaped projections.

17. The upper half of a wheel must not protrude beyond the cab body plan form (disregarding tyres).

18. Protective device(s) with a radius of curvature of at least 5mm must be fitted to wheel securing bolts, nuts or hubs if they protrude beyond the upper half of the tyre surface. The protective devices which cover wheel nuts and hubs may project beyond the body plan by no more than 30 mm.

19. A jacking bracket must not project beyond the floor line or the vertical projection of the intersection of the reference plane with the external surface of the vehicle lying directly above it by more than 10mm.

20. An exhaust tailpipe must not project beyond the floor line or the vertical projection of the intersection of the reference plane with the external surface of the vehicle lying directly above it by more than 10mm, unless it terminates in a radius of curvature of at least 2.5mm.

What needs to be recorded

-Inspection results

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

50. Title of Test:

Couplings

Test Record Number: TR050

- Where no coupling is installed, or in the case of the tow ball type, the equipment installed does not include a tow ball, no test is necessary.
- Check for the correct 'e' or "E" markings and that the coupling device is installed correctly in accordance with the manufacturer's instructions.
- Check the security of the coupling ball and towing bracket paying particular attention to:
 - The number and grade of securing bolts required.
 - Whether appropriate reinforcement or load spreader plates are fitted.
 - Manufacturers installation instructions
 - The coupling ball must not be mounted so as to obscure the place or visibility of the rear

licence plate. If it is mounted in this area, then a coupling ball that can be dismantled without special tools must be used.

- Check installation height of the coupling and that there is sufficient clearance around it to enable safe operation.
- Any tow ball fitted must be 50mm diameter.
- The coupling device must bear an 'e' or 'E' mark to ensure the construction of the coupling device meets the appropriate approval criteria.
- The coupling device(s) must be securely mounted to the vehicle so as to withstand the loads likely to be imposed on it.
- The coupling ball and /or towing bracket must be installed to the correct height and clearance dimensions (So as to enable coupling at angles, and free space for safe operation there should be a minimum of 30 deg clearance either side of the centre point, 10 deg up and down, and 10 deg axial rotation) see figure 1
- If a coupling device is fitted then the vehicle must be provided with a Gross Train Weight, which must satisfy the requirements of Test Item 48.



Figure 1

What needs to be recorded

-Inspection results

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

Applies to M3 Class III vehicles	
-Inspection to confirm by examination that all materials are either marked as having an “e” or “E” mark or, if this is not possible, documentary evidence (eg. approval certificate, test report)	
	What needs to be recorded
-Results of inspections.	
	What needs to be reported (following format in ISO17025)
-All the above	
-Vehicle identification (VIN etc), test series.	
-Manufacturer details	
-Personnel responsible for the test	
-Attach evidence of compliance	
-Record all areas checked to ensure no area forgotten.	

Check the vehicle complies with the Technical requirements of provisions of Directive 2001/85/EC, section 7 of Annex I including references to Annex III, IV, V, VI and VIII or UN/ECE regulation 107.02

including

Accessibility for vehicles of Class I:

The technical provisions of Directive 2001/85/EC Annex VII and Section 8.

Vehicles other than Class I:

If equipped with devices for people with reduced mobility and/or wheelchairs, shall comply with the relevant requirements of Annex VII.

Optional accessibility approval for vehicles of Class II or III:

The technical provisions of Directive 2001/85/EC Annex VII and Section 8.

or

Vehicles of Class I, II or III :

- (i) May as an alternative to the table in Directive 2001/85/EC, Annex I, paragraph 7.6.1.1. meet the requirements of table 1.

- (ii) May as an alternative to the table in Directive 2001/85/EC, Annex 1, paragraph 7.6.1.4 meet the requirements of table 2.

- (iii) As an alternative to the table in Directive 2001/85/EC, Annex VIII, paragraph 7.6.1.1 meet the requirements of table 3.

- (iv) As an alternative to the table in Directive 2001/85/EC, Annex VIII paragraph 7.6.1.4 meet the requirements of table 4.

- (v) As an alternative to Directive 2001/85/EC, Annex VIII, paragraph 7.6.1.14 the upper deck gangway shall be connected by one or more intercommunication staircases to the access passageway of a service door or to the lower deck gangway within 3m of a service door.

Vehicles of Class A or B: As an alternative to Directive 2001/85/EC, Annex I, paragraph 7.11.3.1 a vehicle may be fitted with handrails or handholds on at least one side and in the case of double doors this requirement may be met by a central stanchion or handrail.

Vehicles of Class I:

As an alternative to column 2, paragraph 2, may comply with Sections 5, 6 and 8.

Vehicles of Class II or III:

- (a) As an alternative to column 2, paragraph 3, may comply with the relevant requirements of sections 5, 6 or 7 as appropriate to the class of vehicle.

- (b) As an alternative to column 2, paragraph 4, may comply with the Sections 5, 8, and Section 6 or 7, as appropriate to the class of vehicle.

Vehicles of Class A or B:

As an alternative to Directive 2001/85/EC, Annex VII paragraphs 3.6 to 3.8, may comply with the relevant provisions of section 9.

Requirements that are not compatible with the intended use do not apply to the following vehicles:

Vehicles for the secure transport of persons,

Vehicles designed for use by police, security and armed forces,

Vehicles containing seating for use only while the vehicle is stationary.

What needs to be recorded

-Results of inspections.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

Table 1 GB requirement for minimum number of exits in each separate compartment

This table may be used as an alternative to Table 7.6.1.1 in Annex 1 of EC Directive 2001/85/EC

Number of Passengers	Number of Service Doors		
	Class I and A	Class II	Class III and B
9 - 45	1	1	1
46 - 70	2	1	1
71 - 100	2*	2	1
>100	2*	2*	1

Note * Indicates where the requirement differs from 2001/85/EC

Table 2 GB requirement for, Minimum number of exits in each separate compartment

This table may be used as an alternative to Table 7.6.1.4 in Annex 1 of EC Directive 2001/85/EC

Number of passengers and crew to be accommodated in each compartment	Minimum total number of exits
1 – 8	2
9 – 16	3
17 – 30	4
31 -45	5
46 – 60	6
61 – 75	6*
76 – 90	6*
91 – 110	6*
111 – 130	6*
>130	6*

Note * Indicates where the requirement differs from 2001/85/EC

Table 3 GB requirement for minimum number of exits in each separate compartment
This table may be used as an alternative to Table 7.6.1.1 in Annex VIII of EC Directive 2001/85/EC.

Number of Passengers	Number of Service Doors on a Double-deck vehicle		
	Class I and A	Class II	Class III and B
9 – 45	1	1	1
46 – 70	2	1	1
71 – 100	2*	2	1
>100	2*	2*	1

Note * Indicates where the requirement differs from 2001/85/EC

Table 4 Minimum number of exits in each separate compartment
This table may be used as an alternative to Table 7.6.1.4 in Annex VIII of EC Directive 2001/85/EC.

Number of passengers and crew per compartment to be accommodated in each compartment or deck	Minimum total number of emergency exits
1 - 8	2
9 - 16	3
17 - 30	4
31 - 45	5
46 - 60	6
61 - 75	6*
76 - 90	6*
91 - 110	6*
111 - 130	6*
>130	6*

Note * Indicates where the requirement differs from 2001/85/EC

Test Record Number: TR053

Not applicable for Schedule 7 Vehicles.

No Alternatives or Variations to NSSTA

What needs to be recorded

- All test results.
- Calibration status of test equipment.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

54. Title of Test:

Side Impact

Not applicable for Schedule 7 Vehicles.

No Alternatives or Variations to NSSTA

What needs to be recorded

- All test results.
- Calibration status of test equipment.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

55. Title of Test: *Blank*

56. Title of Test: **Vehicles intended for the transport of dangerous goods (ADR)**

57. Title of Test:

Front Underrun Protection

Test Record Number: TR057

Ensure that the vehicle or device as presented conforms to the documentary evidence of compliance

supplied. Check for any modifications that could invalidate any documentation and where the standards required cannot be verified by an installation check Ensure that an approved device is fitted and that it complies with the installation requirements found in items 2 – 7.

Note: N2 category vehicles not exceeding 7.5t maximum mass shall be deemed to meet the requirements for front under run protection if:

- the ground clearance at the front of the vehicle does not exceed 400mm between two points set at not more than 200mm inwards from the outer edge of the tyre on each side and
- outside these points the height may increase towards the outside of the vehicle at an angle of not more than 15 degrees from the horizontal.

Requirements

1. The vehicle or device must be accompanied by satisfactory evidence of compliance with the required standard for “Front Under Run Protection” with no modifications that could invalidate the documentation, which can be verified by an installation check.

Installation Check

2. The device must be attached securely to the vehicle.
3. The device must have a ground clearance not exceeding 400 mm.
4. The device must not extend beyond the width of the front axle.
5. The device must be no shorter than the width of the front axle by more than 100 mm on either side.
6. The device must be no shorter than the outermost point of the access steps of the drivers cabin by more than 200 mm on either side.
7. The device must not bend to the front to meet the requirement of standard 5 or 6.

What needs to be recorded

-Inspection results

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.

58. Title of Test:

Pedestrian Protection

Test Record Number: TR058

Not applicable for Schedule 7 Vehicles.

No Alternatives or Variations to NSSTA

What needs to be recorded

- All test results.
- Calibration status of test equipment.

What needs to be reported (following format in ISO17025)

- All the above
- Vehicle identification (VIN etc), test series.
- Manufacturer details
- Personnel responsible for the test
- Attach evidence of compliance
- Record all areas checked to ensure no area forgotten.