

DOCUMENT IDENTIFICATION NUMBER



Individual Vehicle Approval (IVA) Manual for Vehicle Categories **M2** and **M3** (Bus and Coach)

*An executive agency of the
Department for
Transport*

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Version Control

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52Z	Access for Passengers with Reduced Mobility	29/10/2010	4
	General Construction	29/07/2009	2
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Time bound concessions to required standards

Section Number	Section Title	End Date	Details	Notes
52Z	Access for Passengers with Reduced Mobility	29 th Oct 2012	<p>RS20: For each wheelchair user provided for in the passenger compartment there must be a special area at least 750 mm wide and 1,300 mm long. The longitudinal plane of the special area must be parallel to the longitudinal plane of the vehicle and the floor surface of the special area must be slip-resistant and the maximum slope in any direction shall not exceed 5 per cent.</p> <p>We will not be applying the maximum slope criteria</p>	NONE

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Foreword

This Manual is a detailed guide on the inspection of vehicles submitted to an authorised inspection site under the Individual Vehicle Approval (IVA) scheme.

It is produced for the examiners who carry out the inspections and for vehicle presenters and other interested parties who wish to familiarise themselves with the technical requirements and inspection procedures.

Application

The IVA scheme is one of three routes for a road vehicle to gain approval and thereby obtain licensing and registration in UK.

The IVA route is open to vehicles falling under the following categories:

M1, M2, M3,
N1, N2, N3
O1, O2, O3, O4

This manual covers solely the IVA technical requirements for vehicles of the following categories:

- M2** Vehicles used for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum weight not exceeding 5 metric tons.
- M3** Vehicles used for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum weight exceeding 5 metric tons.

For information on other vehicle categories, the following VOSA IVA inspection manuals should be consulted.

- The Light Vehicle IVA Inspection Manual for vehicle category M1
- The Light Goods Vehicle IVA Inspection Manual for vehicle category N1
- The Heavy vehicle IVA Inspection Manual for vehicle categories N2 and N3
- The Trailer IVA Inspection Manual for vehicle categories O1, O2, O3 and O4

Obligatory Individual Approval Certificates

The IVA scheme is one of three routes for a road vehicle to gain approval and thereby obtain licensing and registration in UK. For M2 and M3 category vehicles the other two routes are: European Whole Vehicle Type Approval (ECWVTA) and National Small Series Type Approval (NSSTA). Refer to the Road Vehicles (Approval) Regulations 2009 (SI 2009 No. 717) for more information

Approval to any of these routes is optional from 29 April 2009, and will be accepted as an alternative to COIF (Certificate of Initial Fitness) for vehicles intended to be used to carry paying passengers (hire and reward). From 29 October 2010, new M2/M3 vehicles built in a single stage must comply with one of the 3 above mentioned approval schemes in order to be registered. From 29 October 2011, new M2/M3 vehicles built in more than one stage (multi-stage build) must comply in order to be registered.

Approval Process

With the IVA inspection, the onus is on the applicant to provide evidence of compliance. This can, for example, be in the form of manufacturer's markings on the vehicle or component, an EC certificate of conformity for an incomplete or base vehicle and details of the systems approved, documentary evidence from the competent authority in the country of origin or the manufacturer, submission of a test report from an accredited technical service or a combination of such elements, and it may also include a degree of visual examination and practical tests. Applicants may be required to dismantle certain parts of the vehicle to allow VOSA examiners to carry out a full and meaningful inspection.

Applications and supportive documentation will be assessed prior to the issue of an appointment by VOSA Technical Services Branch. Examination of the vehicle will include verification checks to confirm as far as possible compliance with the required standards.

The physical examination criterion for this part of the process is contained in sections 1 to 60 of this manual.

Scope of inspection

The design and construction requirements applicable to new road vehicles are contained within the Road Vehicles (Approval) Regulations 2009. The inspection procedures within this manual have been developed to assess as far as practicable the ability of the vehicle to comply with those Regulations. This manual is however not a legal interpretation of the Regulations.

The issue of an Approval Certificate should not be taken as absolute evidence that the vehicle can legally be used on the road, since there may be other applicable requirements contained in other regulations.

NOTE: The vehicle will be assessed for compliance in all modes of operation unless otherwise specified, for example

- in the case of a lifting axle, with the axle up and down.
- if dual fuelled, when running on each separate fuel source.
- if fitted with a remote engine air/fuel ratio adjustment device in minimum/maximum positions.

Foreword

Method of Inspection

The examination will be limited to parts of the vehicle which can be readily seen without dismantling however, the presenter might be required to open lockable compartments and remove engine covers, inspection/access panels, trims or carpeting, etc in order to gain access to items subject to examination.

The visual assessment of certain items eg fuel tanks (which in Type Approval undergo a physical test) might not always be sufficient to satisfy the examiners that the vehicle complies with the requirements of the regulations. In such circumstances the onus is on the applicant to demonstrate, for example, by the production of satisfactory test result documentation, or (by arrangement) during construction of the inspection of relevant structural elements, that the vehicle complies with the requirements of the regulations.

In some areas of the test, evidence that the vehicle complies with the relevant criteria may be submitted in the form of documentation. This can, for example, be satisfactory evidence that the vehicle complies with the relevant requirements of a European Directive. In certain cases calculations will be required to prove compliance. Where these are required they should be submitted with the application for inspection to VOSA, Technical Services Branch for verification prior to the inspection. Failure to produce these calculations may delay / prohibit the inspection appointment being confirmed.

If the examiner has any doubts over any item covered by documentary evidence, calculations or declarations, they have the right to ask for the original copies of these approvals / declarations which were accepted at time of application, to compare against the vehicle they are inspecting.

The condition of an item in isolation is not a reason for an item failing to meet the requirements. However if the condition of an item is such that a meaningful assessment cannot be made, then the IVA 30 should indicate that the applicable section/area was unable to be assessed and state the reason for this action. Examiners are not required to carry out a roadworthiness inspection but where obvious safety defects are noted the vehicle may be subject to prohibition action, The IVA certificate (IAC) will not be issued.

General Construction is a section that does not explicitly exist in the RFD, rather it is implicit that unsafe vehicles are not permitted to be approved.

Use of this manual

The manual has been arranged in the same order as the Recast Framework Directive (RFD) from which the inspection criteria is derived. Each inspection area broadly covers the requirements that vehicles must meet or exceed based upon the National IVA scheme.

Note: For areas where documentary evidence is not required all vehicles will be subject to a visual inspection as detailed within the method of inspection

Foreword

Refusal to examine

The examination of a vehicle may be refused for any of the following reasons

- the vehicle is not submitted for examination at the time and place appointed
- the correct fee has not been paid
- the vehicle submitted for examination is of the incorrect category
- the vehicle cannot be driven or has insufficient fuel or oil to enable the test to be completed
- the vehicle is presented in a dirty or dangerous condition such as to make it unreasonable for the examination to be carried out
- a load or items on the vehicle are not secured or removed as requested
- a proper examination cannot be carried out because any door, tailgate, boot lid, engine cover, fuel cap or other device designed to be readily opened cannot be opened
- the condition of the vehicle (in the opinion of the examiner) is such that proper examination of the vehicle would involve a danger of injury to any person or damage to the vehicle or any other property
- the vehicle does not display, permanently, in an accessible position and readily legible, the required stamped - in vehicle identification number
- the presenter does not remain in the vehicle or its vicinity and operate the controls, drive the vehicle or to remove, refit panels as requested to allow a meaningful examination of the vehicle or is uncooperative.

Summarised Table of requirements for Buses and Coaches

Section Number	Directive Requirement	as amended by	UNECE Regulations	M2 & M3
1 Noise	70/157/EEC	1999/101/EC	51.02	Approval & Inspection
2 Emissions	70/220/EEC / 88/77/EEC	See Section	83.05 & 49.04	Approval
3 Fuel tank & rear under-run	70/221/EEC	2006/20/EC	34.02 & 58.01	Approval & Inspection
4 Rear registration plate space	70/222/EEC			Inspection
5 Steering effort	70/311/EEC	1999/07/EC	79.01	Approval
7 Audible warning	70/388/EEC	87/354/EC	28.00	Inspection
8 Indirect vision	2003/97/EC		46.02	Inspection
9 Braking	71/320/EEC	98/12/EC	13.08 / 13H	Approval
10 EMC	72/245/EEC	2006/28/EC	10.03	Approval
13 Anti theft	74/61/EEC	95/56/EC	18.02 / 97.00 / 116.00	Inspection
15 Seat strength	74/408/EEC	2005/39/EC	80.01	Inspection
17 Speedo & reverse gear	75/443/EEC	97/39/EC	39.00	Inspection
18 Statutory plates	76/114/EEC	78/507/EEC		Inspection
19 Seat belt anchorages	76/115/EEC	2005/41/EC	14.05	Approval
20 Installation of lighting and signalling devices			48.03	Inspection
21 Retro reflectors	76/757/EEC	97/29/EC	3.02	Inspection
22 End outline, position, stop & side marker lights	76/758/EEC	97/30/EC	7.02 / 87.00 / 91.00	Inspection
23 Direction indicators	76/759/EEC	99/15/EC	6.01	Inspection
24 Rear registration plate lamp	76/760/EEC	97/31/EC	4.00	Inspection

Foreword

Summarised Table of requirements for Buses and Coaches

Section Number	Directive Requirement	as amended by	UNECE Regulations	M2 & M3
25 Headlights	76/761/EEC	99/17/EC	1.01 / 5.02 / 8.04 / 20.02 / 31.02 / 98.00 / 112.00 / 123.00	Inspection
26 Front fog lights	76/762/EEC	98/18/EC	19.02	Inspection
27 Tow hooks	77/389/EEC	96/64/EC		Inspection
28 Rear fog lights	77/538/EEC	99/14/EC	38.00	Inspection
29 Reverse lights	77/539/EEC	97/32/EC	23.00	Inspection
30 Parking lights	77/540/EEC	99/16/EC	77.00	Inspection
31 Seat belts	77/541/EEC	2005/40/EC	16.04	Inspection
33 Identification of controls	78/316/EEC	94/53/EC	121.00	Inspection
34 Defrost / Demist				Inspection
35 Wash / Wipe				Inspection
36 Heater systems	2001/56/EC	2006/119/EC	122.00	Inspection
45 Safety Glass			43:00	Inspection
46 Tyres	92/23/EEC	2005/11/EC	30.02 / 54.00 / 64.01 / 117.01	Inspection
47 Speed limiter	92/24/EEC	2004/11/EC	89.00	Inspection
48 Masses & Dimensions	97/27/EC	2003/19/EC	107.02	Inspection
50 Couplings	94/20/EC		55.01	Inspection
51 Flammability	95/28/EC		118.00	Approval
52 Buses & Coaches			107.02	Inspection

Foreword

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/07/2009	Replace Inspection with Approval for section 19 (Seat Belt Anchorages) and amend the Summarised Table of Requirements
3	29/04/2010	Add statement to foreword to show that the Examiner has the right to request any documentary evidence that was supplied to Swansea at time of application if they are in any doubt over an item covered by this evidence.
4	29/10/2010	Clean up text in foreword

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01 Noise

Application: All Vehicles

Method of Inspection	Required Standard
<p>The examiner will ensure that the evidence is relevant to the vehicle as presented for test.</p> <p>Note 1: Only a minor modification to the exhaust system is allowed. If modified the noise must be assessed with a static noise test.</p> <p>Minor modification means :—</p> <ul style="list-style-type: none"> i) A change to length of tail pipe after the last silencer of more than 2 metres. (Any change up to 2 metres is allowed and would not require a noise test to be carried out) ii) Any change in the length of exhaust pipe forward of the last silencer. iii) Any significant change in the direction the exhaust pipe outlet faces i.e. Original; outlet was to the offside, now positioned to the rear. <p>Any change other than to pipe work length, i.e. new silencer or other equipment, change in pipe diameter etc, means that a new approval test is required.</p> <p>Note 2: Manufacturers drain holes are permitted in the system.</p> <p>Note 3: Where a modification has been carried out to the air braking system a test report must confirm that the vehicle complies with the directive listed in the front of this manual or an inspection to confirm that air brake silencers are fitted to all additional or modified air brake exhaust outlets.</p>	<ol style="list-style-type: none"> 1. The vehicle as presented must be accompanied by satisfactory evidence of compliance with the required standard for "Noise" (See note 1) 2. The exhaust system must be fitted with a silencer. 3. The exhaust system must be securely mounted. 4. Exhaust system components must be secure. 5. The exhaust outlet must be positioned so that exhaust gases cannot damage other components of the vehicle, or cause a hazard to people in the vehicle 6. There must be no leaks from the exhaust system (See note 2) 7. Where an air braking system has been modified, any high pressure brake exhaust outlet must be fitted with a silencer, or satisfactory evidence supplied to show compliance with the required standard. (See note 3) <p style="text-align: center;">Where the exhaust system has had a minor modification</p> <ol style="list-style-type: none"> 8. The measured sound level must not exceed 99dbA (See notes 4 & 5)

Noise 01

Method of Inspection	Required Standard
<p>Note 4: Using sound level meter to the manufacturer's instructions, carry out a stationary noise check.</p> <ul style="list-style-type: none"> • Place the vehicle within the authorized 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. • Or in the case of a stack system use the tripod and bracket extended to give the highest possible vertical position. • 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. (Or as close to 500mm as practical for systems whose outlet does not extend to the exterior of the body structure) • With the vehicle at normal operating temperature, run the engine at $\frac{3}{4}$ of its 'maximum power' speed (see note below), and record the sound level reading obtained. <p>Note 5: 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</p>	

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

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02 Emissions

Application: All Vehicles fitted with piston engines

Method of Inspection	Required Standard																																
<p>Ensure that the vehicle as presented has satisfactory evidence of compliance to the required standard and has not been subject to modifications that may invalidate the approval</p> <p>Where evidence of compliance has been provided, subsequent modification to the exhaust system will be permitted providing</p> <ul style="list-style-type: none">it is to the exhaust system after the last silencer; andthe emissions control device is identical to that fitted before the modification. (as listed on an original approval or test report) <p>An EC type-approval issued to the most representative base vehicle remains valid irrespective of change in reference weight.</p> <p>Note 1: 01st January 2012 if derived from an EC approved ‘N1 class III or N2’ Category Vehicle</p>	<ol style="list-style-type: none">An M2 vehicle as presented must be accompanied by satisfactory evidence of compliance with the required standard for either “Light duty emissions” or Heavy duty “Emissions”. (See Table 1)An M3 vehicle as presented must be accompanied by satisfactory evidence of compliance with the required standard for “Heavy duty Emissions”. (See Table 1)The exhaust must not emit excessive smoke or vapour of any colour to an extent likely to obscure the vision of other road users <p>Table 1</p> <table><tr><th colspan="4">Light Duty Emissions</th></tr><tr><th>Manufactured Date</th><th>Directive Requirement</th><th>As amended by</th><th></th></tr><tr><td>Vehicles, before 01st January 2011 (see note 1)</td><td>70/220/EEC</td><td>2003/76/EC,</td><td>Row B Limits apply (Euro IV)</td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><th colspan="4">Heavy Duty Emissions</th></tr><tr><th>Manufactured Date</th><th>Directive Requirement</th><th>As amended by</th><th></th></tr><tr><td>Engines, before 1st October 2009</td><td>88/77/EEC</td><td>2001/27/EC,</td><td>Row B1 Limits apply (Euro IV)</td></tr><tr><td>Engines, on or after 1st October 2009</td><td>88/77/EEC</td><td>99/66/EC,</td><td>Row B2 Limits apply (Euro V)</td></tr></table>	Light Duty Emissions				Manufactured Date	Directive Requirement	As amended by		Vehicles, before 01 st January 2011 (see note 1)	70/220/EEC	2003/76/EC,	Row B Limits apply (Euro IV)					Heavy Duty Emissions				Manufactured Date	Directive Requirement	As amended by		Engines, before 1 st October 2009	88/77/EEC	2001/27/EC,	Row B1 Limits apply (Euro IV)	Engines, on or after 1 st October 2009	88/77/EEC	99/66/EC,	Row B2 Limits apply (Euro V)
Light Duty Emissions																																	
Manufactured Date	Directive Requirement	As amended by																															
Vehicles, before 01 st January 2011 (see note 1)	70/220/EEC	2003/76/EC,	Row B Limits apply (Euro IV)																														
Heavy Duty Emissions																																	
Manufactured Date	Directive Requirement	As amended by																															
Engines, before 1 st October 2009	88/77/EEC	2001/27/EC,	Row B1 Limits apply (Euro IV)																														
Engines, on or after 1 st October 2009	88/77/EEC	99/66/EC,	Row B2 Limits apply (Euro V)																														

Emissions 02

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	22/01/2010	Add Table 1
3	29/10/2010	Add note 1 and link to Table 1

03A Fuel Tanks

Application: All Vehicles

Method of Inspection	Required Standard
<p>Ensure that the vehicle as presented has satisfactory evidence of compliance to the required standard and carry out an installation check ensuring there appears to be no modifications present that would invalidate the evidence.</p> <p>This section applies to all fuel tanks and systems utilised for the propulsion of the vehicle.</p> <p>Note 1: All fuel types must be accompanied with an Approval / Test Report.</p> <p>In the case of liquid fuels the evidence must cover the tank/s, the vent device and the filler neck</p> <p>In the case of Gaseous Fuel systems the evidence must cover the whole system and be appropriate to the fuel type:</p> <p>ECE 67.01 – LPG fuel systems</p> <ul style="list-style-type: none"> Recognised as an alternative to the EC Directive on fuel systems in the current ECWVTA Directive and in the Recast Framework Directive. or <p>ECE 115.00 – Retrofit LPG fuel systems</p> <ul style="list-style-type: none"> Requires compliance with the installation requirements of ECE 67.01. or <p>An Installation Certificate from an Approved Installation Engineer</p>	<ol style="list-style-type: none"> The vehicle as presented must be accompanied by satisfactory documentary evidence with the required standard for “Fuel Tanks” (see note 1) <p>Installation Check</p> <ol style="list-style-type: none"> A fuel tank must not be located in, or form part of an occupant compartment or other compartment integral with it. There must not be an aperture in a partition separating the occupant compartment from the fuel tank that would allow fuel into the occupant compartment during normal conditions of use. The fuel filler point must not be located in the occupant, luggage or engine compartment. The fuel tank must be securely attached to the vehicle The fuel tank must be positioned so it is protected from damage from protruding parts or sharp edges in the event of a front or rear impact. The fuel tank must be mounted so as not to be fouled by moving parts of the vehicle, or likely to be subject to abrasion by adjacent parts. The tank must not be mounted in a position that would allow any fuel leaking from the tank or pipe work into the occupant compartment.

Fuel Tanks 03A

Method of Inspection	Required Standard
<p>ECE 110.00 – CNG fuel systems</p> <ul style="list-style-type: none"> Recognised as an alternative to the EC Directive on fuel systems in the current ECWVTA Directive and in the Recast Framework Directive. or <p>ECE 115.00 – Retrofit CNG fuel systems Requires compliance with the installation requirements of ECE 110.00. or</p> <p>An Installation Certificate from an Approved Installation Engineer</p>	<p>9. Any fuel filler neck or vent must not allow spilt fuel to be able to fall onto the exhaust system.</p> <p>10. An approved vent device must be fitted to the fuel tank.</p> <p>11. An approved fuel filler cap must be fitted and it must positively locate to the filler neck and incorporate an adequate sealing arrangement so that a fuel leak is not possible.</p> <p>12. A metal fuel tank must be installed with a path for the discharge of static electricity, either directly through the mountings, or by the provision of a separate means of discharge.</p> <p>13. The fuel filler cap must either be tethered to the vehicle or be of a lockable type where the key can only be removed when the cap is locked or an automatically opening and closing, non-removable fuel filler cap</p>

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/04/2010	Change RS 13 regarding the fuel cap tether / locking key requirement.

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03B Rear Protective Devices (Under Run)

Application: All Vehicles

Method of Inspection	Required Standard
<p>A vehicle of category M2 or M3 is not required to be fitted with a separate rear under run device, providing the rear body structure is substantial enough to prevent under-run by a smaller vehicle.</p> <p>A separate device will be required:</p> <p>Where the minimum height of the rear structure exceeds 550mm, measured across the rear to within 100mm on either side in relation to the width of the widest rear axle, (excluding any tyre bulging close to the ground). This requirement must be satisfied at least on a line at a distance of not more than 450 mm forward of the rear extremity of the vehicle.</p> <p>Note 1: Evidence of compliance may be;</p> <p>A vehicle Approval / Test Report or</p> <p>In the case of a separate device, be accompanied by an approval, test report or tested and witnessed by the approving authority and a check that the installation relates to the evidence, or</p> <p>Calculations submitted to the approving authority (in advance) and a check that the installation relates to the evidence</p>	<ol style="list-style-type: none"> 1. Where required the vehicle as presented must be accompanied by satisfactory evidence of compliance regarding the protective system (See note 1) 2. The rear structure must be of sufficient strength to prevent under-run by a smaller vehicle. 3. Any separate device must be fitted as close to the rear of the vehicle as possible. 4. When the vehicle is unladen the lower edge of the device (separate device or body structure) must at no point be more than 550 mm above the ground. 5. The width of any separate device must at no point exceed the width of the rear axle measured at the outermost points of the wheels, (excluding the bulging of the tyres close to the ground), 6. The width of any device (separate device or body structure) must not be less than that of the widest rear axle by more than 100 mm on either side.

Rear Under Run 03B

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/07/2009	Add the word minimum to the Moi 2 nd paragraph
3	29/10/2010	Reword MOI 2 nd paragraph

04 Rear Registration Plate Space

Application: All Vehicles

Method of Inspection	Required Standard												
<p>All vehicles must have a suitable place to mount a rear registration plate.</p> <p>Vehicles which are approved to Directive 70/222/EEC will not require an inspection to this section, providing the vehicle has not been modified.</p> <p>Note 1: + 20° is with the plate angled in at the top, - 15° is with the plate angled in at the bottom</p> <p>Note 2: An external body surface or a mounting bracket securely attached to the structure of the vehicle is required to hold the plate in a stationary position, a plate hanging from the vehicle with no structure behind it would be considered unacceptable.</p> <p>Note 3: With an “IVA Test” plate of the required size placed onto the space provided, check that it is visible and that the whole of the yellow shaded portion can be easily seen from a height of 1.5m from all points along a 21.5m line on the ground placed at 10.75m (centralised to the centre of the available rear reg plate space) behind and parallel to the rear of the vehicle.</p>	<ol style="list-style-type: none">1. All vehicles must comply with one of the “options” listed in table 1.2. The space must permit the mounting of a plate in a position as close to vertical (+ 20° or - 15°) as is permitted by the vehicle structure available. (see note 1)3. The space must have a means to mount the plate. (see note 2)4. The whole of the yellow shaded portion of the “IVA Test plate must be capable of being easily seen from every point along the test line. (see note 3) <p>Table 1</p> <table><tr><th></th><th></th><th>Width</th><th>Height</th></tr><tr><td>Euro space</td><td>Option 1</td><td>520</td><td>120</td></tr><tr><td></td><td>Option 2</td><td>340</td><td>240</td></tr></table>			Width	Height	Euro space	Option 1	520	120		Option 2	340	240
		Width	Height										
Euro space	Option 1	520	120										
	Option 2	340	240										

Rear Registration Plate Space 04

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/10/2010	Rearrange order of notes

05 Steering Effort

Application: All Vehicles

Method of Inspection	Required Standard
<p>Ensure the vehicle has satisfactory evidence of compliance to the required standard</p> <p>Where any modifications have taken place the system must be assessed to the standards of RS2 during a lock to lock check.</p>	<ol style="list-style-type: none">1. The vehicle as presented must be accompanied by satisfactory evidence of compliance with the required standard for "Steering Effort"2. The steering system must operate smoothly from lock to lock and without undue stiffness.

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

07 Audible Warning

Application: All Vehicles

Method of Inspection	Required Standard
<p>Ensure that the vehicle is fitted with a horn which when operated emits a continuous uniform sound that is capable of giving audible warning of the approach or position of the vehicle to which it is fitted.</p> <p>Note 1: For the purposes of this item "horn" means an audible warning device not being a bell, gong or siren.</p> <p>Note 2: In the case of an Armoured vehicle:</p> <p>Exemption from RS 3 & 4 are permissible where it can be demonstrated to the satisfaction of the Approval Authority that the special purpose of the vehicle makes it impossible to fully comply;</p> <p>and</p> <p>Additional panic alarm devices are permitted.</p>	<ol style="list-style-type: none">1. The vehicle must be fitted with a horn (see note 1)2. The horn must be securely attached to the vehicle3. When operated the horn must emit a continuous uniform sound (See note 2)4. The horn as installed, must give an equivalent level of warning to other road users as that of an equivalent M2/M3 EC Type Approved vehicle. (See note 2)

Audible Warning 07

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

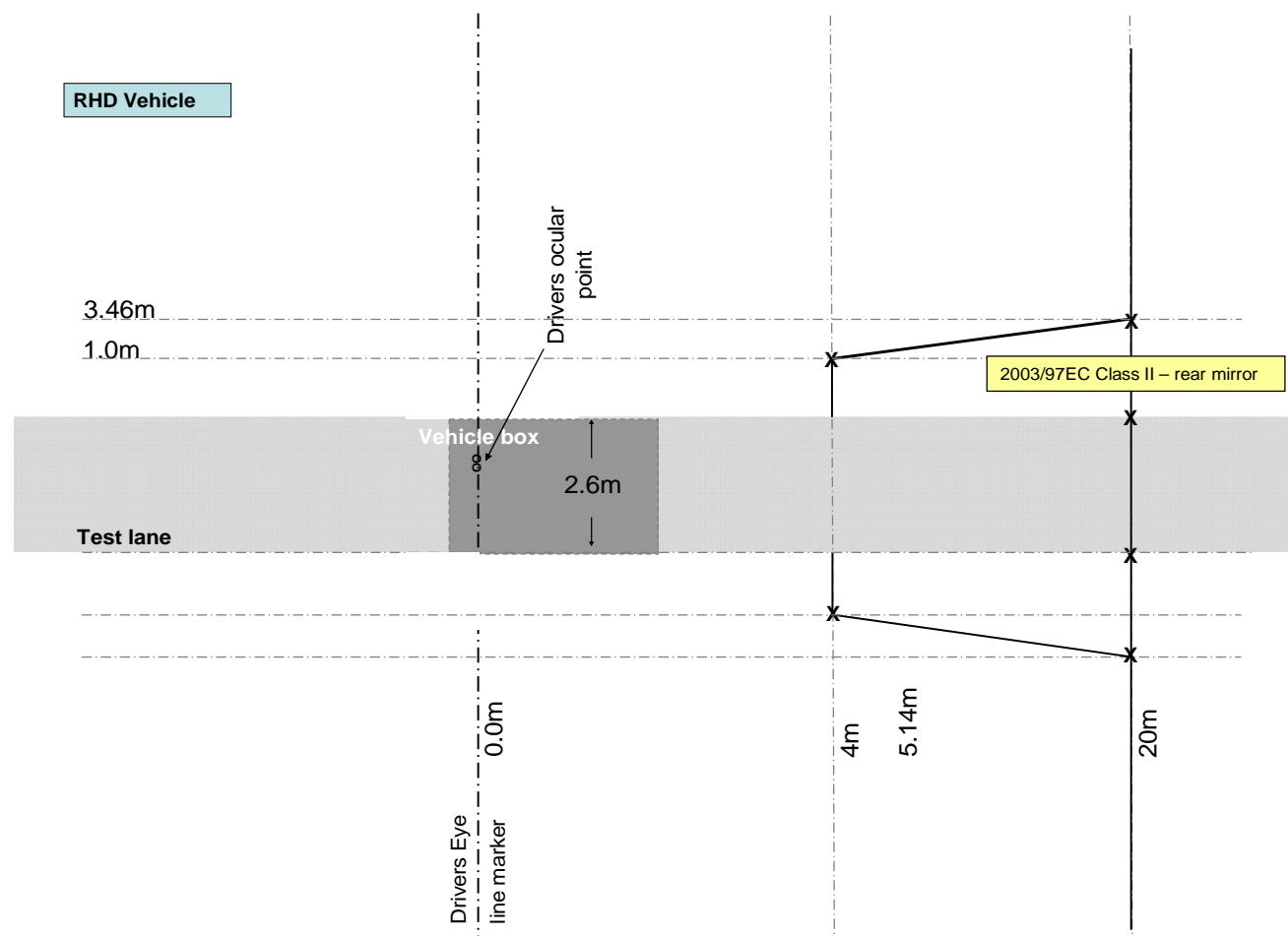
08 Indirect Vision

Application: All Vehicles

Method of Inspection	Required Standard				
<p>The vehicle must be fitted with appropriate mirrors that enable the driver an adequate view to the rear.-</p> <p>Note 1: Mirror security should be such that wind deflection when the vehicle is driven at normal road speeds will not cause the field of view to change. It should also be mounted so that the mirror cannot vibrate and cause the driver to misinterpret the image.</p> <p>Note 2: Where a valid approval or test report is available which covers the vehicle in its finished state, a field of view check is not required.</p>	<ol style="list-style-type: none"> 1. The vehicle must have all obligatory mirrors fitted (see Table 1) 2. All mirrors must be securely attached to the vehicle (see note 1) 3. All obligatory mirrors must bear an acceptable European approval mark ('E' or 'e') 4. All obligatory mirrors must bear the appropriate class type (see table 1) 5. All mirrors must be adjustable 6. All obligatory mirrors must meet the field of view requirements (see note 2 and Figure 1) 7. If a class V or VI mirror is mounted then regardless of their position after adjustment, no part of these mirrors or their holders must be less than 2 m from the ground. <p>Table1</p> <table> <tr> <th>Class of Mirror</th><th>Obligatory Fitment to Vehicle</th></tr> <tr> <td>Side Exterior (Class II)</td><td>Drivers Side and Passenger Side</td></tr> </table>	Class of Mirror	Obligatory Fitment to Vehicle	Side Exterior (Class II)	Drivers Side and Passenger Side
Class of Mirror	Obligatory Fitment to Vehicle				
Side Exterior (Class II)	Drivers Side and Passenger Side				

Indirect Vision 08

Figure 1



Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

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09 Braking

Application: All Vehicles

Method of Inspection	Required Standard
Ensure that the vehicle as presented has satisfactory evidence of compliance to the required standard	<ol style="list-style-type: none">1. The vehicle as presented must be accompanied by satisfactory evidence of compliance with the required standard for "Braking".

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/04/2010	Add number to the RS (missing)
3	29/10/2010	Change text in application box

10 Electromagnetic Compatibility

Application: All Vehicles

Method of Inspection	Required Standard
Ensure the vehicle has satisfactory evidence of compliance to the required standard and has not been modified such to invalidate the approval	<ol style="list-style-type: none">1. The vehicle as presented must be accompanied by satisfactory evidence of compliance with the required standard for “EMC”.2. Where any additional equipment has been installed, a written declaration supplied by the Manufacturer, confirming compliance of the additional items must be presented

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

13 Anti – Theft / Immobiliser / Alarm

Application: All Vehicles (Optional Fitment)

Method of Inspection	Required Standard
<p>If the vehicle is fitted with a mechanical anti-theft device, an electronic immobiliser, or an alarm system (including panic alarm) The system or systems must comply with this section.</p> <p>Note 1: A “Category 1” installation refers to an immobiliser and an alarm. “Category 2” installation refers to an immobilizer only</p> <p>Ensure that the vehicle is accompanied by documentary evidence of compliance for a category 1 or 2 installation as appropriate.</p> <p>Evidence of compliance must be one of the following:</p> <ul style="list-style-type: none"> • Documentary evidence from a test laboratory • Documentary evidence from the chassis manufacturer • An original certificate of installation from a Vehicle Systems Installation Board (VSIB) accredited installer • An original certificate of installation from a Mobile Electronics and Security Federation (MESF) accredited installer • An original installation report from a Thatcham Recognised Installer (TRI) <p>Note 2: Optional panic alarm not forming part of an alarm system are not required to meet RS4</p>	<ol style="list-style-type: none"> 1. Where an anti theft device incorporates a mechanical part that acts upon a system used to control the vehicle; <ol style="list-style-type: none"> a. It must Deactivate before the engine can be started b. It must be deactivated while the engine is running c. It must have a actuation which is a distinct and separate function from that of stopping the engine d. It must not operate on any part of the braking system 2 If fitted to the Vehicle, an Immobiliser must be accompanied by evidence of compliance (see note 1) 3 If fitted to the Vehicle, an Alarm must be accompanied by evidence of compliance (see note 1) 4 If fitted to the Vehicle, an Panic Alarm must be accompanied by evidence of compliance (see note 1 & 2)

Anti – Theft / Immobiliser / Alarm 13

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/10/2010	Add Thatcham Recognised Installer installation report to list of acceptable evidence

15 Seat Strength

Application: M2 and M3 This section applies to all seats intended for use whilst the vehicle **is in motion**.

Method of Inspection	Required Standard
<p>Where the vehicle is presented with evidence of</p> <ul style="list-style-type: none"> An approval to the requirements of Directive 74/408 as last amended by 2005/39/EC or the requirements of UNECE Regulation 17.06 or 80.01 or a test report to the technical provisions of the Directives/Regulations quoted above <p>and subject to a random check that the documentation matches the vehicle presented, including seat type, position, head impact criteria (applicable if not fitted with 3 point seat belt), the requirements of this section can be deemed to be met.</p> <p>Head restraints can either form part of the seat itself, or be detachable and adjustable for height.</p> <p>Only seats fitted with integral safety belts need to be approved for this inspection and there anchorages checked under RS 4, all other seats may or may not be approved and there anchorages checked under RS 5.</p> <p>Note 1: Documentary evidence that the vehicle or the seats meet Directive 74/408 as last amended by Directive 2005/39/EC or UNECE Regulation 17.06 (M2/M3 vehicles up to 16 passenger seats), or Regulation 80.01 (M2/M3 vehicles with more than 16 passenger seats) must be supplied.</p>	<p>Vehicles incorporating seats with integral belts</p> <ol style="list-style-type: none"> The vehicle as presented must be accompanied by satisfactory evidence of compliance with the required standard for "Seat Strength" (see Note 1) Movable seat/seat backs require the ability to secure them in all positions of use. <p>All Seats</p> <ol style="list-style-type: none"> Seats that tip forwards or have fold down seat backs must have the ability to automatically secure them in the normal position of use. Seats with integral seat belts fitted must have anchorages that comply with section 19(Seat Belt Anchorages). Seats without integral belts must be adequate in strength and securely mounted to a load bearing part of the structure, or have adequate support to spread the load of the seat mounting if attached to a non-metallic floor pan separate from the chassis. <p>Head Restraints</p> <p>M2 with a maximum mass not exceeding 3500kg</p> <ol style="list-style-type: none"> A system of padded head restraint must be fitted on every outboard front seat.

Seat Strength 15

Method of Inspection	Required Standard
<p>Note 2: 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 700mm.</p> <p>Note 3: This does not apply to any approved seats or vehicles produced by major manufacturers where the original seats have not been modified.</p> <p>Note 4: This does not apply to Side Facing seats of class III and B</p>	<ol style="list-style-type: none"> 7. For outboard front seats the height of the top of the head restraint above the R point must be at least 700mm (see note 2 and 3) 8. Where optional headrests are fitted to seats other than outboard front seats, the height of the top of the head restraint above the R point must be at least 700mm (see note 2 and 3) 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.

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	22/01/2010	Reduce the maximum height to mirror the M1 manual + add note 3

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17 Speedometer and Reverse Gear

Application: All Vehicles having a maximum speed exceeding 25mph

Method of Inspection	Required Standard
<p>A vehicle must indicate an accurate speed to the driver at all times and the vehicle must be capable of travelling in a rearward direction under its own power.</p> <p>Note 1: Digital Tachograph's do not provide adequate visual indication of speed</p> <p>Note 2: Vehicle maximum speed will have to be in the form of vehicle specific documentary evidence from the vehicle manufacturer.</p> <p>Note 3: "Reverse Gear" is a device used to propel the vehicle in a rearwards direction under its own power. This does not have to be in the gearbox, it may be a separate component i.e. electric motor</p>	<ol style="list-style-type: none"> 1. The vehicle must be fitted with an Analogue Tachograph or a Speedometer (See note 1) 2. The tachograph or speedometer must be capable of being read at all times of the day or night <p>If an analogue tachograph is not fitted then:</p> <ol style="list-style-type: none"> 3. A speedometer must be fitted and be capable of indicating the vehicle speed in miles per hour (mph) and kilometers per hour (Km/h) at uniform intervals not exceeding 20mph for all speeds up to the maximum design speed of the vehicle. (See note 2) 4. The "rest" position for the needle must lie either on or below the first marked increment <p>Reverse gear</p> <ol style="list-style-type: none"> 5. The vehicle must have a reverse gear which can be selected from the driving position and operates (See note 3)

Speedometer and Reverse Gear 17

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/10/2010	Remove and renumber Required Standards

18 Statutory Plates

Application: All Vehicles

Method of Inspection	Required Standard		
<p>All vehicles must be provided with a manufacturer's plate.</p> <p>Visually check that the characters used for the Manufacturers Plate and Vehicle Identification Number complies to the required standards.</p> <p>Where the vehicle is subject to a multistage build, a plate is required on completion of each stage as appropriate, every plate fitted must display the same VIN as displayed on the chassis, the weight information is only necessary on the chassis manufacturer's plate or on a converters plate if they have altered those weights with any modification.</p> <p>Check that the manufacturer's plate (in the case of a multistage build, one for each stage) complies with the Required Standards.</p> <p>The manufacturer may give additional information. The engine type and power may be listed below the manufacturers name and the number of axles may be listed underneath the VIN number. Any other information must be outside a clearly marked rectangle which shall enclose only the listed information.</p> <p>If any of the technically permissible masses are higher than the masses permitted in GB and NI for a vehicle or axle (see Annex 1 for details of the maximum masses permitted in GB and NI), then there should be 2 columns for masses - in the left hand column the maximum permitted masses in GB/NI, and in the right hand column, the technically permissible masses.</p>	<ol style="list-style-type: none"> The vehicle must be fitted with a manufacturer's plate, in a conspicuous and readily accessible position. A manufacturer's plate must be fitted for each stage of a multistage build. The manufacturer's plate(s) must be made of a durable material All plate(s) must be indelibly marked with the Vehicle Identification Number (VIN) which matches the number marked into the vehicle structure. See note 1 The manufacturer's plate(s) must be securely attached to a part of the vehicle that will not be replaced through normal use. See note 2 The manufacturer's plate(s) must show the required information in the correct order <table border="1"> <tr> <td> VOSA MOTOR INC 3GPG918009BS51312 22000 kg 23500 kg 1 – 7000 kg 2 – 8000 kg 3 – 8000 kg </td><td> Name of manufacturer Vehicle Identification Number or unique identifier number Maximum permitted laden mass of vehicle Maximum permitted laden mass for the combination where the vehicle is used for towing (see note 3) Maximum permitted laden road mass for each axle, listed in order from front to rear </td></tr> </table> The VIN must be marked on the chassis, frame or other similar structure on the right hand side of the vehicle. (viewed from the rear) 	VOSA MOTOR INC 3GPG918009BS51312 22000 kg 23500 kg 1 – 7000 kg 2 – 8000 kg 3 – 8000 kg	Name of manufacturer Vehicle Identification Number or unique identifier number Maximum permitted laden mass of vehicle Maximum permitted laden mass for the combination where the vehicle is used for towing (see note 3) Maximum permitted laden road mass for each axle, listed in order from front to rear
VOSA MOTOR INC 3GPG918009BS51312 22000 kg 23500 kg 1 – 7000 kg 2 – 8000 kg 3 – 8000 kg	Name of manufacturer Vehicle Identification Number or unique identifier number Maximum permitted laden mass of vehicle Maximum permitted laden mass for the combination where the vehicle is used for towing (see note 3) Maximum permitted laden road mass for each axle, listed in order from front to rear		

Statutory Plates 18

Method of Inspection	Required Standard
<p>All vehicles must have a vehicle identification number marked onto the chassis by hammering, stamping or similar so that the vehicle can be clearly identified.</p> <p>The identification number of the base vehicle (VIN) prescribed by Directive 76/114/EEC shall be retained during all the subsequent stages of the type-approval process to ensure the 'traceability' of the process.</p> <p>However, at the final stage of completion, the manufacturer concerned by this stage may replace, in agreement with the approval authority, the first and second sections of the vehicle identification number with his own vehicle manufacturer code and the vehicle identification code if, and only if, the vehicle has to be registered under his own trade name. In such a case, the complete vehicle identification number of the base vehicle must not be deleted.</p> <p>Note 1: For markings to be considered 'indelible' they should be unlikely to become disfigured or obliterated during the life of the vehicle. Whilst stamping or engraving is preferable it is possible to accept a printed or painted plate providing it has been treated in such a way that it is most unlikely that essential information would be obliterated or defaced during the normal life of the vehicle.</p> <p>Note 2: 'Securely attached' means screwed, bolted, riveted or otherwise fixed such that it is not likely to become displaced during the life of the vehicle.</p> <p>Note 3: Only required to be displayed on applicable vehicles. i.e. designed to allow towing.</p> <p>Note 4:- The spacing of characters must be such that no additional characters could be added at a later date.</p>	<ol style="list-style-type: none"> 8. The VIN must be placed in a clearly visible and accessible position by a method such as hammering or stamping so that it can not be obliterated or deteriorate. 9. The VIN stamped in the chassis, frame or other similar structure must consist of 17 digits with the information shown in a single line 10. Capital letters and numerals must be used for the Manufacturer's name and VIN 11. There must not be any gaps between the characters for the VIN or unique vehicle identifier number shown on the manufacturer's plate or stamped into the vehicle. (see note 4) 12. The characters on the manufacturer's plate must be at least 4mm high. 13. The characters used for the VIN number stamped into the chassis, frame or other similar structure must be at least 7mm high. 14. Use of the letter I, the letter O, the letter Q and dashes and asterisks is not permitted. <p><u>Where the VIN has been changed in accordance with the Approval Authority</u></p> <ol style="list-style-type: none"> 15. The original complete vehicle identification number of the base vehicle must be present on the chassis 16. The complete new V.I.N must be stamped on the chassis as near as possible to the original V.I.N 17. The last eight characters of the new V.I.N must be identical to the last eight characters of the base vehicle V.I.N

Annex 1

Maximum permitted weights in Great Britain and Northern Ireland

Motor Vehicles	Maximum Weight
Two-axle	18 tonnes
Three-axle	25 tonnes *
Four-axle	32 tonnes #
<p>* 26 tonnes where the driving axle is fitted with twin tyres and air suspension or suspension recognized as being equivalent, or where each driving axle is fitted with twin tyres and the maximum weight of each axle does not exceed 9.5 tonnes</p> <p># where the driving axle is fitted with twin tyres and air suspension or suspension recognized as being equivalent, or where each driving axle is fitted with twin tyres and the maximum weight of each axle does not exceed 9.5 tonnes</p>	
Single Axles	Maximum Weight
Single non driving axle	10 tonnes
Driving Axle	Maximum Weight
Single axle	11.5 tonnes
Tandem axles	The sum of the axle weights must not exceed if
Distance between axle centres is less than 1metre	11.5 tonnes
Between 1metre and less than 1.3metres	16 tonnes
Between 1.3metres and less than 1.8metres	18 tonnes #
<p># . 19 tonnes where the driving axle is fitted with twin tyres and air suspension or suspension recognized as being equivalent, or where each driving axle is fitted with twin tyres and the maximum weight of each axle does not exceed 9.5 tonnes</p>	

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/10/2010	Add new note and reorder notes, add RS 15, 16 & 17

19 Seat Belt Anchorages

Application: All Vehicles with seat belts fitted

Method of Inspection	Required Standard
<p>Ensure that the vehicle as presented has satisfactory evidence of compliance to the required standard</p> <p>Satisfactory Evidence must be provided in the form of:-</p> <p>An Approval or</p> <p>A test report to the requirements of the approval from a approval authority or recognised test organisation</p> <p>Note 1: Prison vehicles - Vehicles constructed or adapted for the secure transport of prisoners are not required to be fitted with seat belts, except for the driver's and any front passenger's seat. However, seat belt anchorage points are mandatory for all seating positions.</p> <p>Note 2: An M3 approval / test will not be suitable for use in an M2 vehicle, as the 'pull test' requirements for an M3 vehicle are notably less.</p> <p>Note 3: If attached to a thin metal floor, adequate support to spread the load of the anchorage is required, e.g. spreader plates of at least 75mm x 75mm x 4mm mild steel fitted under the floor, of the legs closest to the rear of the vehicle and between the leg and the top of the floor surface for the leg closest to the front of the vehicle.</p>	<ol style="list-style-type: none"> 1. For vehicles with seat belts fitted to secure passengers in forward or rearward facing seats, the vehicle as presented must be accompanied by satisfactory evidence of compliance with the required standard for "Seat belt anchorages". 2. For vehicles with seat belts fitted to secure passengers in Side Facing Seats, the belt anchorage points, including the seat anchorage for belts mounted directly to a seat, must be securely attached to the vehicle structure, or other obvious suitable load bearing parts of the vehicle (see note 3).

Seat Belt Anchorages 19

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	22/01/2010	Add Note 3 and RS 2
3	29/10/2010	Reword MOI

20 Installation of Lights

Application: All Vehicles

Method of Inspection	Required Standard
<p>The examiner will perform a visual check of all the lamps and reflectors fitted to the vehicle for the correct colour, light visible to the front or rear and that no light emitting surfaces are obscured</p> <p>Note 1: 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.</p> <p>Lamp/reflector vertical position is measured from the ground;</p> <ul style="list-style-type: none"> In the case of the minimum height to the lower edge of the illuminated area (reflective surface on a reflector) In the case of the maximum height to the top edge of the illuminated area (reflective surface on a reflector). <p>Note 2: For the purposes of the test lamps that are intended to illuminate the road forward of the vehicle are considered to be either:</p> <ul style="list-style-type: none"> a) main beam headlamps (including spot lamps and driving lamps) b) dipped beam headlamps, or c) front fog lamps. 	<ol style="list-style-type: none"> The vehicle must be fitted with lamps or retro reflective material only capable of showing a white light to the front except for: <ul style="list-style-type: none"> an amber light from a direction indicator a yellow light from a front fog lamp an amber light from a side marker light emergency vehicles only, a blue light from a warning lamp or beacon. The vehicle must be fitted with lamps or retro reflective material only capable of showing a red light to the rear except for: <ul style="list-style-type: none"> 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 rear registration plate an amber light from a side marker light emergency vehicles only, a blue light from a warning lamp or beacon. The operation of any lamp must not effect any other lamp or be affected by the operation of any other lamp, unless specifically designed to do so

Installation of Lights 20

Method of Inspection	Required Standard
<p>Note 3: This does not apply to rear retro reflectors.</p>	<ol style="list-style-type: none"> 4. All lamps and reflectors must be securely fitted to the vehicle and not move by swivelling, deflecting, or otherwise while the vehicle is in motion, except for: <ul style="list-style-type: none"> • 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. 5. All obligatory and optional lamps, reflectors and rear markers must be fitted to their correct orientation 6. When every door 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 <ul style="list-style-type: none"> • front and rear position lamps • front and rear indicators • rear retro reflectors <p>must fulfil one of the following conditions:</p> <ol style="list-style-type: none"> a. half (50%) of the apparent surface of the lamp / reflector is visible from directly in front of / behind (as appropriate) the vehicle, or b. additional fully visible lamp (s) / reflector (s) satisfying all requirements for the above lamps are activated / visible, or c. a notice in the vehicle must inform the user that in certain positions of the movable components, other road users should be warned of the presence of the vehicle on the road (e.g. by laying out a warning triangle).(see note 3)

Installation of Lights 20

Figure 1**Horizontal Angles of Visibility**

Each lamp and reflector must be positioned such as to provide an “apparent surface”. At least 50% of the “apparent surface” of each lamp or reflector must be visible from any point within the relevant angles.

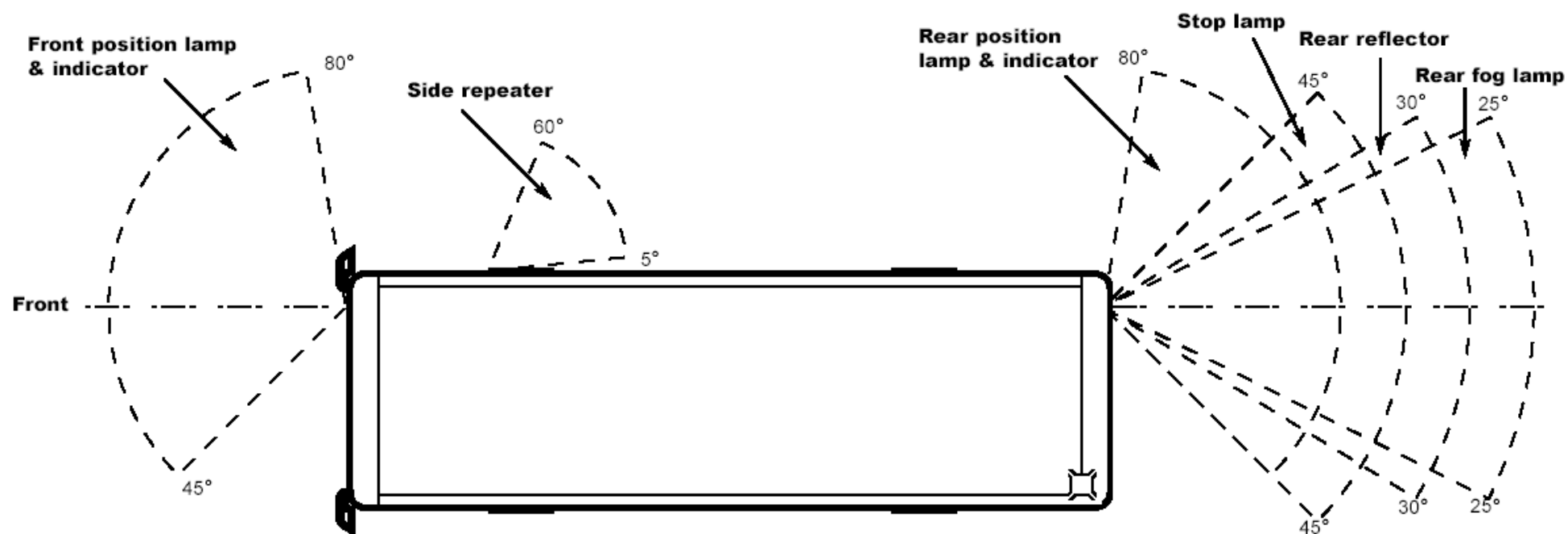
**Installation of Lights 20**

Figure 2**Vertical Angles of Visibility**

Front Position Lamps and Indicators (including Side Repeaters)

'a' = less than 750mm above ground level.

'b' = 750mm or more above ground level.

'c' = Rear position lamps and Stop lamps 1500mm or more above ground level. Indicators and Rear reflectors 750mm or more above ground level.

'd' = Rear position lamps and Stop lamps less than 1500mm above ground level.

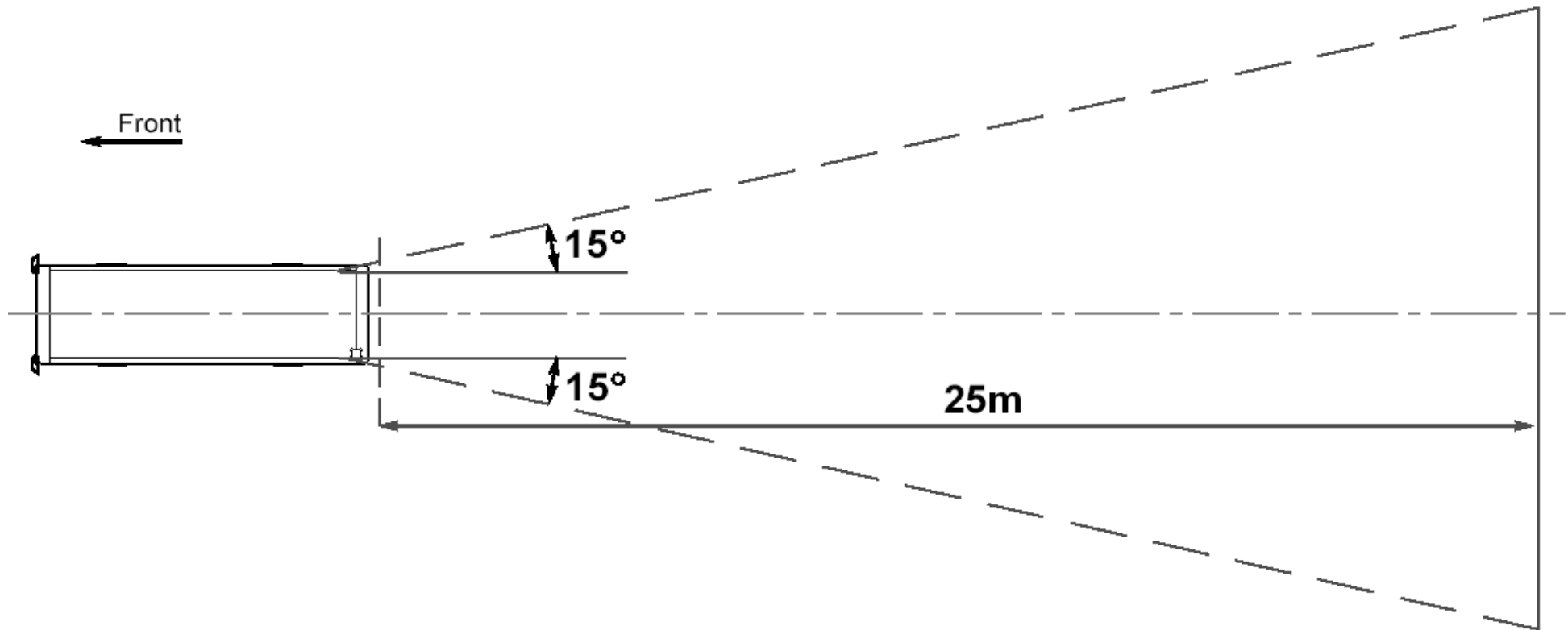
'e' = Rear position lamps, Stop lamps, Indicators and Rear reflectors less than 750mm above ground level.

'f' = Rear fog lamps.

**Installation of Lights 20**

Figure 3

“To the rear” of the vehicle means “in 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 **25m** from the rear of the vehicle (measured along the vehicle longitudinal).”



Installation of Lights 20

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/07/2009	Add a new RS 03 and renumber section
3	22/01/2010	Reflectors removed from RS 6

21 Retro Reflectors

Application: All Vehicles

Method of Inspection	Required Standard
<p>Carry out a visual check of all retro reflectors fitted to the vehicle for colour, number, approval markings and correct positioning.</p> <p>Note 1: Geometric angles of visibility and positional requirements are not required for all optional reflectors.</p>	<p>Reflectors;</p> <ol style="list-style-type: none">1. All reflectors must be 'e' or 'E' marked and where applicable, bear the appropriate identity marking as listed in Table 12. The correct number must be fitted to the vehicle (Table 1)3. The correct colour must be fitted to the vehicle (Table 1)4. They must be positioned to meet (see note 1)<ol style="list-style-type: none">a) the positional requirements of Table 1b) the angles of visibility requirements of Table 15. They must be of the correct shape (Table 1)6. Rear reflectors must face predominately to the rear

Table 1

TYPE	NUMBER	APPLICATION	COLOUR	POSITION			ANGLES OF VISIBILITY See Figures 1 & 2 of section 20	APPROVAL MARK "E" or "e" Identity Symbol or BS Mark / Notes
				MAX DISTANCE FROM SIDE (mm)	MAX HEIGHT (mm)	MIN HEIGHT (mm)		
Rear Retro Reflectors Non-triangular	Min 2 Max any number Includes optional (see note 1)	Mandatory	Red	400 (Min separation 600 unless vehicle width less than 1300, where Min separation 400)	900 (1200 if built into a lamp cluster) or if impracticable due to body 1500 (See Note 1)	250	a. Horizontal i. 30° inwards and outwards. b. Vertical i. < 750mm above the ground 15° above and 5° below horizontal. ii. otherwise 15° above and below horizontal	I or IA or IB "E" or "e"
Front Retro Reflectors Non-triangular	Min 2 Max any number Includes optional (see note 1)	Mandatory on motor vehicles with concealable front lamps with reflectors. Optional on all other motor vehicles.	White	400	900 or if impracticable due to body 1500	250	a. Horizontal i. 5° inwards and 30° outwards. b. Vertical i. < 750mm above the ground 15° above and 5° below horizontal. ii. otherwise 15° above and below horizontal	I or IA "E" or "e"
Side Retro Reflectors Non-triangular	See below (see note 1)	Mandatory on all motor vehicles exceeding 6m in length Optional on other motor vehicles	Amber The rearmost reflector may be red	N/A	1500 if the shape of the bodywork makes it impossible 2100	250	a. Horizontal 45° to the front and to the rear b. Vertical i. < 750mm above the ground 15° above and 5° below horizontal. ii. otherwise 15° above and below horizontal	I or IA "E" or "e"

- 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 this distance may be increased to 4 m where the bodywork makes it impractical to comply
- the distance between the rearmost side- reflector and the rear of the vehicle shall not exceed 1 m

Retro Reflectors 21

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/07/2009	Add RS 06
3	29/10/2010	Link RS 4 to Note 1 and add text to table 1 regarding body shape

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22 End Outline, Position (Side), Stop, Side Marker & Daytime Running Lamps

Application: All Vehicles

Method of Inspection	Required Standard
<p>Carry out a visual check of all outline marker, position, stop, side marker and daytime running lamps fitted to the vehicle for operation, colour, number, approval markings and correct positioning.</p> <p>With optional lamps check that fitment is permitted and they do not exceed the maximum number of lamps allowed to be fitted</p> <p>Note 1: Geometric angles of visibility and positional requirements are not required for all optional position lamps, stop lamps and end outline marker lamps.</p> <p>All lamps or reflectors fitted to the vehicle must not move by swivelling, deflecting or otherwise while the vehicle is in motion, except for:</p> <ul style="list-style-type: none"> any lamp 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 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. <p>Note 2: The full inspection of end-outline marker lamps applies to the obligatory marker lamps fitted to vehicles exceeding 2.10m in width</p>	<ol style="list-style-type: none"> All lamps must be 'e' or 'E' marked and where applicable, bear the appropriate identity marking as listed in table 1 The front and rear position lamps, end outline marker lamps and side marker lamps, (if fitted) must be switched on and off by the operation of one switch. <p>Front and Rear Position Lamps; (see note 1)</p> <ol style="list-style-type: none"> The correct number must be fitted to the vehicle (Table 1) They must be operational They must only emit white light to the front / red light to the rear They must be positioned to meet (see note 1) <ol style="list-style-type: none"> the positional requirements of Table 1 the angles of visibility requirements of Table 1 <p>Stop Lamps; (see note 1)</p> <ol style="list-style-type: none"> The correct number must be fitted to the vehicle (Table 1) They must be operational They must only emit red light

End Outline, Position (Side), Stop, Side Marker & Daytime Running Lamps 22

Method of Inspection	Required Standard
<p>Note 3: The full inspection of the side marker lamps applies to the obligatory lamps fitted to all vehicles exceeding 6m in length</p>	<p>10. They must only illuminate when the service brake is applied, and must extinguish when the service brake is released</p> <p>11. They must be positioned to meet (see note 1)</p> <ul style="list-style-type: none"> a. the positional requirements of Table 1 b. the angles of visibility requirements of Table 1 <p>Side Marker lamps; (if required, see note 1 & 3)</p> <p>12. The correct number must be fitted to the vehicle (in accordance to the positional requirements)</p> <p>13. They must be operational</p> <p>14. They must emit an amber light (red is acceptable if within 1 metre of the rear)</p> <p>15. They must be positioned to meet</p> <ul style="list-style-type: none"> a. the positional requirements of Table 1 b. the angles of visibility requirements of Table 1
<p>End Outline Marker lamps</p> <p>Note 4: Both front and rear lamps can be combined in one device</p>	<p>End Outline Marker Lamps; (if required, see note 1, 2 & 4)</p> <p>16. The correct number must be fitted to the vehicle (Table 1)</p> <p>17. They must be operational</p> <p>18. They must only emit red light to the rear / white light to the front</p> <p>19. The lights must be a minimum of 200mm from a positional lamp</p>

End Outline, Position (Side), Stop, Side Marker & Daytime Running Lamps 22

Method of Inspection	Required Standard
<p>Note 5: Daytime running lamps. The lamps must be connected so that they switch off automatically when the headlamps are on.</p>	<p>20. They must be positioned to meet (see note 1)</p> <ul style="list-style-type: none"> a. the positional requirements of Table 1 b. the angles of visibility requirements of Table 1 <p>Daytime running lamps;</p> <p>21. The correct number must be fitted to the vehicle (Table 1)</p> <p>22. They must be operational</p> <p>23. They must only emit white light to the front</p> <p>24. They must be positioned to meet</p> <ul style="list-style-type: none"> a. the positional requirements of Table 1 b. the angles of visibility requirements of Table 1 <p>25. They must extinguish automatically when headlamps are operated. Note 5</p>

End Outline, Position (Side), Stop, Side Marker & Daytime Running Lamps 22

Table 1

TYPE	NUMBER	APPLICATION	COLOUR	POSITION			ANGLES OF VISIBILITY See Figures 1 & 2 of section 20	APPROVAL MARK "E" or "e" Identity Symbol or BS Mark
				MAX DISTANCE FROM SIDE (mm)	MAX HEIGHT (mm)	MIN HEIGHT (mm)		
Front Position Lamps	Min 2 Max any number Includes optional lamps (see note 1)	Mandatory	White	400	1500 or if impractical 2100	350	a. Horizontal i. 45° Inwards ii. 80° Outwards b. Vertical i. 15° Above and below the horizontal (May be reduced to 5° if the lamps are less than 750mm above the ground)	A "E" or "e"
Rear Position Lamps	Min 2. Max any number Includes optional lamps (see note 1)	Mandatory	Red	400	1500 or if impractical 2100	350	a. Horizontal i. 45° Inwards 11. 80° Outwards b. Vertical i. 15° above and below the horizontal (May be reduced to 5° if the lamps are less than 750mm above the ground)	R "E" or "e"
Stop Lamps	Min 2 Max any number Includes optional lamps	Mandatory	Red	One on each side of longitudinal axis (Min separation 440)	1500 or if impracticable 2100	350	a. Horizontal i. 45° inwards and outwards b. Vertical i. as rear position lamps.	S1 or S2 "E" or "e"
Stop Lamps (Optional)	Min 1 Max any number (see note 1)	Optional	Red	If 1 is fitted: as close to vehicle centre-line as practicable If 2 are fitted: no requirement	n/a	no lower than the mandatory stop lamps	Must face the rear	S1 or S2 S3 or S4 for High Level "E" or "e"

End Outline, Position (Side), Stop, Side Marker & Daytime Running Lamps 22

TYPE	NUMBER	APPLICATION	COLOUR	POSITION			ANGLES OF VISIBILITY See Figures 1 & 2 of section 20	APPROVAL MARK "E" or "e" Identity Symbol or BS Mark
				MAX DISTANCE FROM SIDE (mm)	MAX HEIGHT (mm)	MIN HEIGHT (mm)		
End Outline Marker Lamp	2 visible from the front and 2 visible from the rear Max any number Includes optional lamps (see note 1)	Mandatory	Front-White Rear - Red	As close as possible to the extreme edge and not more than 400mm from the edge	As close as possible to the Top of the vehicle	Front No lower than the upper edge of the windscreen Rear compatible with the design and operational requirements	a. Horizontal i. 80° Outwards b. Vertical i. 5° Above the horizontal ii. 20° Below the horizontal	A or R "E" or "e"
Side Marker Lamp	Min (see below) Max (any)	All vehicles where the length exceeds 6m	Amber (The rearmost marker may be red if it is combined with another rear lamp)	-	1500 or if impracticable 2100	250	a. Horizontal i. 45° to the front and rear (Can be reduced to 30° if fitted as an optional extra) b. Vertical i. 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)	SM "E" or "e"
Daytime Running Lamp (Optional)	Min 2 Max 2	Optional	White	400mm	1500mm	250mm	a. Horizontal i. 20° Outwards and inwards b. Vertical i. 10° Upwards and downwards	"E" or "e"

Side Marker Lamp Spacing

- at least one side-marker lamp must be fitted to the middle third of the vehicle
- the foremost side-marker lamp being not further than 3 m from the front
- the distance between two adjacent side-marker lamps shall not exceed 3 m; this distance may be increased to 4 m where the bodywork makes it impractical to comply
- the distance between the rearmost side-marker lamp and the rear of the vehicle shall not exceed 1 m

End Outline, Position (Side), Stop, Side Marker & Daytime Running Lamps 22

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	22/01/2010	Added notes to the standards, reworded Note 1 and made changes to Table 1
3	29/10/2010	Link RS6, 11 & 20 to Note 1, Add approval mark to Table 1(Optional Stop Lamps)

End Outline, Position (Side), Stop, Side Marker & Daytime Running Lamps 22

23 Direction Indicators

Application: All Vehicles

Method of Inspection	Required Standard
<p>Carry out a visual check of all direction indicator and side repeater lamps fitted to the vehicle for operation, colour, number, approval markings and correct positioning.</p> <p>With optional lamps check that fitment is permitted and they do not exceed the maximum number of lamps allowed to be fitted</p> <p>Note 1: Geometric angles of visibility and positional requirements are not required for all optional direction indicator lamps</p> <p>The inspection of hazard warning lamps applies to all the obligatory direction indicator and side repeater lamps fitted to the vehicle</p>	<p>Directional Indicators and side repeaters;</p> <ol style="list-style-type: none"> 1. All lamps must be 'e' or 'E' marked and, where applicable, bear the appropriate identity marking as listed in table 1 2. They must be operational 3. The correct number must be fitted to the vehicle (Table 1) 4. 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) 5. There must be an audible or visual tell tale fitted to indicate the operation of any indicators. 6. All lamps must emit amber light. 7. They must be positioned to meet (see note 1) <ol style="list-style-type: none"> a. the positional requirements of Table 1 b. the angles of visibility requirements of Table 1

Direction Indicators 23

Method of Inspection	Required Standard
	<p>Hazard Warning Lights;</p> <p>8. They must operate with the ignition switched on and off.</p> <p>9. The hazard warning device must operate all of the direction indicators simultaneously</p> <p>10. The hazard warning device must have a telltale warning light fitted which is circuit specific</p>

Table 1

TYPE	NUMBER	APPLICATION	COLOUR	POSITION			ANGLES OF VISIBILITY See Figures 1 & 2 of section 20	APPROVAL MARK "E" or "e" Identity Symbol or BS Mark / Notes
				MAX DISTANCE FROM SIDE (mm)	MAX HEIGHT (mm)	MIN HEIGHT (mm)		
Direction Indicators & Hazard Warning	<p>Motor Vehicles On each side Front – One Rear – One Side Repeater – One</p> <p>Plus 2 optional all vehicles- Rear only (See note 1)</p>	All Vehicles	Amber	<p>400 (Min separation 600 unless vehicle width is less than 1300, where min separation 400)</p>	<p>1500 or if impracticable 2300 for side direction indicators and 2100 for front and rear direction indicators</p>	<p>Side indicators 500. Other indicators 350</p>	<p>a. Horizontal i. 80° outwards 45° inwards. ii. (SIDE REPEATER) To the rear between 5° and 60° outboard. b. Vertical i. < 750mm above the ground 15° above and 5° below horizontal. ii. Otherwise 15° above and below horizontal.</p>	<p>Front 1, 1a, 1b or 11 Front – side 3 or 4 Side Repeater 5 or 6 Rear 2a, 2b or 12 "E" or "e"</p>
A side repeater lamp must be fitted within 2600 mm of the front of the vehicle								

Direction Indicators 23

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/10/2010	Link RS7 to Note 1

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24 Rear Registration Lamps

Application: All Vehicles

Method of Inspection	Required Standard
<p>Carry out a visual check of all rear registration plate lamps fitted to the vehicle for operation, colour, number and correct positioning. This includes all optional lamps.</p> <p>Note 1: See section 4 Rear Registration Plate Space in conjunction with position of rear registration plate lamp</p>	<p>Rear registration plate lamps;</p> <ol style="list-style-type: none">1. All lamps must be 'e' or 'E' marked2. They must be operational3. They must be able to be switched on and off with the front and rear position lights by operating one switch4. They must only emit white light5. They must be positioned sufficient to illuminate the rear registration plate (see note 1)

Record of Revision

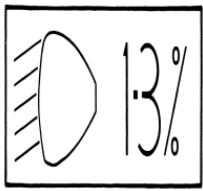
Revision	Date	Description of Change
1	24/04/2009	
2	29/10/2010	Remove reference to Max Number of Optional Lamps in MOI

25 Headlamps

Application: All Vehicles

Method of Inspection	Required Standard
<p>Carry out a visual check of all headlamps fitted to the vehicle for operation, colour, number, approval markings and correct positioning.</p> <p>With optional lamps check that fitment is permitted and they do not exceed the maximum number of lamps allowed to be fitted</p> <p>In the case of a dipped beam headlamp the minimum height is measured to the lower edge of the light emitting surface</p> <p>All lamps fitted to the vehicle must not move by swivelling, deflecting or otherwise while the vehicle is in motion, except for:</p> <ul style="list-style-type: none"> • a headlamp for adjustment or dipping of the beam • a headlamp which can be retracted or concealed • a headlamp which by design can be deflected to the side with the movement of the front wheels of the vehicle for the purposes of steering the vehicle. 	<p>Headlamps;</p> <ol style="list-style-type: none"> 1. All lamps must be 'e' or 'E' marked and where applicable, bear the appropriate identity marking as listed in table 1 2. All obligatory and optional headlamps must be fitted as "matched pairs". 3. They must be operational 4. They must emit a white light. 5. When on dip or main beam they must emit sufficient light to be able to illuminate the road in front of the vehicle 6. The correct number must be fitted to the vehicle (Table 1) 7. Dipped beam headlamps must be positioned to meet the requirements of Table 1 <p>Gas Discharge Headlamps</p> <ol style="list-style-type: none"> 8. Must be accompanied by evidence of compliance with the technical requirements if not compliant with the following: <ul style="list-style-type: none"> • is "E" or "e" marked • 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

Headlamps 25

Method of Inspection	Required Standard
<p>Align the headlamp aim testing equipment to the vehicle in accordance with the manufacturer's instructions. With an assistant sitting in the driver's seat, check the alignment of each dipped beam headlamp in association with the appropriate criteria.</p> <p>Note 1: The alignment requirement must be met without the use of masks or beam converters unless they are an integral part of the headlamp as it was approved. Devices or materials applied to the inside of a headlamp which were not present at the time of approval are unacceptable.</p> <p>Some vehicles may be fitted with an in-car driver's headlamp adjustment device. This may be adjusted to enable both headlamps to meet the criteria. Both headlamps, however, must comply with the requirements with the device set in one position.</p> <p>Note 2: Example of marking showing the vertical downwards inclination of the dipped-beam headlamps when the vehicle is at its kerbside weight and has a weight of 75 kg on the driver's seat</p> 	<p>Headlamp Aim</p> <p>European Type (checked on dipped beam)</p> <ol style="list-style-type: none"> 9. The beam image 'kick-up' must not be to the offside. 10. For headlamps with centres not more than 850mm from the ground, the beam image horizontal cut-off must be between the horizontal 0.5% and 2% lines, ie the red tolerance band. 11. For headlamps with centres more than 850mm from the ground, the beam image horizontal cutoff must be between the horizontal 1.25% and 2.75% lines, ie the blue tolerance band. 12. The beam image 'break point' must not be to the right of the 0% vertical line, or to the left of the vertical 2% line. 13. The vehicle must be marked with a clearly legible and indelible marking showing the setting recommended by the manufacturer for the downward inclination of the horizontal part of the cut-off of the beam pattern of the dipped-beam headlamps, that setting shall be a single figure- (see note 2) <ol style="list-style-type: none"> a. between 1 and 1.5 per cent if the height of the centre of the headlamp is not more than 850 mm above the ground, and b. between 1 and 2 per cent if the height of the centre of the headlamp is more than 850 mm above the ground.

European Type Headlamp

Checked on Dipped Beam

Check the position of the 'break point' and horizontal cut-off.

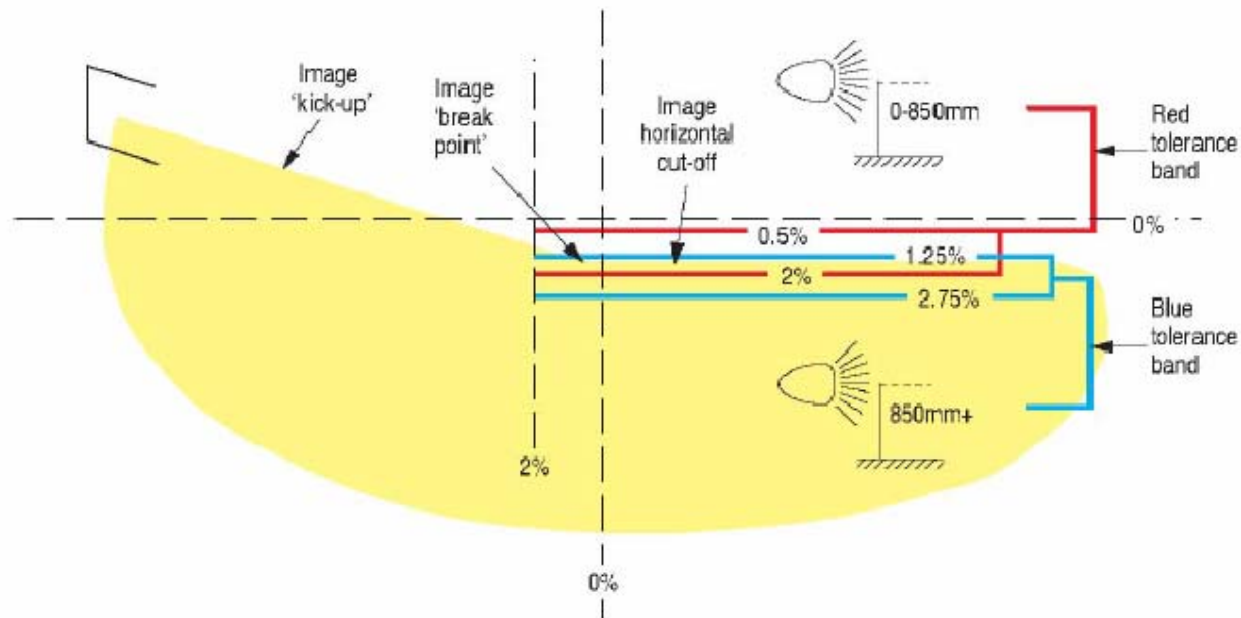


Table 1

TYPE	NUMBER	APPLICATION	COLOUR	POSITION			ANGLES OF VISIBILITY See Figures 1 & 2 of section 20	APPROVAL MARK “E” or “e” Identity Symbol or BS Mark / Notes
				MAX DISTANCE FROM SIDE (mm)	MAX HEIGHT (mm)	MIN HEIGHT (mm)		
Dipped Beam Headlamp	Min 2 Max 2	Motor Vehicles	White	400	1200	500	Angles of Visibility: 45° out 10° in 15° up 10° down	C “E” or “e”
Main Beam Headlamp	Min 2 Max 4	Motor Vehicles	White	-	-	-	No requirement	R “E” or “e”

Headlamps 25

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	22/01/2010	Required Standard 13 added
3	29/10/2010	Remove positional requirement from table 1

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26 Front Fog Lamps

Application: All Vehicles (optional)

Method of Inspection	Required Standard
Carry out a visual check of all front fog lamps for operation, colour, number, approval markings and correct positioning	<p>Front fog lamps;</p> <ol style="list-style-type: none"> 1. All lamps must be 'e' or 'E' marked and, where applicable, bear the appropriate identity marking as listed in Table 1 2. The correct number must be fitted to the vehicle (Table 1) 3. They must be operational 4. 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. 5. They must only emit white or yellow light 6. They must be positioned correctly to meet the positional requirements of Table 1

Table 1

TYPE	NUMBER	APPLICATION	COLOUR	POSITION			ANGLES OF VISIBILITY See Figures 1 & 2 of section 20	APPROVAL MARK "E" or "e" Identity Symbol or BS Mark / Notes
				MAX DISTANCE FROM SIDE (mm)	MAX HEIGHT (mm)	MIN HEIGHT (mm)		
Front Fog Lamps	Two (Maximum)	optional	White or Yellow	400	No higher than dipped beam headlamp	250	Not Applicable	B "E" or "e"

Front Fog Lamps 26

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

27 Towing Hooks

Application: All Vehicles

Method of Inspection	Required Standard
<p>The vehicle must be equipped with a device at the front that enables the vehicle to be towed that can withstand a tractive and compressive static force of at least half the authorised total weight of the vehicle.</p> <p>The device may be in the form of a fixed or screw-in eyelet, welded loop, a holed metal plate, or may be incorporated into the vehicle structure. Removable / retractable towing device eyes or loops will need to be placed into the 'towing position' to be assessed.</p> <p>Note 1: Where visually the device or surrounding structure does not appear to be of sufficient strength, the presenter may provide evidence from the manufacturer of the vehicle and/or the device to the requirements of this section.</p>	<ol style="list-style-type: none">1. The vehicle must have a suitable towing device on the front of the vehicle to allow the attachment of a rigid towing bar.2. Any towing hook or eye, mounting arrangement, bracket, or surrounding vehicle structure must be able to withstand the loads expected. (see note 1)

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/10/2010	Remove the reference to Rope from RS 1

28 Rear Fog Lamps

Application: All Vehicles

Method of Inspection	Required Standard
<p>Carry out a visual check of the rear fog lamps fitted to the vehicle for operation, colour, number, approval markings and correct positioning.</p> <p>With optional lamps check that fitment is permitted and they do not exceed the maximum number of lamps allowed to be fitted</p> <p>Note 1: Rear Fog Lamp separation distance must be measured between the “illuminating surface” of each lamp.</p>	<p>Rear fog lamps;</p> <ol style="list-style-type: none"> 1. All lamps must be ‘e’ or ‘E’ marked and where applicable, bear the appropriate identity marking as listed in table 1 2. They must be operational 3. The correct number must be fitted to the vehicle (Table 1) 4. The rear fog lamp(s) must only illuminate when dipped beam, main beam or front fog lamps are lit 5. The rear fog lamps must not be affected by switching on or off any other lamps (except those above) 6. Can be switched off independently of any other lamp, may continue to operate until position lamps are switched off and then remain off until deliberately switched back on <u>or</u> a warning, at least audible, additional to the mandatory tell tale is given if the ignition is switched off or the ignition key is withdrawn and the driver's door is opened whilst the rear fog lamp switch is in the 'on' position 7. They must only emit a red light 8. They must be positioned correctly to meet <ol style="list-style-type: none"> a. the positional requirements of Table 1 b. the angles of visibility requirements of Table 1

Rear Fog Lamps 28

Method of Inspection	Required Standard
	<p>9. Must be fitted with an operational “tell-tale” lamp (non-flashing) visible from the driving position</p> <p>10. Must not be operated by a brake control</p> <p>11. Fitted so that the reflector is facing squarely to the rear</p> <p>12. An optional rear fog lamp must form a matched pair with the obligatory lamp.</p> <p>13. An optional rear fog lamp must only operate with the obligatory rear fog lamp</p>

Table 1

TYPE	NUMBER	APPLICATION	COLOUR	POSITION			ANGLES OF VISIBILITY See Figures 1 & 2 of section 20	APPROVAL MARK “E” or “e” Identity Symbol or BS Mark / Notes
				MAX DISTANCE FROM SIDE (mm)	MAX HEIGHT (mm)	MIN HEIGHT (mm)		
Rear Fog Lamp	Min 1 Max 2	All Vehicles	Red	At least one must be on centre line or to offside of vehicle (Min separation distance from stop lamp 100 see note 1)	1000	250	a. Horizontal i. 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 b. Vertical i. 5° above and below horizontal.	B or F “E” or “e”

Rear Fog Lamps 28

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

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29 Reversing Lamps

Application: All Vehicles

Method of Inspection	Required Standard
<p>Carry out a visual check of the reverse lamps fitted to the vehicle for operation, colour, number, approval markings and correct positioning.</p> <p>With optional lamps check that fitment is permitted and they do not exceed the maximum number of lamps allowed to be fitted</p>	<p>Reverse lamps;</p> <ol style="list-style-type: none"> 1. All lamps must be 'e' or 'E' marked and, where applicable, bear the appropriate identity marking as listed in table 1 2. They must be operational 3. The correct number must be fitted to the vehicle (Table 1) 4. They must emit white light. 5. They must be positioned to face the rear 6. They must operate by selection of reverse gear or be fitted with a telltale warning device.

Table 1

TYPE	NUMBER	APPLICATION	COLOUR	POSITION			ANGLES OF VISIBILITY	APPROVAL MARK "E" or "e" Identity Symbol or BS Mark / Notes
				MAX DISTANCE FROM SIDE (mm)	MAX HEIGHT (mm)	MIN HEIGHT (mm)		
Reversing Lamps	Min 1 Max 2	All Vehicles	White		1200	250	Figure 3 Section 20	A or R "E" or "e"

Reversing Lamps 29

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

31 Seat Belts

Application: All Vehicles

Method of Inspection	Required Standard
<p>Disabled persons belts 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 or mental impairment, intended for use solely by such a person and as such are exempt the requirements of this section, however the belt must be securely attached and appear to operate as intended.</p> <p>Seats not intended for road use (a) The requirements in column 2 do not apply to seats intended for use solely while the vehicle is stationary or for when the vehicle is not used on a public road. (b) Any seats which are not for use when travelling on a public road must be clearly identified to users by means of a pictogram or a sign with appropriate text.</p> <p>Approved seats with integral belts Where a seat belt is fitted to the seat it must be an approved seat (see section 19) in this case RS 10,15 16 and 17 will be covered by the approval.</p> <p>Where optional belts are fitted they must comply with the requirements of this section.</p> <p>Note 1: 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 Approved Seats are deemed to be met</p>	<ol style="list-style-type: none"> 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 an appropriate "e" approval mark. 3. Where seats are intended for use only when the vehicle is not being driven on public roads, the seats must be accompanied by a pictogram or sign clearly indicating that the seat is not to be used whilst the vehicle is in motion. 4. Each seat belt must be attached by an appropriate fixing and be securely fitted (see notes 1 & 2) 5. There must be no damage to the seat belt structure that would affect its strength. 6. The lock mechanism must securely lock the belt 7. The lock mechanism must be able to be released easily, both in normal use and when the belt is under load. 8. With the seat belt fastened and the seat unoccupied, retractor mechanisms must take up any excess webbing. (see note 3) 9. The retractor mechanism must be of an acceptable type and be correctly positioned to ensure the correct operation of the belt (see notes 4 & 5)

Seat Belts 31

Method of Inspection	Required Standard
<p>Note 2: 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.</p> <p>Note 3: Some types of retracting belt might need assistance in order to retract.</p> <p>Note 4: 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.</p> <p>Note 5: An “automatically locking” retractor (ie 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, ie for use as a child restraint.</p> <p>Note 6: Where a seat belt is not integral with the seat as approved, 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.</p> <p>Note 7: The seat belt must be capable of effectively restraining the occupant</p> <ul style="list-style-type: none"> ▪ 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. 	<p>10. The seat belt must sit correctly across the wearers torso so as to provide effective restraint in the event of a frontal impact (see notes 4,5,6,7 & 8)</p> <p>11. There must not be any sharp edges / objects in the seat belt area likely to cause damage to the belt.</p> <p>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</p> <p>13. The warning label for the airbag must be visible in front of a person about to install a rearward facing child restraint</p> <div data-bbox="1563 715 1796 954" data-label="Image"> </div> <p>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.</p> <p>15. A three point belt “effective upper anchorage” location must be at least 450mm above the reference point. (See note 9 and annex 2)</p>

Seat Belts 31

Method of Inspection	Required Standard
<p>Note 8: 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.</p> <p>Note 9: 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, consideration should be made to the suitability of the seat to withstand the loads likely to be imposed. The requirements Section 19 RS 3 apply to the effective anchorage location.</p>	<p>16. A lap/diagonal belt “effective upper anchorage” location must be at least 140mm from the longitudinal centre line of the seat. (See note 9)</p> <p>17. The lower anchorages must be at least 350mm apart.</p> <p>18. The lower anchorages on side ward facing seats must be at least 350mm apart but no further apart than 500mm</p>

Annex 1 Seat Belts – Minimum Obligatory Requirements

The table lists the minimum required belt type. A 3 point retractor belt may be fitted where the minimum required is a 2 point retractor lap belt and an acceptable alternative to any of the seat belt types listed is an adult harness belt comprising a lap belt and shoulder straps providing the anchorages satisfy section 19

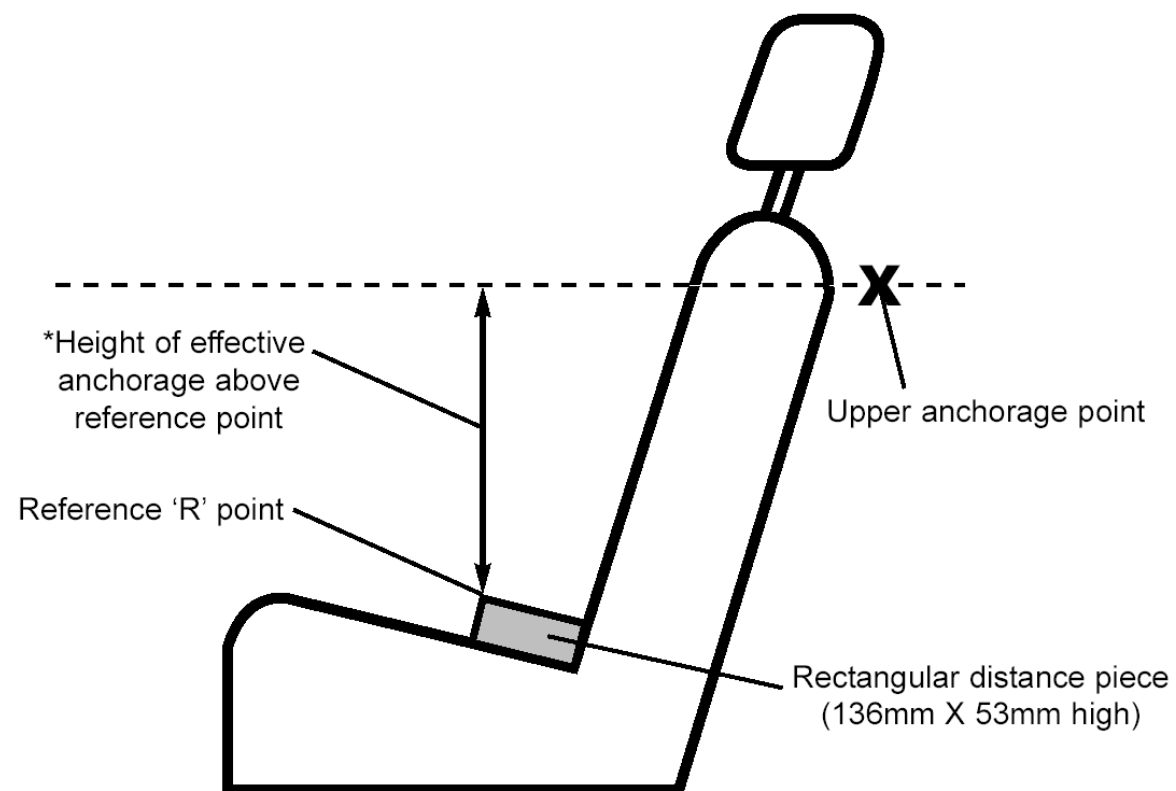
Vehicle GVW	Forward Facing Seat			Rearward Facing Seat	Sideward Facing Seat
	Driver	Front	Other		
Any vehicle with standees	none	none	None	none	None
Mass no greater than 3500kg with no standees	3 Point retractor belt *	3 Point retractor belt *	3 Point retractor belt *	2 point retractor lap belt	2 point retractor lap belt
Mass greater than 3500kg with no standees	3 Point retractor belt *	2 point retractor lap belt (see note 1)	2 point retractor lap belt (see note 1)	2 point retractor lap belt	2 point retractor lap belt
Vehicle for the carriage of prisoners	3 Point retractor belt *	3 Point retractor belt * if seat for crew use	None see section 19	None see section 19	None see section 19

* '3 point belt' means a seat belt which,

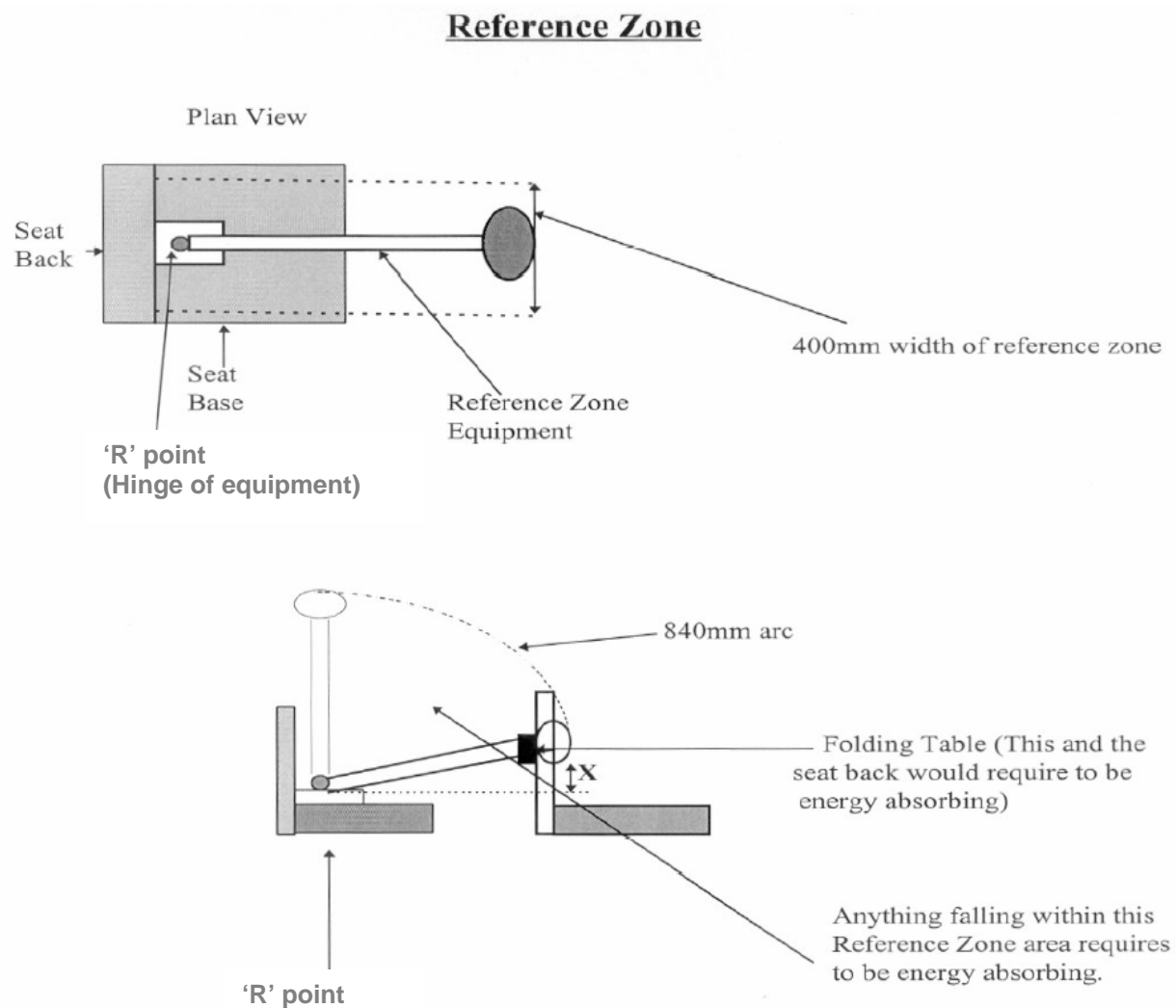
- restrains the upper and lower parts of the torso
- includes a lap belt and a retractor that operates on the diagonal part
- is anchored at not less than three points, and
- is designed for use by an adult.

TABLE NOTE 1: A 3 point belt is required where an item is determined to be within the reference zone as determined by annex 3 and that item is not accompanied by satisfactory evidence to the energy absorbing requirements of 74/408 EEC. **This only applies to Mandatory Belts.**

Annex 2 Effective Anchorage Upper Height Measurement



Annex 3



Note: X = Lower position of the reference zone 25.4mm above the R point.

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	22/01/2010	Annex 3 amended, H point replaced by R point

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

















33 Identification of Controls

Application: All Vehicles

Method of Inspection	Required Standard
<p>This inspection is to ensure that any controls, tell-tales and indicators fitted to the vehicle are readily identifiable, useable and of the correct colour</p> <p>Where a control, tell-tail or indicator are combined, a common symbol may be used for such a combination.</p> <p>Note 1: 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-tale means an optical signal which indicates the actuation of a device, correct or defective functioning or condition, or failure to function.</p> <p>Note 2: Controls, tell-tales and indicators listed in Table B are not required to be marked. However, symbols that are present must conform to those listed.</p> <p>Note 3: Other controls, tell-tales and indicators may be marked provided there is no confusion with those marked in accordance with those on Table A or B.</p> <p>Note 4: 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-tales and indicators appearing on the Information Display Device.</p>	<p>Symbols as shown in Table A and B</p> <ol style="list-style-type: none"> 1. The controls, tell-tales and Indicators must be identified with the correct symbols and the stated colour: (see note 1,2 and 4) 2. They must be on or close to the controls, tell-tales and indicators 3. They must stand out clearly from the background. 4. The vehicle must not be fitted with other controls, tell-tales and indicators that have symbols that may be confused with the symbols listed Tables A and B. (see note 3) 5. All symbols must contrast with the background and be identifiable by the driver 6. All driver controls must be able to be operated from the drivers seat <p>Information Display Device Fitted</p> <ol style="list-style-type: none"> 7. It must be able to display simultaneously the warning symbols for brake, main beam and direction indicator 8. It must provide the relevant information regarding tell – tales and indicators whenever the situation that causes them to operate arises 9. 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






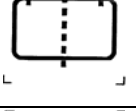


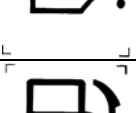


Identification of Controls 33

Table A

Control, Tell-tale or Indicator	Symbol	warning light / tell - tale	Control, Tell-tale or Indicator	Symbol	warning light / tell - tale	Control, Tell-tale or Indicator	Symbol	warning light / tell - tale
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			Choke (cold starting device)		Yellow
Position (side) Lamps		Green	Windscreen Washer			Brake Failure		Red
Front Fog lamps		Green	Windscreen Wiper and Washer			Fuel Level		Yellow
Rear Fog Lamps		Yellow	Headlamp Cleaning Device (with separate operating control)			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			

Identification of Controls 33

Table B

Control, Tell-tale or Indicator	Symbol	Notes	warning light / tell - tale	Control, Tell-tale or Indicator	Symbol	warning light / tell - tale
Parking Brake		Where a single tell-tale 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						

Identification of Controls 33

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/07/2009	Add the word "and" to RS1

34 Defrost / Demist

Application: All Vehicles fitted with a Windscreen

Method of Inspection	Required Standard
<p>Ensure that the vehicle is fitted with a system/systems capable of defrosting and demisting the windscreen (at least the swept area) to allow the driver an adequate view of the road in front and forward of the nearside and offside of the vehicle</p> <p>Note: The fitting of a device not permanently incorporated into the vehicle structure ie. adhered to the windscreen or body surface shall not be considered as a "system fitted to the vehicle."</p>	<ol style="list-style-type: none">1. The vehicle must be fitted with a system capable of defrosting / demisting at least the swept area of the windscreen.2. 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 of the defrosting system under cold weather conditions.3. An electrically heated screen must provide adequate heat and distribution to ensure effective operation.

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

35 Wash / Wipe

Application: All Vehicles fitted with a Windscreen

Method of Inspection	Required Standard
<p>Vehicles shall be fitted with adequate windscreen washing and wiping devices. Ensure that with the wind screen wet and the engine running, all wipers continue to move automatically over an area of the windscreen sufficient to give the driver an adequate view of the road in front and forward of the nearside and offside of the vehicle.</p> <p>Note 1: A “cycle” is the forward and return movement of the windscreen wiper.</p> <p>Note 2: Intermittent operation windscreen-wiper systems may be used for the purposes of complying with the requirements of RS3 provided that one of the frequencies obtained when the main frequency is interrupted is not less than 10 cycles/minute.</p>	<ol style="list-style-type: none"> 1. The vehicle must be fitted with a windscreen washer and wiper system to give the driver an adequate view of the road. 2. All front wipers must continue to move automatically over the swept area of the windscreen. 3. All front wipers must have at least two sweep frequencies (see note 1 and 2). 4. All front wipers must return automatically to a position of rest which is at or beyond the outer edge of the swept area. 5. All front wipers must be capable of being lifted from the windscreen to allow for cleaning of the windscreen. 6. The windscreen washer system must provide enough liquid to adequately clear the windscreen in conjunction with the wipers. 7. The windscreen washer system must have a reservoir capacity of at least 1 litre.

Wash / Wipe 35

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/07/2009	Amend RS5 text in brackets to read (see note 1 & 2)
3	29/04/2010	Remove RS 4 and 5 and renumber remaining Required Standards

36 Heating Systems

Application: All Vehicles (optional fitment)

Method of Inspection	Required Standard
<p>Heating Systems must be fitted as to present no danger to passengers or other persons.</p> <p>The heating System may be of the following types and one or more of each may be fitted:</p> <p>Heater using waste heat from water-cooled engine.</p> <p>Must comply to RS 1 and 2</p> <p>A combustion heater</p> <p>Requires documentary evidence or an 'E' marked component plus a Installation Check</p>	<ol style="list-style-type: none"> 1. 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). 2. 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). 3. If a combustion heater is fitted then it must be accompanied by documentary evidence <p>Combustion heater Installation Check</p> <ol style="list-style-type: none"> 4. It must be positioned so not likely to cause injury 5. A combustion heater utilizing a liquid or gaseous fuel must be fitted to the manufacturer's instructions. 6. A fuel filling point shared by the heater and the engine must have a notice fitted instructing that the heater must be shut down before refuelling. 7. A combustion heater exhaust must be positioned so exhaust gases are not likely to enter the passenger compartment


Heating Systems 36

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/10/2010	Reword RS 06

45 Safety Glass

Application: All Vehicles

Method of Inspection	Required Standard
<p>Ensure that all windscreens, windows, internal glazed panels and side screens are securely attached to the vehicle and are constructed from approved materials.</p> <p>The inspection of internally glazed panels applies to a partition or screen divider used for the separation of driver to passenger area or for passenger protection. It does not apply to such items like; break glass hammer panels, fire extinguisher panels or L.E.D information screens etc. This is not an exhaustive list but is provided as guidance.</p> <p>Armoured vehicles do not have to display approval markings.</p> <p>Note 1: "Safety Glazing" made from glass must be so constructed or treated that if fractured it does not fly into fragments likely to cause severe cuts. Each piece of glass must display the following relevant permanent marking applied by the glass manufacturer.</p> <p>ECE Regulation 43  43R-002439</p> <p>Note 2: "Safety Glazing" made from plastic means material which is so constructed or treated that if fractured it does not fly into fragments likely to cause severe cuts. "Safety glazing" made from plastic must have an "e" mark applied by the material manufacturer.</p> <p>Note 3: This only applies to those windows or parts of window affording the driver a view of the road</p>	<ol style="list-style-type: none"> 1. Windscreens, windows, internal glazed panels and side-screens where fitted must be securely attached to the vehicle. 2. Windscreens, windows, internal glazed panels and side-screens where fitted must be suitable for its use. (see Table 1) 3. Windscreens and windows wholly or partly on either side of the drivers seat must be "Safety Glazing" made from glass and display the relevant markings. (see note 1 and table 1) 4. All other windows (including sunroofs internal glazed panels and removable glass panels) and side-screens must be "Safety Glazing" (which may be made from glass, or from plastic) and display the relevant markings. (see notes 1,2 and table 1) 5. Windscreens and windows wholly or partly on either side of the drivers seat must allow a visual transmission of at least 70%, or 60% in the case of an armoured vehicle. (see note 3)

Safety Glass 45

Table 1

Type of window	Relevant Markings (Mandatory) In addition to "e" approval	Markings (Not Allowed)
Windscreen	II -for ordinary laminated glass III -for treated laminated glass IV -for glass-plastics glazing.	V - safety glazing having a regular light transmittance less than 70 per cent. VI - double-glazed unit VII - uniformly-toughened glass which can only be used as windscreens for slow-moving vehicles which, by construction, cannot exceed 40 km/h. VIII -In the case of rigid plastic glazing.
Windows wholly or partly on either side of the drivers seat	VIII -In the case of rigid plastic glazing. In addition the appropriate application will be signified by: /B for side, rear and roof glazing	V -in the case of safety glazing having a regular light transmittance less than 70 per cent. VII - uniformly-toughened glass which can only be used as windscreens for slow-moving vehicles which, by construction, cannot exceed 40 km/h. VIII -In the case of rigid plastic glazing. In addition the appropriate application will be signified by: /A for forward facing panels, /C in locations where there is little or no chance of head impact.
Other windows and other glazed panels	None	VII - uniformly-toughened glass which can only be used as windscreens for slow-moving vehicles which, by construction, cannot exceed 40 km/h.
Break Glass exits	None	II -for ordinary laminated glass, III -for treated laminated glass, IV -for glass-plastics glazing

These symbols may be marked down in a different format i.e **II - IV**

Laminated-glass

Means a glass pane consisting of two or more layers of glass held together by one or more interlayers of plastics material; it may be:

"ordinary", when none of the layers of glass of which it is composed has been treated; **or**

"treated", when at least one of the layers of glass of which it is composed has been specially treated to increase its mechanical strength and to condition its fragmentation after shattering;

Glass-plastics glazing

Means a pane of laminated glass having one layer of glass and one or more layers of plastics material, at least one of which acts as interlayer. The plastics layer(s) shall be on the inner face when the glazing is fitted on the vehicle;

Rigid plastic glazing

Means a plastic glazing material which does not deflect vertically more than 50 mm in the flexibility test as shown in **UNECE Regulation 43**

Safety Glass 45



Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	22/01/2010	Add new paragraph to the MOI

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46 Tyres

Application: All Vehicles

Method of Inspection	Required Standard
<p>Check each tyre for correct fitment, structure and that it has the correct markings to confirm compliance with the required standards. (Where it is not possible to check markings, a declaration will be required from the applicant).</p> <p>Annex 1</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>EC Type Approval Mark</p> <p>Box should be a minimum of 12mm x 8mm</p>  <p>Letters and numbers, minimum of 4mm high</p> </div> <div style="text-align: center;"> <p>UNECE Type Approval Mark</p> <p>Circle with a minimum diameter of 12mm</p>  <p>Number 4mm high and serial number alongside</p> </div> </div> <p>.</p> <p>Note 1: Structure means the technical characteristics of the tyres carcass, such as diagonal or bias ply, bias belted, Radial, reinforced.</p> <p>Note 2: Type of tyre means tyres which do not differ in such essential respects as manufacturer's name or trade mark, tyre size designation, category of use (special, snow tyre etc), speed category, load capacity index and tyre cross section</p> <p>Note 3: Tyres with no category of use designation (special, snow tyre etc), will be deemed to be Normal Use Tyres</p>	<ol style="list-style-type: none"> 1. Each tyre fitted to the vehicle, including any spare or temporary use spare, must have the correct approval marks. (see annex 1) 2. The tyre must also be marked with the following information :- Manufacturer's name or trade mark, tyre size designation, category of use (special, snow tyre etc), speed category, load capacity index and tyre cross section. 3. All tyres must have the same structure. (see note 1) 4. Each of the tyres fitted to any one axle must be of the same type. (see note 2) 5. Each tyre must have the correct load indices, speed ratings and use markings as appropriate, taking into account the vehicle to which it is fitted, and the type of use for the vehicle will be subject to. (see note 1, 2 and 3 and tables 1,2 & 3) 6. Each wheel and tyre must have sufficient room to revolve so as to ensure that it is unlikely to foul on any part, taking into consideration the suspension and steering constraints provided by the manufacturer 7. Tyres must be fitted in accordance with the manufacturer's instructions as indicated on the side wall of the tyre

Tyres 46

Method of Inspection	Required Standard
<p>Note 4: Operators may display a 50mph sticker on the rear of there vehicle, (They do not have to physically restrict the speed to 50mph) to claim the vehicle is one with restricted speed.</p> <p>Note 5: Restricted Speed Vehicle:- Operators may display a 50mph sticker on the rear of there vehicle, (They do not have to physically restrict the speed to 50mph) to claim the vehicle is one with restricted speed.</p> <p>Note 6: Local Service vehicle:- As the definition of local service concerns the way the vehicle is operated, a declaration from the presenter is required stating the vehicles intended use on a local service</p>	<p>8. Where a vehicle has a GVW of 3500kg or less the grooves of the tread pattern must be at least 1.6mm in depth throughout a continuous band comprising of the centre $\frac{3}{4}$ of the original breadth of the tread pattern. (excluding wear indicators)</p> <p>9. Where a vehicle has a GVW exceeding 3500kg the grooves of the tread pattern must be at least 1mm in depth throughout a continuous band comprising of at least $\frac{3}{4}$ of the original breadth of the tread pattern (excluding wear indicators)</p>

Table 1**Speed Symbols (see notes 1 & 2)**

Class of Vehicle	Permitted Speed (MPH)	Minimum Speed Symbol Required
Any Bus other than a "Local Service Bus" or a "Restricted Speed Vehicle" (see notes 5 & 6)	70	L
A "Local Service Bus" or a "Restricted Speed Vehicle"	50	F

Table 2**Alternative Speed Ratings (see notes 1 & 2)**

Certain Vehicles can be fitted with Tyres showing a different speed rating than those shown above but the maximum axle loads will be changed as shown below

Class of Vehicle	Normal Speed Rating	Alternative Speed Rating	Change in Axle Load
A Bus other than a "Local service Bus" or a "Restricted Speed Vehicle"	L	J	-7%
		K	-3%
A "Local Service Bus" or a "Restricted Speed Vehicle"	F	J or higher	+10%

Table 2A

Speed category symbol	Corresponding speed	
	(kph)	(mph)
F	80	50
G	90	56
J	100	62
K	110	68
L	120	75
M	130	81
N	140	87
P	150	93
Q	160	99
R	170	105
S	180	112
T#	190	119
U#	200	124
H#	210	130
V#	240	149

These tyres are not commonly found on PSV, the H rated tyre may be found on small M2 vehicles, this will still only receive a +10% if fitted on a restricted speed vehicle. See table 2 above.

Table 3

LOAD CAPACITY INDEX TABLE
EXTRACT FROM ECE REG 54 : "LOAD INDEX" TABLE AMENDED TO SHOW AXLE
LOADS

LOAD INDEX	SINGLE Kg	DUAL Kg	LOAD INDEX	SINGLE Kg	DUAL Kg	LOAD INDEX	SINGLE Kg	DUAL Kg
70	670	1340	110	2120	4240	150	6700	13400
71	690	1380	111	2180	4360	151	6900	13800
72	710	1420	112	2240	4480	152	7100	14200
73	730	1460	113	2300	4600	153	7300	14600
74	750	1500	114	2360	4720	154	7500	15000
75	774	1548	115	2430	4860	155	7750	15500
76	800	1600	116	2500	5000	156	8000	16000
77	824	1648	117	2570	5140	157	8250	16500
78	850	1700	118	2640	5280	158	8500	17000
79	874	1748	119	2720	5440	159	8750	17500
80	900	1800	120	2800	5600	160	9000	18000
81	924	1848	121	2900	5800	161	9250	18500
82	950	1900	122	3000	6000	162	9500	19000
83	974	1948	123	3100	6200	163	9750	19500
84	1000	2000	124	3200	6400	164	10000	20000
85	1030	2060	125	3300	6600	165	10300	20600
86	1060	2120	126	3400	6800	166	10600	21200
87	1090	2180	127	3500	7000	167	10900	21800
88	1120	2240	128	3600	7200	168	11200	22400
89	1160	2320	129	3700	7400	169	11600	23200
90	1200	2400	130	3800	7600	170	12000	24000
91	1230	2460	131	3900	7800	171	12300	24600
92	1260	2520	132	4000	8000	172	12600	25200
93	1300	2600	133	4120	8240	173	13000	26000
94	1340	2680	134	4240	8480	174	13400	26800
95	1380	2760	135	4360	8720	175	13800	27600
96	1420	2840	136	4480	8960	176	14200	28400
97	1460	2920	137	4600	9200	177	14600	29200
98	1500	3000	138	4720	9440	178	15000	30000
99	1550	3100	139	4860	9720	179	15500	31000
100	1600	3200	140	5000	10000			
101	1650	3300	141	5150	10300			
102	1700	3400	142	5300	10600			
103	1750	3500	143	5450	10900			
104	1800	3600	144	5600	11200			
105	1850	3700	145	5800	11600			
106	1900	3800	146	6000	12000			
107	1950	3900	147	6150	12300			
108	2000	4000	148	6300	12600			
109	2060	4120	149	6500	13000			

Tyres 46

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

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47 Speed Limiter

Application: All Vehicles

Method of Inspection	Required Standard
<p>Ensure the vehicle is fitted with a speed limiting device</p> <p>or</p> <p>That speed limitation is achieved through the actual design of the vehicle</p> <p>Note 1: Vehicles incapable of the speed where a speed limiter is required to be set, are exempt, a confirmation (as listed below) that vehicles claiming to be incapable of 100km/h ARE incapable of it will be required;</p> <ul style="list-style-type: none"> a. Documentary evidence from the manufacturer/converter that the vehicle is unable to reach the speed due to the overall gearing of the drive train, or b. Documentary evidence from a speed limiter or Tachograph calibration centre, or c. Exempt by nature of its use, (vehicles used by the emergency services) <p>Note 2: It is acceptable for the plate to be fitted in the driver's door jamb. If fitted on a window and facing outward the details must be able to be read by a person of average height.</p> <p>Note 3: The required maximum set speed for the UK is 100 kph or 62 mph</p>	<p>Vehicles claiming to be incapable of the speed where a speed limiter is required to be set</p> <ul style="list-style-type: none"> 1. The vehicle as presented must be accompanied by satisfactory evidence confirming that the vehicle is incapable of 100km/h (See note 1) <p>Vehicles requiring a Speed Limiter</p> <ul style="list-style-type: none"> 2. The vehicle must be fitted with a speed limiter 3. Speed limiter wiring must be secure and the speed limiter device and wiring connectors must be either sealed, or require special tools to access, so as to prevent unauthorised access to adjust the settings or interrupt the power supply 4. The speed limiter calibration plate must be securely fitted in the driver's compartment (see note 2) 5. The speed limiter calibration plate must be clearly and indelibly marked with the speed at which the limiter has been set (the speed may be set in mph or kph) (see note 3)

Speed Limiter 47

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

48 Masses and Dimensions

Application: All Vehicles

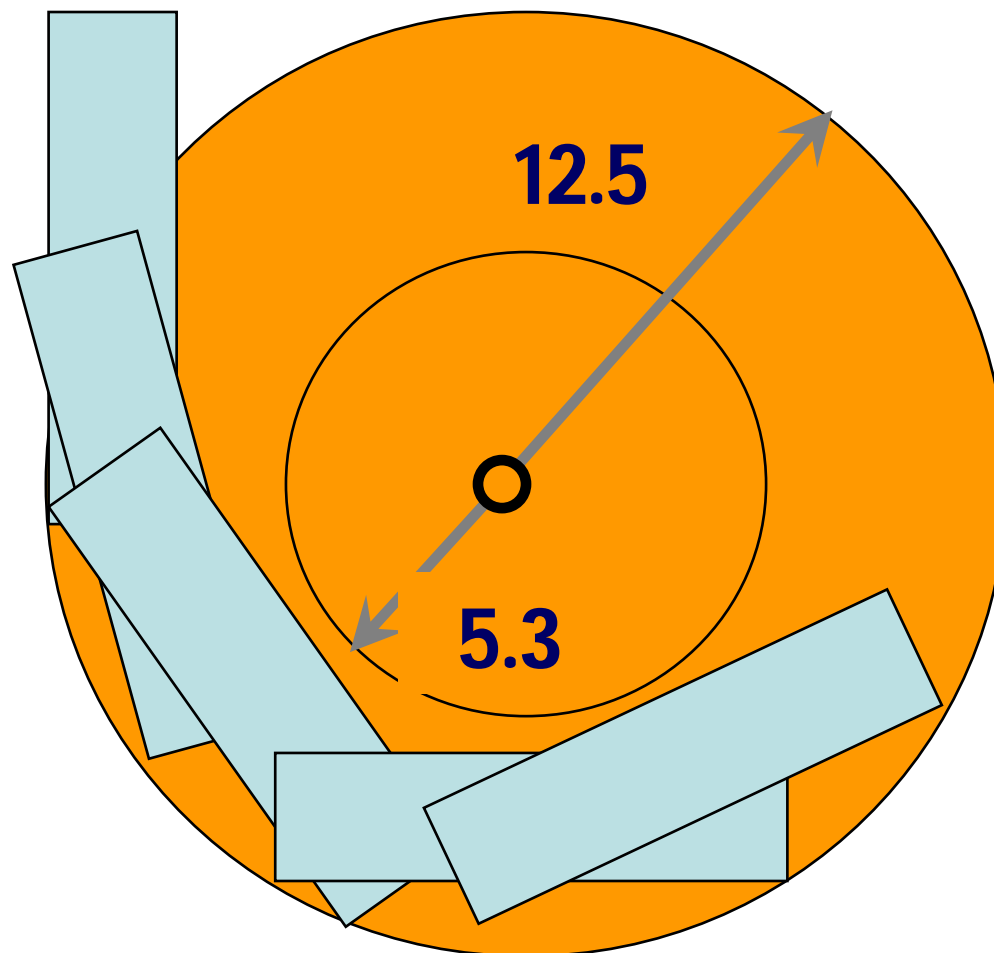
Method of Inspection	Required Standard																				
<p>This inspection is to ensure that the vehicle presented has satisfactory evidence of compliance to the required standard and has not been subject to modifications that may invalidate any approval held</p> <p>Dimensions:</p> <p>Check that the vehicle does not exceed the maximum authorised dimensions given in the table in Standard 1.</p> <p>Note 1: Where the vehicle is clearly within the maximum, a measurement is not needed.</p> <p>Masses:</p> <p>The manufacturer's maximum permitted vehicle and axle weights (GB weights) Shown on the manufacturers plate, must be compared to the maximum weights in Annex 2.</p> <p>In most cases a vehicle submitted for test will be unladen and will be obviously well within the weights set out in Annex 2. Calculations using the method in Annex 3 must be carried out to verify that a vehicle fully laden with passengers and luggage will not exceed the manufacturer's permitted Gross Vehicle Weight, or axle weights.</p>	<p>Dimensions:</p> <p>1. The vehicle must not exceed the maximum authorised dimensions</p> <table><tr><th>Category</th><th>WIDTH See annex 1</th><th>LENGTH See annex 1</th><th>Height See annex 1</th></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td>M2</td><td>2550mm</td><td>13500mm</td><td>4570mm</td></tr><tr><td>M3</td><td>2550mm</td><td>See below</td><td>4570mm</td></tr></table> <p>13500mm for a 2 axle Bus 15000mm for a 3 axle Bus 18750mm for a Articulated Bus</p> <p>Masses:</p> <p>2. The vehicle gross weight must not exceed the maximum authorised Masses (weights) set out in Annex 2.</p> <p>3. The GB axle weights must not exceed the maximum authorised Masses (weights) set out in Annex 2.</p> <p>4. The sum of the permitted axle weights must be equal to or greater than the maximum gross vehicle weight.</p> <p>5. Where an original axle design weight appears to have been exceeded evidence to increase the weights must be provided (see note 2)</p>	Category	WIDTH See annex 1	LENGTH See annex 1	Height See annex 1									M2	2550mm	13500mm	4570mm	M3	2550mm	See below	4570mm
Category	WIDTH See annex 1	LENGTH See annex 1	Height See annex 1																		
M2	2550mm	13500mm	4570mm																		
M3	2550mm	See below	4570mm																		

Masses and Dimensions 48

Method of Inspection	Required Standard
<p>Turning Circle Requirements:</p> <p>There are 2 requirements to be fulfilled:-</p> <p>a) Check that the vehicle is able to manoeuvre a complete circular trajectory of 360 degrees inside an area defined by two concentric circles, without any of the vehicles outermost points projecting outside the defined corridor between the circles (see figure 1). This must be completed on both steering locks</p> <p style="padding-left: 40px;">The outer circle having a radius of 12.50 metres The inner circle having a radius of 5.30 metres</p> <p>b) When the vehicle is stationary facing the circle establish a vertical plane and mark this on the ground along side the vehicle. (see figure 2)</p> <p style="padding-left: 40px;">When the vehicle enters the circle as described above no part of it shall move outside of this by more than 0.6 metres. This procedure must be carried out on both sides</p> <p>Note: In the case of an articulated vehicle, the two rigid sections shall be aligned</p> <p>Note 2: Where a mass produced vehicle has been modified, or an axle has been used during the build of a new vehicle and the vehicle/axle weight appears to be heavier than the original vehicle/axle weight then evidence that the modifications justify the increased weights must be provided. This applies for example in the case of a stretched limousine.</p>	<p>6. A bus/coach is not permitted to tow a trailer exceeding 3500kg, therefore the permissible Gross Train Weight (GTW) must not exceed the maximum permissible Gross Vehicle Weight (GVW) by more than 3500kg. (For the purposes of this paragraph, the second part of an articulated bus where the two parts are inseparable without special tools is not deemed to be a trailer).</p> <p>7. The requirements for Mass distribution must be demonstrated by calculations. To show the calculated gross and axle weights, these weights must not exceed those shown in annex 2. (See annex 3 for guidance on the required calculation)</p> <p>Turning Circle Requirements:</p> <p>8. The motor vehicle is unable to manoeuvre for a complete circular trajectory of 360 degrees within the defined area (with the exception of the protruding parts prescribed for the vehicle width shown in Annex 1) (See figure 1)</p> <p>9. Any part of the vehicle must not move outside of the vertical plane by more than 0.6 metres (See figure 2)</p>

Figure 1

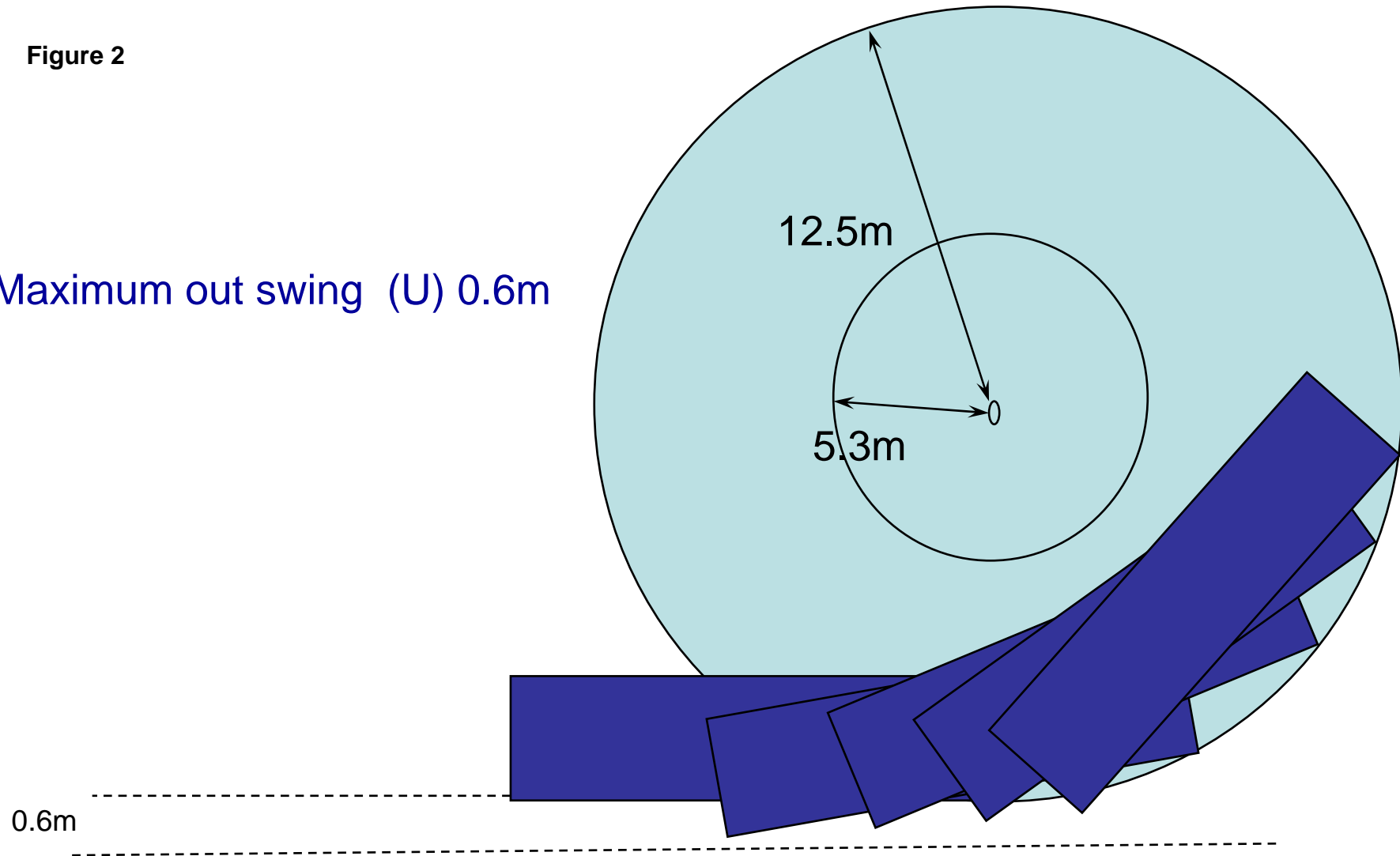
Vehicle has to remain in between the 2 circles for a full 360 deg



Masses and Dimensions 48

Figure 2

- Maximum out swing (U) 0.6m



Masses and Dimensions 48

Annex 1 Items to be excluded from measurement of length and width.

A - Items to be excluded when measuring Length	B - Items to be excluded when measuring Width
<ul style="list-style-type: none"> — wiper and washer devices, — front or rear registration plates, — lighting equipment, — mirrors and other devices for indirect vision, — access steps and hand-holds, — lifting platforms, access ramps and similar equipment in <i>running order</i> (i.e. in the position they would be on a moving vehicle), not exceeding 300 mm, provided that the loading capacity of the vehicle is not increased, — coupling devices, — trolley booms of electrically-propelled vehicles, — external sun visors 	<ul style="list-style-type: none"> — tyre-pressure or tyre failure indicators, — protruding flexible parts of wheelguards — lighting equipment, — mirrors and other devices for indirect vision, — access ramps in <i>running order</i> (i.e. in the position they would be on a moving vehicle), provided that they do not exceed 10 mm from the side of the vehicle and the requirements of section 16 (Exterior Projections) are met, — retractable steps, — the deflected part of the tyre walls immediately above the point of contact with the ground, — handles and hinges of external lockers, — trim protruding not more than 10mm from the bodywork,

C - Items to be excluded when measuring Height
<ul style="list-style-type: none"> — Aerials — Pantographs in their elevated position

Annex 2

Maximum permitted weights in Great Britain and Northern Ireland

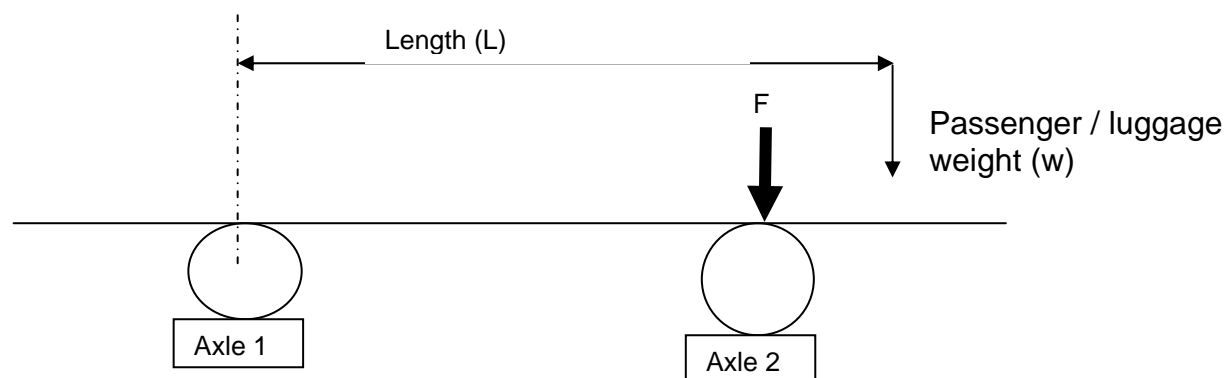
Bus / Coach	Maximum Weight
Two-axle Bus / Coach	18 tonnes
Three-axle Bus / Coach	25 tonnes *
Three-axle articulated buses	28 tonnes
* 26 tonnes where the driving axle is fitted with twin tyres and air suspension	
Single Axles	Maximum Weight
Single non driving axle	10 tonnes
Driving Axle	Maximum Weight
Single axle	11.5 tonnes
Tandem axles if	The sum of the axle weights must not exceed
Distance between axles is less than 1metre	11.5 tonnes
from 1metre and less than 1.3metres	16 tonnes
from 1.3metres and less than 1.8metres	18 tonnes

Annex 3

Calculated laden Mass

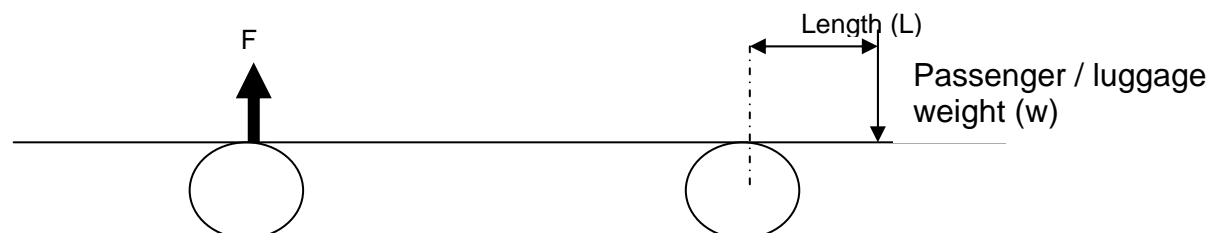
The calculation would have to be based on independent mass in running order weights for each axle, verified by a weight ticket from a calibrated weighbridge.

The calculation is then based on 'moments around the axle centres for each seating / luggage weight position.



In the above diagram the imposed weight (F) on axle 2 would be (L) multiplied by (w)

However there is also a pivot point for axle 2 which would have the effect of reducing the weight on the front axle



This process would have to be completed for each passenger / luggage position. (taken from the centre of the weight position)

Masses and Dimensions 48

To aid this process that can be complex a proforma (see example below) and a calculation programme are available

Masses Calculation

Z Number	..		
Chassis Number	..		
Make	..		
Model	..		
Converter	..		
ALL DISTANCES IN mm	ALL WEIGHTS IN Kg		
From Datum to Centre of Axle 1	..	203	
Wheelbase	..	5540	
Mass in Running Order-Axle 1	..	1495	
Mass in Running Order-Axle 2	..	1189	
GB weight Axle 1		1619	
GB weight Axle 2		1609	
GB gross weight		3227	
DISTANCE			
1608	..	68	
3320	..	544	
6501	..	63	
0	..	0	
0	..	0	
0	..	0	
Calculated Weight - Axle 1	..	1775.06	
Calculated Weight - Axle 2	..	1583.94	
Gross Calculated Laden Weight	..	3359.00	
GBGW V CLW axle 1		fail	
GBGW V CLW axle 2		pass	
GBGW V CLW calc		fail	

Weight per person is as follows:-

Driver 75kg

Crew 75kg

Passengers
Classes I and A 68kg,

Class II 71kg,

Classes III and B 71kg,

Luggage weight for luggage space only
accessible from outside the vehicle:-

This weight is declared by the manufacturer
and has to be displayed in the driver's area
(see section 52 D standard 2).

If there is only one luggage area then the
distance to use for the calculation would be
the centre of this area.

If there are multiple areas the manufacturer
must declare the weight in each area. The
relative centres of the luggage areas must be
used for the distance.

Masses and Dimensions 48

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	22/01/2010	Lengths of vehicle changed in Table 1

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50 Couplings

Application: All Vehicles (if fitted)

Method of Inspection	Required Standard						
<p>This section applies to all devices that have been fitted post vehicle manufacture and usually comprise of a frame attached to the vehicle structure. It does not apply to types that are integral with the vehicle as supplied or fitted by the chassis manufacturer.</p> <p>Towing attachment that do not incorporate a 50mm ball are not permitted e.g. Military style hook type fittings and pin types.</p> <p>Check for the correct 'e' or "E" markings and that the coupling device is installed correctly in accordance with the manufacturer's instructions,</p> <p>Check installation height of the coupling and that there is sufficient clearance around it to enable safe operation.</p> <p>Note 1: Device means Towing frame, ball and associated components</p>	<ol style="list-style-type: none"> 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 to withstand the loads likely to be imposed on it in accordance with the manufacturers instructions (see note 1) The coupling ball must be installed to the correct height in table 1 The vehicle must be provided with a Gross Train Weight, which must satisfy the requirements of Section 48(Masses and Dimensions). <p>Table 1</p> <table> <tr> <th>Minimum Height</th><th>Maximum Height</th></tr> <tr> <td>375 mm</td><td>500 mm</td></tr> <tr> <td colspan="2">Coupling height requirements measured to the top of the ball from the ground with a tolerance of + / - 35mm</td></tr> </table>	Minimum Height	Maximum Height	375 mm	500 mm	Coupling height requirements measured to the top of the ball from the ground with a tolerance of + / - 35mm	
Minimum Height	Maximum Height						
375 mm	500 mm						
Coupling height requirements measured to the top of the ball from the ground with a tolerance of + / - 35mm							

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/04/2010	Increase the maximum height in Table 1, (The vehicle should be fully laden when the measurement is taken, as we only inspect un-laden vehicles we have added in a larger tolerance).
3	29/10/2010	Reword the way in which we measure the ball height, Remove original RS5 and renumber standards

51 Flammability

Application: M3 Class III & IIIS (only applies to the Interior)

Method of Inspection	Required Standard
<p>Ensure the vehicle as presented is accompanied by satisfactory evidence to the required standard</p> <p>In the case of a Ambulance or Hearse, the requirements according to the category of the base or incomplete vehicle based on maximum mass shall apply to the cab.</p> <p>The vehicle must be accompanied by one of the following:</p> <ul style="list-style-type: none"> a. An approval to Directive 95/28/EC, or UNECE Regulation 118, covering all materials and glues used. b. A test report from a technical service covering, section 7 of Annex I, of Directive 95/28/EC, covering all materials and glues used. c. A written declaration supplied by the Manufacturer, with adequate supporting evidence of compliance covering all materials and glues used This will need to be some form of evidence of compliance e.g <ul style="list-style-type: none"> • Purchase orders for some the glues and materials used indicating the materials are compliant. • A physical check of components accessible and bearing approval marks. • Declarations/ evidence of component compliance from the appropriate component manufacturer. E.g. seat manufacturer. <p>Note: This is a random sample check on the declaration and evidence and not a check of all components used.</p>	<p>1. The vehicle as presented must be accompanied by satisfactory evidence of compliance with the required standard for “Flammability”</p>

Flammability 51

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

52 Scope

This section applies to every M2 or M3 vehicle, that does not hold an Approval to 2001/85EC or UN ECE Regulation 107.02 for the particular vehicle type as presented.

Exemptions:

Vehicles used for the secure transport of persons, for example prisoners;

Armored vehicles: - Exemption from one or more of the provisions is permitted, where it can be demonstrated to the satisfaction of the approval Authority that the special purpose of the vehicle makes it impossible to comply.

The requirements of this section apply to the following vehicles only to the extent that they are compatible with their intended use and function:

Vehicles designed for use by police, security and armed forces;

Vehicles which contain some seating intended solely for use when the vehicle is stationary,. Examples of these include mobile libraries, mobile churches and mobile hospitality units. The seats in such vehicles which are designated for use when the vehicle is not in motion must be clearly identified to users.

Vehicle Definitions

“Vehicle” Means a vehicle of categories M2 or M3

For vehicles having a capacity exceeding 22 passengers in addition to the driver, there are three classes of vehicles:

- Class I** Vehicles constructed with areas for standing passengers, to allow frequent passenger movement;
- Class II** Vehicles constructed principally for the carriage of seated passengers, and designed to allow the carriage of standing passengers in the gangway and/or in an area which does not exceed the space provided for two double seats;
- Class III** Vehicles constructed exclusively for the carriage of seated passengers.
- Class IIIS** A Class III vehicle specifically designed for the carriage of school children

Note: A vehicle may be regarded as belonging in more than one Class. In such a case it may be approved for each Class to which it corresponds;

For vehicles having a capacity not exceeding 22 passengers in addition to the driver, there are two classes of vehicles:

- Class A** Vehicles designed to carry standing passengers; a vehicle of this Class has seats and shall have provision for standing passengers
- Class B** Vehicles not designed to carry standing passengers; a vehicle of this Class has no provision for standing passengers.

“Articulated vehicle” Means a vehicle which consists of two or more rigid sections which articulate relative to one another; the passenger compartments of each section intercommunicate so that passengers can move freely between them; the rigid sections are permanently connected so that they can only be separated by an operation involving facilities which are normally only found in a workshop.

“Double-deck vehicle” Means a vehicle where the spaces provided for passengers are arranged, at least in one part, in two superimposed levels, and spaces for standing passengers are not provided in the upper deck

“Double-decker articulated vehicle” Means a vehicle which consists of two or more rigid sections which articulate relative to one another; the passenger compartments of each section intercommunicate on at least one deck so that passengers can move freely between them; the rigid sections are permanently connected so that they can only be separated by an operation involving facilities which are normally only found in a workshop.

“Low-floor bus” Is a vehicle of Class I, II or A in which at least 35 % of the area available for standing passengers (or in its forward section in the case of articulated vehicles, or in its lower deck in the case of double-decker vehicles) forms an area without steps and includes access to at least one service door.

“Trolleybus” Means a vehicle electrically driven by energy from external, overhead contact wires. For the purposes of this Regulation, it also includes such vehicles having an additional internal means of propulsion (dual mode vehicles) or having a means of temporary external guidance (guided trolleybuses)."

“Vehicle without a roof” Means a vehicle without roof over all or part of its deck. In the case of a double-decked vehicle this shall be the upper deck. Space for standing passengers shall not be provided on any deck without roof, independently of the class of vehicle.

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

52 Definitions

"Access passage" Means the space extending inwards into the vehicle from the service door up to the outermost edge of the upper step (edge of the gangway), intercommunication staircase or half-staircase. Where there is no step at the door, the space to be considered as access passage shall be that which is measured according to the requirements in section (52I) up to a distance of 300 mm from the starting position of the inner face of the test gauge."

"Automatically-operated service-door" Means a power-operated service door which can be opened (other than by means of emergency controls) only after a control is operated by a passenger and after activation of the controls by the driver, and which closes again automatically.

"Boarding device" Means a device to facilitate wheelchair access to vehicles, such as lifts, ramps, kneeling suspension etc.

"Demountable seat" Means a seat that can be easily detached from the vehicle.

"Double door" Means a door affording two, or the equivalent of two, access passages;

"Double or multiple window" Means an emergency window which, when divided into two or more parts by imaginary vertical line(s) (or plane(s)), exhibits two or more parts respectively, each of which complies as to dimensions and access with the requirements applicable to a normal emergency window;

"Driver's compartment" Means the space intended for driver's exclusive use except in the case of an emergency and containing the driver's seat, the steering wheel, controls, instruments and other devices necessary for driving or operating the vehicle.

"Driver operated service door" Means a service door which normally is opened and closed by the driver.

"Emergency door" Means a door intended for use by passengers as an exit only exceptionally and in particular in an emergency;

"Emergency window" Means a window, not necessarily glazed, intended for use as an exit by passengers in an emergency only.

"Emergency exit" Means an emergency door, emergency window or escape hatch.

"Escape hatch" Means an opening in the roof or the floor intended for use as an emergency exit by passengers in an emergency only;

"Exit" Means a service door, intercommunication staircase, half-staircase or emergency exit;

Definitions 52

"Floor or deck" Means that part of the bodywork whose upper surface supports standing passengers, the feet of seated passengers and the driver and any crew member, and may support the seat mountings;

"Front" and "rear" Means the front or rear of the vehicle according to the normal direction of travel and the terms; "forward", "foremost", "rearward" and "rearmost" etc. shall be construed accordingly.

"Gangway" Means the space providing access by passengers from any seat or row of seats or each special area for wheelchair users to any other seat or row of seats or each special area for wheelchair users or to any access passage from or to any service door or intercommunication staircase and any area for standing passengers;

It does not include:

1. The space extending 300 mm in front of any seat, except where a sideways-facing seat is situated above a wheel arch, in which case this dimension may be reduced to 225 mm
2. The space above the surface of any step or staircase (except where the surface of the step is contiguous with that of a gangway or access passageway).
3. Any space which affords access solely to one seat or row of seats or a facing pair of transverse seats or row of seats.

"Half staircase" is a staircase from the upper deck which terminates in an emergency door.

"Intercommunication staircase" Means a staircase which allows communication between the upper and lower decks.

"Kneeling system" Means a system which lowers and lifts totally or partially the body of a vehicle relative to the normal position of travel.

"Lift" Means a device or system with a platform that can be raised and lowered to provide passenger access between the floor of a passenger compartment and the ground or kerb.

"Mass of the vehicle in running order" Means the mass of the unladen vehicle with bodywork, and with coupling device in the case of a towing vehicle, in running order, (including coolant, oils, 90 per cent fuel, 100 per cent other liquids except used waters, tools, spare wheel and driver (75 kg), and, for buses and coaches, the mass of the crew member (75 kg) if there is a crew seat in the vehicle.

"Member of the crew" Means a person assigned to operate as a co-driver or the possible assistant.

"Passenger" Means a person, other than the driver or a member of the crew;

Definitions 52

"Passenger compartment" Means a space intended for passengers' use excluding any space occupied by fixed appliances such as bars, kitchenettes, toilets or baggage/goods compartments.

"Passenger with reduced mobility" Means all passengers who have a difficulty when using public transport, such as disabled people (including people with sensory and intellectual impairments, and wheelchair users, people with limb impairments, people of small stature, people with heavy luggage, elderly people, pregnant women, people with shopping trolleys, and people with children (including children seated in pushchairs).

"Portable ramp" Means a ramp that may be detached from the vehicle structure and capable of being deployed by a driver or crew member.

"Power-operated service door" Means a service door which is operated exclusively by energy other than muscular energy and the opening and closing of which, if not automatically operated, is remotely controlled by the driver or a member of the crew.

"Priority seat" Means a seat with additional space for a passenger with reduced mobility and marked accordingly.

"Ramp" Means a device to bridge the gap between the floor of a passenger compartment and the ground or kerb. In its position for use, it includes any surface that may move as part of the ramp deployment or be available for use only when the ramp is in its deployed position and over which a wheelchair is intended to travel.

"Separate compartment" Means a space in the vehicle which may be occupied by passengers or crew when the vehicle is in use and which is separated from any other passenger or crew space, except where any partition allows passengers to see into the next passenger space, and is connected by a gangway without doors.

"Service door" Means a door intended for use by passengers in normal circumstances with the driver seated:

"Service-door lighting" Means a lighting device(s) of the vehicle designed to illuminate the exterior vicinity of service doors and wheels.

"Sliding door" Means a door which can be opened or closed only by sliding it along one or more rectilinear or approximately rectilinear rails.

"Soft Rubber Edge" Means Soft rubber section fitted to a door, specifically designed to allow the safe extraction of a trapped hand without the possibility of damage to the hand. Rubber edges designed to form only a weather seal may not be specifically deep in section to comply

"Starting prevention device" Means a device which prevents the vehicle being driven away from rest when a door is not fully closed

"Superstructure" Means the part of the bodywork which contributes to the strength of the vehicle in the event of a roll-over accident

"Technically permissible maximum laden mass)" Means the maximum mass of the vehicle based on its construction and performance, stated by the manufacturer. The technically permissible maximum laden mass is used to determine the vehicle category.

"Wheelchair user" Means a person who due to infirmity or disability uses a wheelchair for mobility.

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/07/2009	Add new definition “ Soft Rubber Edge”
3	29/10/2010	Add new definition for Gangway

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52A Tilt

Application: All Classes

Method of Inspection	Required Standard
<p>This section does not apply to a vehicle of Class B, with no more than 16 seated passengers</p> <p>One of the following forms of evidence is required covering the vehicle as presented</p> <ul style="list-style-type: none">• An approval to UNECE Regulation 107.02• An approval to 2001/85EC• A witnessed (By an accepted authority) Stability Test Report to the criteria laid down in the form titled "Stability Test Report for a Public Service Vehicle to UNECE Regulation 107.02 Criteria"• A calculation report (based on a physical stability test), verified by an approval authority, and based on the method given in UNECE Regulation 107.02 <p>or</p> <ul style="list-style-type: none">• For single deck vehicles, an installed electronic stability function that has been approved to UN/ECE Regulation 13.11	<ol style="list-style-type: none">1. The vehicle as presented must be accompanied by satisfactory evidence of a successful tilt test covering all the features present.

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

52B Strength of Superstructure

Application: M2 & M3 Class II & III

Method of Inspection	Required Standard
<p>The vehicle as presented must be accompanied by one of the following:-</p> <ul style="list-style-type: none">• An approval to UN ECE Reg 66• A test report from a technical service covering the technical requirements in UN/ECE Reg 66• An approval to UNECE Regulation 107.02• An approval to 2001/85EC	<p>1. The vehicle as presented must be accompanied by satisfactory documentary evidence of Strength of Superstructure</p>

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

52C Area Available for Passengers

Application: Class I , II, A

Method of Inspection	Required Standard
<p>There must be sufficient seating and in addition adequate space for standing passengers.</p> <p>Note 1: This number may, in vehicles of Class I, excluding the upper deck, be reduced by 10 %.</p> <p>Note 2: "Total floor area available for passengers and crew" is the total passenger compartment floor area, (measured longitudinally between the face of the dash facing the passenger compartment to the front face of the rearmost seating position backrest and transversely between the inner face of the opposing side walls of the vehicle) less the following areas:-</p> <ul style="list-style-type: none"> a) The area of the driver's compartment. b) The area of steps at doors and the area of any other step with a depth of less than 300 mm, and the area swept by the door and its mechanism when it is operated. c) The area of any part over which the vertical clearance is less than 1 350 mm measured from the floor disregarding permitted intrusion specified in section 52 P item 7. (In the case of vehicles of Class A or B, this dimension is reduced to 1 200 mm). d) For articulated vehicles, the area of any part of the vehicle to which access by passengers is prevented as defined in section 52 Y item 4. 	<ol style="list-style-type: none"> 1. There must be at least a number of seating places, intended for use whilst the vehicle is in motion, (other than folding seats), which conform to the requirements of section 52P, on each deck, at least equal to the number of square meters of total floor area on that deck available for passengers and crew (if any) rounded down to the nearest whole number. (See notes 1 & 2). 2. For a class I and class A vehicle there must be at least 0.125 sq mts of "available space" per standing passenger marked on the vehicle in accordance with section 52 D required standard 1. (See notes 3 & 4). 3. For a class II vehicles there must be at least 0.15 sq mts of "available space" per standing passenger marked on the vehicle in accordance with section 52 D required standard 1. (see notes 3 & 4).

Area Available for Passengers 52C

Method of Inspection	Required Standard
<p>e) The area of any space reserved solely for the carriage of goods or baggage.</p> <p>f) The area required to provide a clear working area at serveries.</p> <p>g) The floor area occupied by any staircase, half-staircase, intercommunication staircase including the surface of any associated step/s.</p> <p>Note 3: In the case of a vehicle equipped with a variable seating capacity (i.e. tip up seats, wheelchair area for dual use etc) the area available for standing passengers must be determined for each of the declared variations (see section 52D) as applicable, marked on the vehicle.</p> <p>Note 4: The “available space” for standing passengers is the “Total floor area available for passengers and crew” less the following areas.</p> <p>a) The area of all parts of the floor in which the longitudinal slope exceeds 8% or 5% in the case of the plane perpendicular to the longitudinal axis of symmetry of vehicle.</p> <p>b) The area of all parts which are not accessible to a standing passenger when all the seats are occupied. (with the exception of folding seats).</p> <p>c) The area of all parts where the clear height above the floor is less than the gangway height specified in section 52 M items 1, 2, or 3 as applicable. (handholds shall not be taken into account in this connection).</p> <p>d) The area forward of a transverse vertical plane passing through the centre of the seating surface of the driver's seat (in its rearmost position).</p>	

Area Available for Passengers 52C

Method of Inspection	Required Standard
<p>e) The area 300 mm in front of all non folding seats, except where a sideways-facing seat is situated above the wheel arch where the area is reduced to 225mm.</p> <p>f) The area covered by a folding seat and 300 mm in front of the folding seat when calculating the reduced standee mode except where a sideways-facing seat is situated above the wheel arch where the area is reduced to 225mm.</p> <p>g) Any surface, on which it is not possible to place a rectangle of 400 mm x 300 mm.</p> <p>h) In vehicles of Class II, any area outside of the gangway and/or, an area which does not exceed the space provided for two double seats.</p> <p>i) For double deck vehicles any area on the upper deck.</p> <p>j) The surface of a wheelchair space when considered occupied by a wheelchair user</p> <p>k) The surface of any wheelchair space(s) dedicated solely for the use of wheelchair user(s).</p>	

Area Available for Passengers 52C

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

52D Markings

Application: All Classes

Method of Inspection	Required Standard
<p>This inspection is to ensure that all relevant safety information markings are present and meet the required Standards.</p> <p>Note 1: For maximum number of standing passengers, refer to area available for passenger section and manufacturers documentation</p> <p>Note 2: The number of seated places includes all seats designed for use when the vehicle is in motion including any marked for crew use, but excludes the driver.</p> <p>Note 3: The manufacturer is required to supply satisfactory documentary evidence of the calculation used to determine the above mass of baggage</p> <p>Note 4: 'Emergency Exit' can be used as a generic marking for any emergency exit. Any exit as defined in this manual can be labeled as such i.e. Emergency door, Emergency Window, Escape Hatch etc</p> <p>Note 5: Includes 'Break Glass' hammers.</p>	<ol style="list-style-type: none"> The vehicle must be marked clearly in a manner visible on the inside in the vicinity of the front service door in letters or pictograms not less than 15mm high and numbers not less than 25mm high, with the following information. (see Notes 1) <ul style="list-style-type: none"> The maximum number of seating places the vehicle is designed to carry (See note 2) The maximum number of standing places, if any, the vehicle is designed to carry The maximum amount of wheelchairs which the vehicle is designed to carry, if any. Where a vehicle has baggage compartments not accessible from inside the vehicle, or is equipped for the carriage of baggage on the roof, the vehicle must be clearly marked (in letters or pictograms not less than 10mm high, and numbers not less than 12mm high) in the drivers area with the mass of the baggage that can be carried when the vehicle is loaded with the maximum numbers of passengers and crew and the vehicle is not exceeding the technically permissible maximum mass, or the permissible mass of any axle. (see Note 3). All emergency exits must be marked inside and outside the vehicle by an inscription that reads 'Emergency Exit' (see Note 4).

Markings 52D

Method of Inspection	Required Standard
	<ul style="list-style-type: none">4. All emergency controls of service doors and emergency exits must be marked as such inside and outside the vehicle either by a representative symbol or by a clearly worded inscription (see Note 5).5. All emergency controls of service door/s and emergency exit/s must be marked on or close to the emergency control with the method of operation of that control, including any points of manual application i.e. 'Push' marked on a specific part of the door.

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/04/2010	"Front" has been added to RS1 and RS 2 has been totally reworded to make clear that you only access baggage compartments " not accessible from inside the vehicle "
3	29/10/2010	Remove original note 2 and re-number notes

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52E Protection Against Fire Risks

Application: All Classes

Method of Inspection	Required Standard
<p>The vehicle will be inspected to ensure as far as practicable, that adequate precautions against the risk of fire have been taken during the construction of the vehicle.</p> <p>Note 1: Where there is doubt over the suitability of the materials, evidence of compliant materials may be gained from the material manufacturer, or the same material is used in an engine compartment, of an approved vehicle to Directive 2001/85 EC / 107:02</p> <p>Note 2: This can be by either, a suitable layout of the engine compartment or by the provision of drainage orifices</p> <p>Note 3: Examples of such a heat source include a device designed to absorb the energy liberated when a vehicle is descending a long gradient, e.g. a retarder, or a device for heating the interior of the body, except for a device functioning by warm water circulation</p> <p>Note 4: For the purposes of this section, a flammable material is considered to be one which is not designed to withstand the temperatures likely to be encountered in that location.</p> <p>Note 5: Even when sealed prop shaft universal joints are present, grease shields are still required</p>	<ol style="list-style-type: none"> 1. The vehicle must have no flammable material, and/or material likely to become impregnated with fuel, lubricant or other combustible material within the engine compartment, unless the material is covered by an impermeable sheet (See Note 1). 2. The accumulation of fuel, lubricating oil or any other combustible material in any part of the engine compartment, must be prevented (see Note 2). 3. A heat resisting partition must be fitted between the engine and rest of vehicle. All fixings clips, gaskets, etc. used in conjunction with the partition must be fire resistant. 4. A heat resisting partition must be fitted between a heat source other than the engine and the rest of the vehicle. (See note 3) 5. Any heating device (operating other than by hot water) inside the passenger compartment must be encased in material, designed to resist the temperatures generated by the device. 6. Flammable material within 100mm of the exhaust system, any high voltage electrical equipment, or other significant source of heat, must be adequately shielded. (See note 4) 7. Exhaust system or other significant heat sources must have adequate shielding to prevent grease or other flammable materials contacting them. (See note 4 and 5)

Protection Against Fire Risks 52E

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/04/2010	Add note 5 and reference that to RS 7
3	29/10/2010	Add 107:02 to Note 1

52F Electrical Equipment

Application: All Classes

Method of Inspection	Required Standard
<p>Batteries</p> <p>This inspection is to ensure that the vehicles batteries are secured in a suitable space and the terminals are protected.</p> <p>Note 1: The accessibility may require the use of tools.</p> <p>Electrical equipment and wiring.</p> <p>This inspection is to ensure all electrical cables are suitable for their purpose, insulated, secured and where required protected, all required circuits contain a fuse, and that any circuit above 100 volts RMS is suitably protected.</p> <p>Note 2: In the engine compartment, particular attention shall be paid to their suitability to withstand the environmental temperature and the effects of all likely contaminants.</p> <p>Note 3: This check is for obvious signs a cable is not suitable.</p> <p>Note 4: They may, however, be protected by a common fuse or a common circuit-breaker, provided that its rated capacity is not exceeded.</p> <p>Note 5: Evidence that all required circuits are protected, may be in the form of a manufacturer's declaration, wiring diagram etc, and a check for any obvious unprotected circuits.</p>	<p>Batteries</p> <ol style="list-style-type: none"> 1. All batteries must be secure, and easily accessible. (see note 1) 2. Battery compartments must be separated from the drivers and passenger compartments, and ventilated to outside air 3. All battery terminals must be protected against short circuit, by fitment of individual protective covers on all terminals. <p>Electrical equipment and wiring.</p> <ol style="list-style-type: none"> 4. All Cables must be well insulated. Cables and electrical equipment must be able to withstand the temperature and humidity conditions to which they are exposed. (see note 2) 5. All cables must be suitable for the current imposed, taking into account its mode of installation and the maximum ambient temperature. (see note 3) 6. All electrical circuits except those feeding the starter, the ignition circuit (positive ignition), the glow-plugs, the engine-stopping device, the charging circuit and the battery earth connection, must include a fuse or a circuit breaker. (see notes 4 , 5 & 6). 7. Electrical cables must be well protected and held securely in position in such a way that they cannot be damaged by cutting, abrasion or chafing.

Electrical Equipment 52F

Method of Inspection	Required Standard
<p>Note 6: In the case where electronics are incorporated, these circuits may be protected by protection devices integrated into the electronic components or systems. In such a case, the manufacturer must give a declaration as to the function of the system</p> <p>Note 7: This paragraph does not apply to high tension ignition circuits or to self-contained circuits within a unit of equipment on the vehicle.</p> <p>Note 8: A compliant switch must be capable of disconnecting all such circuits from the main electrical supply, in each pole of that supply which is not electrically connected to earth, and must be located inside the vehicle in a position readily accessible to the driver, provided that no such isolating switch shall be capable of disconnecting any electrical circuit supplying the mandatory external vehicle lights.</p>	<ol style="list-style-type: none"> 8. All electrical cables must be located so that no part can make contact with any fuel line or any part of the exhaust system, or be subjected to excessive heat, unless suitable special insulation and protection is provided, as for example to a solenoid operated exhaust valve. 9. All circuits where the voltage exceeds 100 V RMS (root-mean-square) must be fitted with a compliant manually-operated isolating switch. (see notes 7 & 8)

Electrical Equipment 52F

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/10/2010	Reword note 4

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52G Fire Extinguisher and First Aid

Application: All Classes

Method of Inspection	Required Standard
<p>This inspection is to ensure there is adequate space provide for the fitment of Fire Extinguishers and First Aid kits.</p> <p>Note 1: dm³ = 1000 cubic centimetres.</p> <p>Note 2: The space could be open space or a recess or box as long as a fire extinguisher or first aid kit could be mounted there.</p> <p>Note 3: Location markings only apply where fire extinguishers or first aid kits are not in open view.</p>	<p>Single deck vehicles</p> <ol style="list-style-type: none"> 1. Space must be provided to allow for the fitting of at least one fire extinguisher, being located near the driver's seat. In vehicles of Class A or B the space must not be less than 8 dm³ and in Class I, II or III not less than 15 dm³. (see notes 1 & 2) <p>Double deck vehicles</p> <ol style="list-style-type: none"> 2. Space must be provided to allow for at least the fitting of two fire extinguishers, one being near the driver's seat, and one on the upper deck. Each space must be not less than 15 dm³. <p>All Classes</p> <ol style="list-style-type: none"> 3. Space must be provided for the fitting of one or more first-aid kits. The space provided must be not less than 7 dm³, the minimum dimension must not be less than 80 mm. (see notes 1 & 2) 4. Where any fire extinguisher or first aid kit, is secured, not in open view, or behind an anti theft screen, (e.g. in an internal locker or behind breakable glass) then their position must be marked, and means provided where required to extract them. (see note 3)

Fire Extinguisher and First Aid 52G

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/10/2010	Change text in Note 1

52H Number and Location of Exits

Application: All Classes

Method of Inspection	Required Standard
<p>This inspection is to ensure the vehicle has the required number of service/emergency doors and other emergency exits, including their correct position within the vehicle.</p> <p>Note 1: This does not preclude the provision of a door in the rear face of a vehicle for use by wheelchair passengers, or service doors in the rear face of a vehicle in class A or B. Or the provision of one or more additional service doors on the opposite side of the vehicles in the case of vehicles designed for use in circumstances which require loading/unloading on both sides. Examples of such circumstances include vehicles for airside use at airports, vehicles for use on multimodal transport systems using island platforms, or vehicles which cross borders to countries which do not drive on the same side of the road as the country in which the vehicle is to be licensed for operation. Vehicles so equipped shall be provided with control(s) which allow the driver to inhibit normal operation of the doors which are not currently in use</p> <p>Note 2: If one of these two doors forms part of a double door this distance shall be measured between the two doors which are furthest apart.</p>	<p>All classes</p> <ol style="list-style-type: none"> 1. A minimum of two doors must be fitted consisting of either two service doors or one service door and one emergency door. Every double-deck vehicle shall have two doors on the lower deck 2. Service door/s must be on the nearside of a vehicle. At least one service door must be in the forward half of the vehicle. (see note 1) <p>Articulated vehicles Class 1</p> <ol style="list-style-type: none"> 3. The front section must contain a minimum of two service doors. The rear section must contain at least one service door. <p>Articulated vehicle other than Class 1</p> <ol style="list-style-type: none"> 4. There must be at least one service door in each section of the vehicle <p>Class I, II, III or IIIS</p> <ol style="list-style-type: none"> 5. Single deck vehicles, and the lower deck of a double deck vehicle, must have a minimum separation distance between two of the doors, such that the distance between transverse vertical planes through their centres of area is not less than 40 % of the overall length of the passenger compartment. 6. Double deck vehicles may as an alternative to the above requirements, use 25% of the vehicles overall length as the minimum separation distance; this shall not apply if the two doors are on different sides of the vehicle. (See note 2)

Number and Location of Exits 52H

Method of Inspection	Required Standard																
<p>Note 3: For the purpose of this requirement, service doors equipped with a power operated control system shall not be deemed to be emergency doors unless they can be readily opened by hand, once the emergency control has been activated.</p> <p>Note 4: Escape hatches can only count as one of the above mentioned number of emergency exits.</p> <p>Note 5 Each rigid section of an articulated vehicle shall be treated as a separate vehicle for the purpose of determining the minimum number and the position of exits. The connecting passage between them shall not be considered as an exit. The number of passengers shall be determined for each rigid section. The plane, which contains the horizontal axis of the hinge between conjoined rigid sections of the vehicle, and perpendicular to the longitudinal axis of a vehicle, when it moves straight, shall be considered as the border between sections.</p> <p>Note 6: Toilet compartments or galleys are not considered to be separate compartments for the purposes of defining the number of emergency exits.</p> <p>Note 7: A double service door shall count as two doors and a double or multiple window as two emergency windows.</p> <p>Note 8: If access to the service door is obstructed by a permitted folding crew seat, that door cannot count as one of the emergency exits.</p>	<p>7. Articulated vehicle must have two doors of the different sections separated such that the distance between the doors is not less than 40 per cent of the overall length of the combined passenger compartment (all sections).</p> <p>Class I & A vehicles</p> <p>8. The vehicle must have the minimum number of service doors in relation to passengers identified in the table below:-</p> <table> <tr> <th>Number of Passengers</th><th>Number of doors</th></tr> <tr> <td>9 to 45 requires</td><td>1 Service door</td></tr> <tr> <td>46 to 100 requires</td><td>2 Service doors</td></tr> <tr> <td>> 100 requires</td><td>4 Service doors</td></tr> </table> <p>Class II</p> <p>9. The vehicle must have the minimum number of service doors in relation to passengers identified in the table below:-</p> <table> <tr> <th>Number of Passengers</th><th>Number of doors</th></tr> <tr> <td>9 to 70 requires</td><td>1 Service door</td></tr> <tr> <td>71 to 100 requires</td><td>2 Service doors</td></tr> <tr> <td>> 100 requires</td><td>3 Service doors</td></tr> </table> <p>Class III & B</p> <p>10. The vehicle must have at least one service door.</p>	Number of Passengers	Number of doors	9 to 45 requires	1 Service door	46 to 100 requires	2 Service doors	> 100 requires	4 Service doors	Number of Passengers	Number of doors	9 to 70 requires	1 Service door	71 to 100 requires	2 Service doors	> 100 requires	3 Service doors
Number of Passengers	Number of doors																
9 to 45 requires	1 Service door																
46 to 100 requires	2 Service doors																
> 100 requires	4 Service doors																
Number of Passengers	Number of doors																
9 to 70 requires	1 Service door																
71 to 100 requires	2 Service doors																
> 100 requires	3 Service doors																

Number and Location of Exits 52H

Method of Inspection	Required Standard																														
<p>Note 9: This does not preclude there being a door or other barrier between the driver's seat and the passenger compartment, provided that this barrier can be released quickly by the driver in an emergency. A driver's door in a compartment protected by such a barrier shall not be counted as an exit for passengers.</p> <p>Note 10: These will act as service and emergency doors for the driver and two seated passengers. However the requirements of sections 52I Service doors, 52J Emergency doors and 52N steps do not apply to these doors, but they must comply with RS1 of the General Construction section.</p> <p>Note 11: The exits provided for the driver's compartment shall not count as one of the doors required by standard (1) nor as one of the exits required by standard (11) - unless a driver's door complying with the requirements for an emergency door is provided, and the space reserved for the driver's seat must communicate with the main passengers' compartment through an appropriate passage; such requirement shall be deemed to be fulfilled if the relevant gangway gauge (see section 52M) can move unobstructed from the gangway, until the front end of the gauge reaches the vertical plane tangential to the foremost point of the driver's seat back (this seat being situated in its rearmost longitudinal position) and, from this plane, a test gauge of dimensions 600x400mm could be moved to the emergency door in the direction in which a passenger evacuating the vehicle would be expected to move. (see figure 2) with seat and steering wheel adjustment in their mid position."</p>	<p>All Classes</p> <p>11. The vehicle must have the minimum number of emergency exits, these can be doors, emergency windows, emergency hatches, or for the upper deck intercommunicating staircase. The numbers required are listed below:- (see notes 3 to 8)</p> <table border="1" data-bbox="996 435 2040 890"> <thead> <tr> <th>Number of passengers either seated or standing and any crew, accommodated in any compartment or on any deck</th><th>Total number of exits required in the compartment or deck</th></tr> </thead> <tbody> <tr><td>1 to 8</td><td>2</td></tr> <tr><td>9 to 16</td><td>3</td></tr> <tr><td>17 to 30</td><td>4</td></tr> <tr><td>31 to 45</td><td>5</td></tr> <tr><td>46 to 60</td><td>6</td></tr> <tr><td>61 to 75</td><td>7</td></tr> <tr><td>76 to 90</td><td>8</td></tr> <tr><td>91 to 110</td><td>9</td></tr> <tr><td>111 to 130</td><td>10</td></tr> <tr><td>> 130</td><td>11</td></tr> </tbody> </table> <p>(For open deck vehicles the requirement is met on that deck if the clear space is equal to the number of correct sized exits)</p> <p>Class II, III & B Single deck vehicles</p> <p>12. The vehicle must have the minimum number of escape hatches, these are:</p> <table data-bbox="996 1098 1590 1165"> <tbody> <tr> <td>Not exceeding 50 Passengers</td> <td>1</td> </tr> <tr> <td>Exceeding 50 passengers</td> <td>2</td> </tr> </tbody> </table> <p>Class II, III & B Double deck vehicles</p> <p>13. The vehicle must have the minimum number of roof escape hatches, these are:</p> <table data-bbox="996 1300 1713 1367"> <tbody> <tr> <td>Not exceeding 50 Passengers on the upper deck</td> <td>1</td> </tr> <tr> <td>Exceeding 50 Passengers on the upper deck</td> <td>2</td> </tr> </tbody> </table>	Number of passengers either seated or standing and any crew, accommodated in any compartment or on any deck	Total number of exits required in the compartment or deck	1 to 8	2	9 to 16	3	17 to 30	4	31 to 45	5	46 to 60	6	61 to 75	7	76 to 90	8	91 to 110	9	111 to 130	10	> 130	11	Not exceeding 50 Passengers	1	Exceeding 50 passengers	2	Not exceeding 50 Passengers on the upper deck	1	Exceeding 50 Passengers on the upper deck	2
Number of passengers either seated or standing and any crew, accommodated in any compartment or on any deck	Total number of exits required in the compartment or deck																														
1 to 8	2																														
9 to 16	3																														
17 to 30	4																														
31 to 45	5																														
46 to 60	6																														
61 to 75	7																														
76 to 90	8																														
91 to 110	9																														
111 to 130	10																														
> 130	11																														
Not exceeding 50 Passengers	1																														
Exceeding 50 passengers	2																														
Not exceeding 50 Passengers on the upper deck	1																														
Exceeding 50 Passengers on the upper deck	2																														

Number and Location of Exits 52H

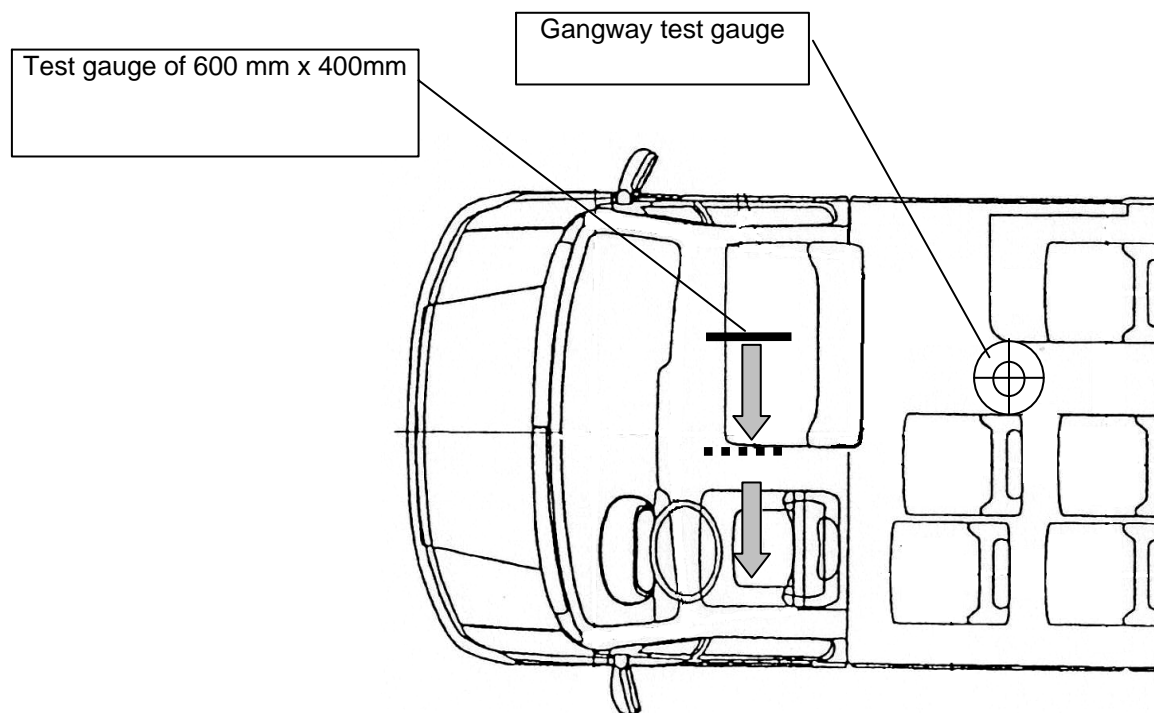
Method of Inspection	Required Standard
	<p>All classes</p> <p>14. The driver's compartment must have direct access to the gangway of the vehicle or adequate alternative exits. (see note 9) The minimum alternative exits requirements are:-</p> <p>a. The driver's compartment must have two exits, not in the same lateral wall.</p> <p>b. If one of the exits is a window, it must comply with the requirements for emergency window dimensions and operation (Laid out in section 52 (1) K of this manual)</p> <p>All Classes Where there are two seats alongside the driver</p> <p>15. There must be a minimum of two doors, not in the same lateral wall, available to the driver and passengers in the two adjacent seats, or there must be access from the main passenger compartment complying with the dimensional requirements for a gangway of the appropriate class of vehicle). (see note 10)</p> <p>16. In the case of no adequate access to the passenger compartment, the driver's door shall be accepted as the emergency door for the occupants of those seats, provided that it is possible to move a test gauge from the occupants' seats to the exterior of the vehicle through the driver's door. (This can be assessed by the use of a test gauge of dimensions 600x400mm The direction of motion of the test gauge shall be in the direction in which a passenger evacuating the vehicle would be expected to move. The test gauge shall be kept perpendicular to that direction of motion.) (see note 11 & figure 1)</p> <p>All classes where there are a maximum of 5 additional seats in a separate compartment containing the drivers accommodation.</p> <p>17. There must be at least one door giving access to the passenger compartment, complying with the dimensional requirements for an emergency door.</p>

Number and Location of Exits 52H

Method of Inspection	Required Standard
	<p>Class I, II, & III or optionally for class A & B</p> <p>18. The exits must be placed in such a way that their number on each of the two sides of the vehicle is substantially the same. In the case of a double deck vehicle this applies to each deck</p> <p>19. Where there is more than one exit on the same side of the vehicle, they must be suitably spaced out along the length of the vehicle.</p> <p>20. There must be at least one emergency exit situated either in the rear face or in the front face of the vehicle respectively. For Class I vehicles and for vehicles with a rear part permanently closed off from the passenger compartment, this requirement is fulfilled if an escape hatch / s is fitted in accordance with standards 12 & 13 of this section. In the case of a double deck vehicle this applies to the upper deck only.</p> <p>Class A or B vehicles not complying with 18 to 20 above</p> <p>21. The exits must be placed so there is at least one exit on either side of the vehicle.</p> <p>22. The forward and rearward parts of the passenger space must both contain an exit</p> <p>23. There must be at least one exit in either the front or rear face or an escape hatch fitted.</p> <p>24. The service door(s) must be situated on the side of the vehicle that is nearer to the side of the road corresponding to the direction of the traffic in the country in which the vehicle is to be registered, or in the rear face of the vehicle</p> <p>All classes with escape hatches fitted</p> <p>25. If there is only one hatch, it must be situated in the middle third of the passenger compartment;; if there are two hatches, they must be separated by a distance of at least 2 m measured between the nearest edges of the apertures in a line parallel to the longitudinal axis of the vehicle</p>

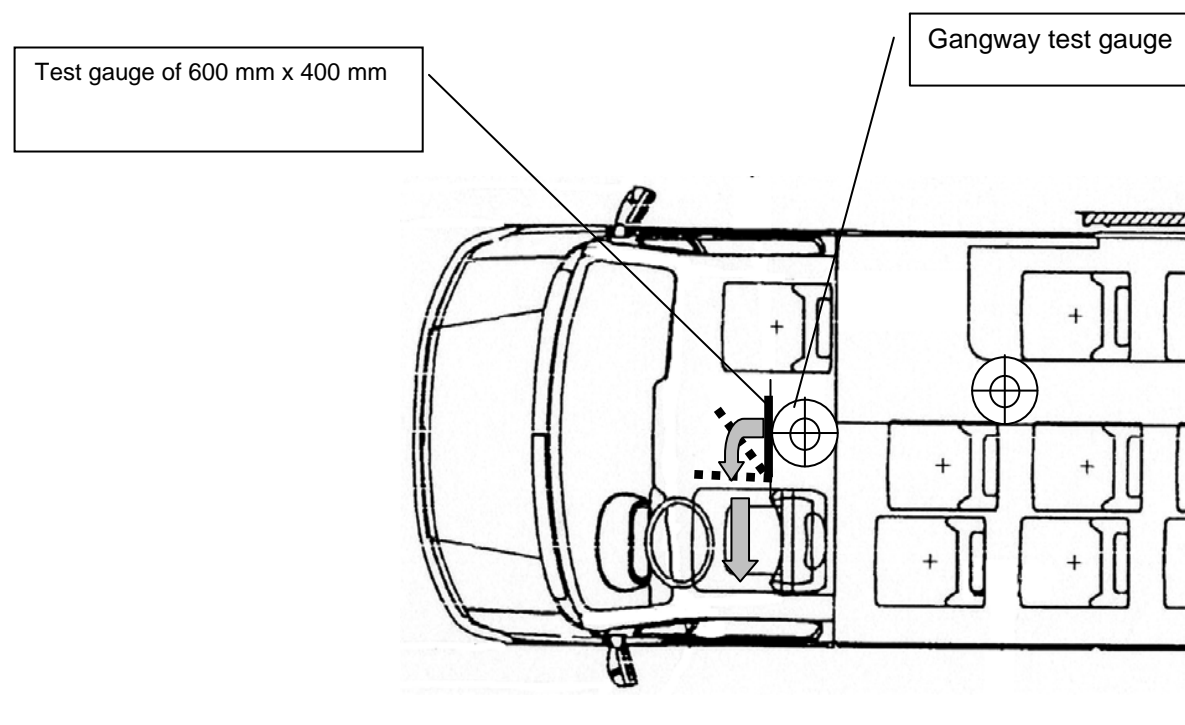
Number and Location of Exits 52H

Figure 1



Number and Location of Exits 52H

Figure 2



Number and Location of Exits 52H

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/07/2009	Add text to note 10 "However the requirements of sections 52I Service doors, 52J Emergency doors and 52N steps do not apply to these doors, but they must comply with RS1 of the General Construction section"
3	29/04/2010	Reword Table Titles in RS 11, reword RS 19 and Bold Title above RS 21
4	29/10/2010	Reword RS 20

Number and Location of Exits 52H

52I Service Doors

Application: All Classes

Method of Inspection	Required Standard										
<p>This inspection is to ensure the minimum sizes of service doors and their operation and access, meet the required standards.</p> <p>This inspection covers the requirements of Automatically Operated Service doors</p> <p>Note1: For vehicles of Class A or B, the lower panel may be displaced horizontally relative to the upper panel provided that it is in the same direction.</p> <p>Note2: The service door entry height is measured as the vertical distance of the horizontal projections of the mid-point of the door aperture and the top surface of the lowest step.</p> <p>Note 3: The upper corners of the panel may be reduced by round offs, with a radius of not more than 150mm.</p> <p>Note 4: The width of any service door may be reduced by 100mm when the measurement is taken at the level of the hand holds, and by 250mm in cases where intruding wheel arches or the actuating mechanism for automatic or remote control doors or the rake of the windscreen so require.</p>	<p><u>Size of service doors</u></p> <p>Class I,II,III or optional for class A or B</p> <ol style="list-style-type: none"> 1. The service door aperture must allow the free passage of the appropriate form defined in Figure 1. (see note 1) <p>Class A or B as an alternative to RS1</p> <ol style="list-style-type: none"> 2. The minimum entrance height of the service door must be at least:- (see note 2) <table> <tr> <td>Class A</td><td>1650mm</td></tr> <tr> <td>Class B</td><td>1500mm</td></tr> </table> 3. The service door aperture height must permit the free passage of the appropriate dual panel identified in 'Access to Service doors' section below.(see note 3) 4. Check the width of the service door is at least:- (see note 4) <table> <tr> <td>Single door</td><td>650mm</td></tr> <tr> <td>Double door</td><td>1200mm</td></tr> <tr> <td>For class B vehicles at aperture heights between 1400mm & 1500mm</td><td>750mm</td></tr> </table> 	Class A	1650mm	Class B	1500mm	Single door	650mm	Double door	1200mm	For class B vehicles at aperture heights between 1400mm & 1500mm	750mm
Class A	1650mm										
Class B	1500mm										
Single door	650mm										
Double door	1200mm										
For class B vehicles at aperture heights between 1400mm & 1500mm	750mm										

Service Doors 52I

Method of Inspection	Required Standard				
<p>Note 5: The dimensions may be reduced by a radius at the corners of the aperture not exceeding 150mm. The width may be reduced by 100mm when the measurement is taken at the level of the hand holds, and by 250mm in cases where intruding wheel arches or the actuating mechanism for automatic or remote control doors or the rake of the windscreen so require.</p> <p>Note 6: (This does not exclude the presence in the step well, when the door is closed, of the door-operating mechanism and other equipment attached to the inside of the door which does not form an extension of the floor on which passengers may stand. This mechanism and equipment should not be dangerous for the passengers)</p> <p>Note 7: In the case of a service door in the rear face of the vehicle not exceeding 22 passengers, this requirement is satisfied if the driver is able to detect the presence of a person 1.3 m tall standing 1 m behind the vehicle)</p> <p>Driving mirrors may be used to meet the requirements of this paragraph provided that the field of view required for driving is still met.</p> <p>In the case of doors situated behind the articulated section of an articulated vehicle, mirrors will not be deemed to be a sufficient optical device.</p> <p>Note 8: However, this requirement shall not apply if the service door is locked automatically when the vehicle is moving at a speed exceeding 5 km/h.</p>	<p>Class B vehicles with a technically permissible maximum mass not exceeding 3,5 tonnes and up to 12 passengers seats in which each seat has unobstructed access to at least two doors. Can as an alternative to RS 1 - 4 meet the requirements of this section.</p> <p>5. The aperture height must be a minimum of 1100mm, this may be reduced by a radius at the corners of the aperture not exceeding 150mm. (see note 5)</p> <p>6. The aperture width must be a minimum of :</p> <table data-bbox="1182 571 1697 638"> <tr> <td>Single door</td><td>650mm</td></tr> <tr> <td>Double door</td><td>1200mm</td></tr> </table> <p><u>Operation of all service doors</u></p> <p>All Classes</p> <p>7. The service door must be easily opened from both inside and outside the vehicle, when the vehicle is stationary.</p> <p>8. Service doors that can be locked from the outside must always be capable of being opened from inside</p> <p>9. The position of the exterior service door opening control must meet the following positional requirements;</p> <ol style="list-style-type: none"> Height of control from the ground is between 1000mm and 1500mm. Control is not more than 500mm from nearest door edge. 	Single door	650mm	Double door	1200mm
Single door	650mm				
Double door	1200mm				

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Method of Inspection	Required Standard
<p>Note 9: This does not preclude the ability to override that stop and open the door beyond that angle when it is safe to do so; for example, to enable reversing against a high platform for loading or to open the doors through 270 ° to allow a clear loading area behind the vehicle.</p> <p>Note 10: This requirement may be checked, by means of a test bar tapered at one end over a length of 300 mm from a thickness of 30 mm to a thickness of 5 mm. It shall not be treated with polish nor lubricated. If the door traps the bar it shall be capable of being easily removed.</p> <p>Note 11: Activation and deactivation may be either direct, by means of a switch, or indirect, for example by opening and closing the front service door.</p> <p>Note 12: The pressing of the push-buttons mentioned in section a, and the use of the normal means of passenger communication with the driver, may send a signal which is stored and which, after the activation of the opening controls by the driver, affects the opening of the door.</p> <p>Note 13: The free passage clearance for this figure shall not include any space extending to 300 mm in front of any uncompressed seat cushion of a forward or rearward facing seat or 225 mm in the case of seats fitted at wheel arches, and to the height of the top of the seat cushion. In the case of a folding passenger seat, this space shall be determined with the seat in the position of use.</p>	<p>Class I,II&III</p> <p>10. Interior door opening controls (this does not include the emergency control for power operated doors) not located in the drivers area, must conform to the following positional requirements;</p> <ul style="list-style-type: none"> a. Height of control from the upper surface of the floor or step closest to the control is between 1000mm and 1500mm. b. Control is not more than 500mm from nearest door edge. <p>All Classes</p> <p>11. Every one-piece, manually-operated service door which is hinged or pivoted must be so hinged or pivoted that if the open door comes into contact with a stationary object while the vehicle is moving forwards it tends to close.</p> <p>12. If a manually-operated service door is fitted with a slam lock it must be of the two-stage type</p> <p>13. On the inside of a service door/s there must be not any device intended to cover the inside steps when the door is closed. (See note 6)</p> <p>14. The driver must be able to detect from his seat, either by direct view, optical or other device, the presence of a passenger in the immediate interior and exterior vicinity of every side service door which is not an automatically operated service door. (see note 7)</p> <p>Class 1 Double deck</p> <p>15. The driver must be able to detect from his seat, either by direct view, optical or other device, the presence of a passenger, in the immediate vicinity of each intercommunication staircase on the upper deck.</p>

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Method of Inspection	Required Standard
<p>Note 14: However, a folding seat for use by the crew may obstruct the access passage to a service door when in the position of use provided that:</p> <ul style="list-style-type: none"> a. It is clearly indicated, that the seat is for the use of crew only; b. When the seat is not in use it folds automatically as necessary to enable the requirements of 56 & 57 to be met c. The door is not considered to be a mandatory exit for the purpose of minimum numbers of emergency exits d. When the seat is in the position of use, and when it is in the folded position, no part of it shall be forward of a vertical plane passing through the centre of the seating surface of the driver's seat in its rearmost position and through the centre of the exterior rear-view mirror mounted on the opposite side of the vehicle. 	<p>All classes</p> <ul style="list-style-type: none"> 16. Any service door which opens towards the interior of the vehicle and its mechanism must be constructed so that its movement is not likely to cause injury to passengers in normal conditions of use. (Where necessary, appropriate protection devices may be used). 17. Any service door that is adjacent to a door to a toilet or other internal compartment must be proofed against unintentional operation. (see note 8) <p>Class A & B</p> <ul style="list-style-type: none"> 18. For any service door located in the rear of the vehicle, the leaves must be capable of being opened more than 85 ° and not more than 115 ° and, when open, shall be capable of being held automatically in that position (see note 9) <p>All classes</p> <ul style="list-style-type: none"> 19. The service door in any open position must not obstruct the use of, or required access to, any mandatory exit. <p><u>Additional technical requirements for power-operated service doors.</u></p> <ul style="list-style-type: none"> 20. In the event of an emergency, every power-operated service door must be capable, when the vehicle is stationary or driving at a speed less than or equal to 5 km/h, of being opened from inside and, when not locked, from outside by controls which, operate whether or not the power supply is operating: 21. Operation of the emergency control/s must override all other door controls. 22. The interior emergency control must be placed on, or within 300 mm of, the door, at a height of not less than 1600 mm above the first internal step from the ground located at the relevant service door.(except in the case of interior controls for a door designed only for wheelchair access, in this case the requirements in section 52Z, apply)

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Method of Inspection	Required Standard
	<p>23. All emergency controls must be easily seen and clearly identified, when approaching the door and when standing in front of the door and if additional to the normal opening controls, be clearly marked for emergency use.</p> <p>24. The emergency control must be capable of being operated by one person when standing immediately in front of the door</p> <p>25. Operation of the emergency control must cause the door to open to a width that the gauge as defined in figure 1. can pass through within 8 seconds after the operation of the control, or enable the door to be easily opened by hand to a width that the gauge as defined in figure 1 Can pass through within 8 seconds after the operation of the control;</p> <p>26. Any protection device for an emergency control must be capable of being easily moved or broken to allow easy access to the control.</p> <p>27. The operation of the emergency control, or the removal of a protective cover over the control, must be indicated to the driver both audibly and visually.</p> <p>28. The doors must be prevented from opening if the vehicle moves at a speed higher than 5 km/h</p> <p>29. Any device located within the driver's compartment that enables the driver from the driving seat to deactivate the outside emergency controls in order to lock the service doors from outside, must meet the following requirements;</p> <ul style="list-style-type: none"> a. The outside emergency controls must be reactivated automatically either by the starting of the engine or before the vehicle reaches a speed of 20 km/h. b. Subsequent, deactivation of the outside emergency controls must, not occur automatically, but require a further action by the driver.

Service Doors 52I

Method of Inspection	Required Standard
	<p>30. Every driver-operated service door must be capable of operation by the driver when in the driving seat using controls which, except in the case of a foot control, are clearly and distinctively marked</p> <p>31. The driver's door controls, must be such that the driver is able to reverse the movement of the door at any time during the closing or opening process.</p> <p>32. All power operated service doors (except front service doors complying with items 38 & 39) must activate a visual tell-tale, which is plainly visible to the driver when seated in the normal driving position in any ambient lighting condition, to warn that a door is not fully closed. This tell-tale must signal whenever the rigid structure of the door is between the fully open position and a point 30 mm from the fully closed position. One tell-tale may serve for one or more doors</p> <p>33. The operation of the emergency control of all service doors not complying with items 33 to 37 below must be such that after operating the emergency control to open the door, and returning the control to its normal position, the door does not re-close until the driver operates a closing device.</p> <p>Front service doors may comply with either items 34 to 37 below or items 38 & 39. All other service doors must comply with items 34 to 37</p> <p>34. Doors when closing must not travel at a speed that would be likely to injure a passenger, or exert a clamping force greater than 150N, measured at the main closing edges of the door, at a point as close as practical to 150mm above the lower door edge, and at the centre of the door height. (the clamping force may exceed 150N for a short period (approx 3 seconds), but must not exceed 300N)</p> <p>35. Door/s when their movement is blocked, between fully open and to within 30mm from fully closed, must stop and fully re open automatically</p> <p>36. After the door has reopened (described in item 34) the door must not close until a closing control is operated. (does not apply in the case of automatically-operated service doors)</p>

Service Doors 52I

Method of Inspection	Required Standard
	<p>37. When the door closes below 30mm from fully closed and down to 5mm from fully closed, it must meet one of the 3 criteria below:-</p> <ul style="list-style-type: none"> a. The door reopens automatically to its fullest extent when it meets the wrist or fingers, and, except in the case of an automatically operated service door, remains open until a closing control is operated, or b. The wrist or fingers can be readily extracted from the doors without risk of injury to the passenger. (See note 10) or c. The door is maintained at a position allowing the free passage of a test bar having a section of height 60 mm, width 20 mm, with corners radiused to 5 mm. This position shall not be more than 30 mm distant from the fully closed position. <p>Alternative for all classes front service door only.</p> <p>38. The doors when closing must not travel at a speed or force that would be likely to injure a passenger.</p> <p>39. The front service doors must be fitted with soft edges; these shall not, however be so soft that if the doors are closed on a test bar having a section of height 60 mm, width 30 mm with corners radiused to 5 mm. the rigid structure of the doors will reach the fully closed position.</p> <p>40. All power-operated service doors, that are held closed only by continued application of the power supply, must be provided with a visual warning device to inform the driver of any failure in the power supply to the doors</p> <p>41. All power operated service doors must have either a starting prevention device or an audible warning to the driver that is activated if the vehicle is driven away from rest when any power-operated service door is not fully closed.</p>

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Method of Inspection	Required Standard
	<p>42. Any starting prevention device fitted must be effective only at speeds of less than 5 km/h and must be incapable of operation above that speed.</p> <p><u>Additional technical requirements for automatically operated service doors</u></p> <p>43. All door opening controls (except the internal emergency control), must only be capable of activated and deactivated by the driver whilst in his seat. (see note 11)</p> <p>44. Following activation of the opening control/s by the driver, the activation must be indicated inside and, where a door is to be opened from outside, also on the outside of the vehicle; the indicator (e.g. illuminated push-button, illuminated sign) shall be on or adjacent to the door to which it relates.</p> <p>45. In the case of direct actuation by means of a switch, the functional state of the system must be clearly indicated to the driver, by, for example, the position of the switch or an indicator lamp or an illuminated switch. The switch must be specially marked and arranged in such a way that it cannot be confused with other controls.</p> <p>46. After activation of the opening controls by the driver, it must be possible for passengers to open the door as follows:</p> <ul style="list-style-type: none"> a. From inside, for example by pressing a push-button or passing a light barrier, and b. From outside, (except in the case of a door intended only as an exit and marked as such), by, for example, pressing an illuminated push-button, a push-button beneath an illuminated sign, or a similar device marked with a suitable instruction. (see note 12) <p>47. When an automatically operated service door has opened it must close again automatically after a time interval has elapsed.</p>

Service Doors 52I

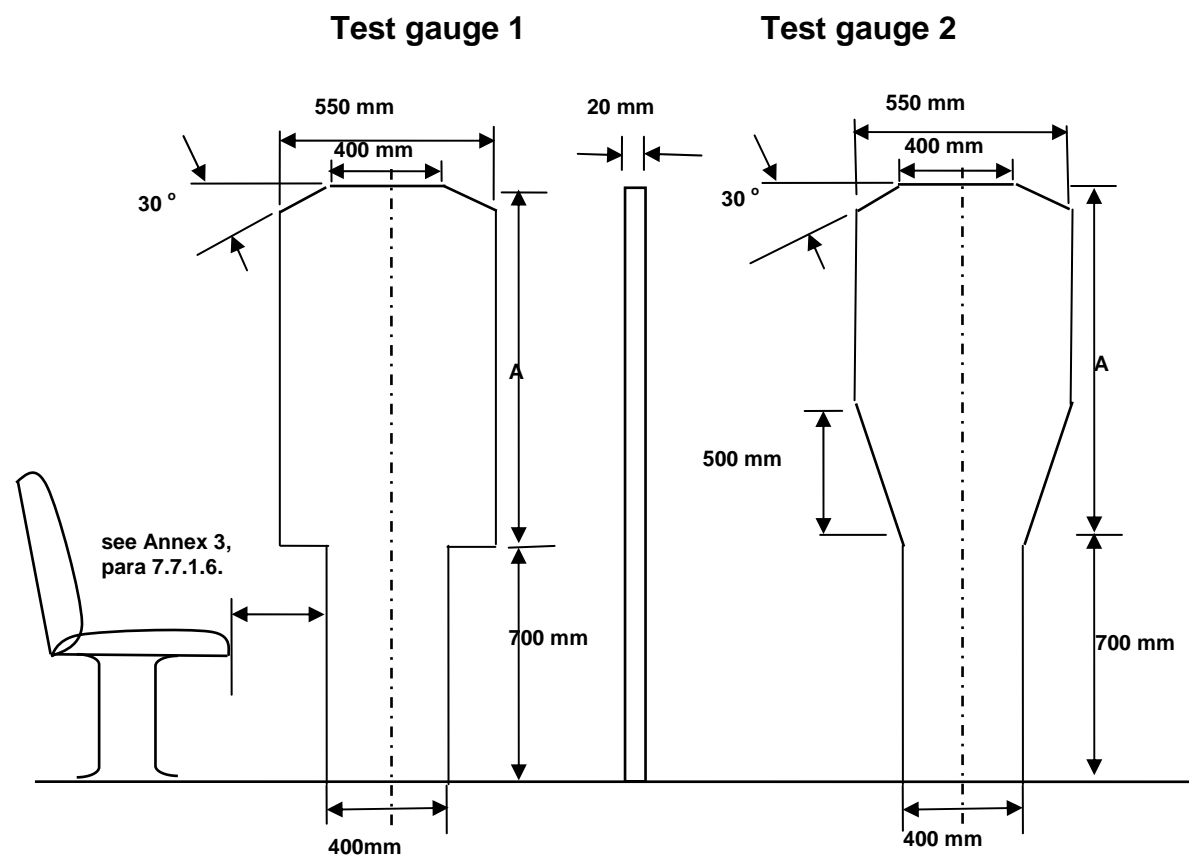
Method of Inspection	Required Standard
	<p>48. If a passenger enters or leaves the vehicle during the time interval, a safety device (e.g. a footboard contact, light barrier, one-way gate) must ensure that the time until the door closes is sufficiently extended.</p> <p>49. If a passenger enters or leaves the vehicle while the door is closing, the closing process must be interrupted automatically and the door/s must return to the open position. The reversal may be actuated by one of the safety devices referred to in item 48 or by any other device.</p> <p>50. Any door that has closed automatically must be capable of being opened again by a passenger; using the controls called for in item 46, (this shall not apply if the driver has deactivated the opening controls.)</p> <p>51. After deactivation of the opening controls of the automatically operated service doors by the driver, open doors must close in accordance with items 48 & 49</p> <p>52. The driver must be able to inhibit the automatic closing process by actuation of a special control.</p> <p>53. A passenger must be able to inhibit the automatic closing process directly by pressing a special push-button.</p> <p>54. The inhibition of the automatic closing process must be indicated to the driver, e.g. by a visual tell-tale.</p> <p>55. The driver must be able to re-establish the automatic closing process.</p> <p>56. Any open door that closes when the driver re-establishes the automatic closing process, must comply with items 48 & 49.</p>

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Method of Inspection	Required Standard
	<p><u>Access passage to service doors</u></p> <p>All classes (For class A or B see alternatives below) except vehicle of Class B with a technically permissible maximum mass not exceeding 3,5 tonnes and up to 12 passengers seats in which each seat has unobstructed access to at least two doors.</p> <p>57. It must be possible to move one of the panels described in figure 1 below, resting on the floor/step of the vehicle inwards into the vehicle a distance of 300mm from the side wall in which the door is mounted The dual panel shall be maintained parallel with the door aperture as it is moved from the starting position, then be kept at right angles to the probable direction of motion of a person using the entrance.</p> <p>58. For all vehicles where there is more than one step at the entrance to the vehicle between the panel described in item 57 at a position 300mm into the Vehicle and the gangway figure described in section 52M placed so that its centre line has reached the vertical plane which contains the top edge of the uppermost step. It must be possible for a 20 mm thick panel having the appropriate dimensions for a gangway for the specific class of vehicle (see section 52M) to be moved, from the position of the gangway figure, until its external side is in contact with the dual panel interior side, touching the plane or planes defined by the step upper edges, in the probable direction of motion of a person using the entrance. (see , figure 2 & notes 13 & 14)</p>

Service Doors 52I

Method of Inspection	Required Standard
	<p>Alternative for class A or B, except vehicle of Class B with a technically permissible maximum mass not exceeding 3,5 tonnes and up to 12 passengers seats in which each seat has unobstructed access to at least two doors.</p> <p>59. As an alternative to items 57 & 58 vehicles having a capacity not exceeding 22 passengers a doorway and the route by which passengers gain access to it shall be considered unobstructed if they have:</p> <ul style="list-style-type: none"> a. Measured parallel with the longitudinal axis of the vehicle, there is a clearance of not less than 220 mm at any point and 550 mm at any point being more than 500 mm above the floor or steps (see, figure 3) b. Measured perpendicular to the longitudinal axis of the vehicle, there is a clearance of not less than 300 mm at any point and 550 mm at any point being more than 1200 mm above the floor or steps or less than 300 mm below the ceiling (see, figure 4). <p>Class B with a technically permitted maximum mass not exceeding 3.5 tonnes and up to 12 passenger seats</p> <p>60. Each seat must have unobstructed access to at least two doors.</p> <p>All Classes</p> <p>61. The maximum slope of the floor in the access passage must not exceed 5 % when measured with the vehicle at its mass in running order standing on a horizontal surface. Any kneeling device shall not be engaged.</p> <p>62. The surface of access passages must be slip resistant</p>

Figure 1

Vehicle class	Height of the upper panel (mm) (Dimension "A" figure 1)	
	Test gauge 1	Test gauge 2
Class A	950 ^{*/}	950
Class B	700 ^{*/}	950
Class I	1,100	1,100
Class II	950	1,100
Class III	850	1,100

^{*/} For vehicles of Class A or B, the lower panel may be displaced horizontally relative to the upper panel provided that it is in the same direction."

Figure 2
ACCESS TO SERVICE DOORS

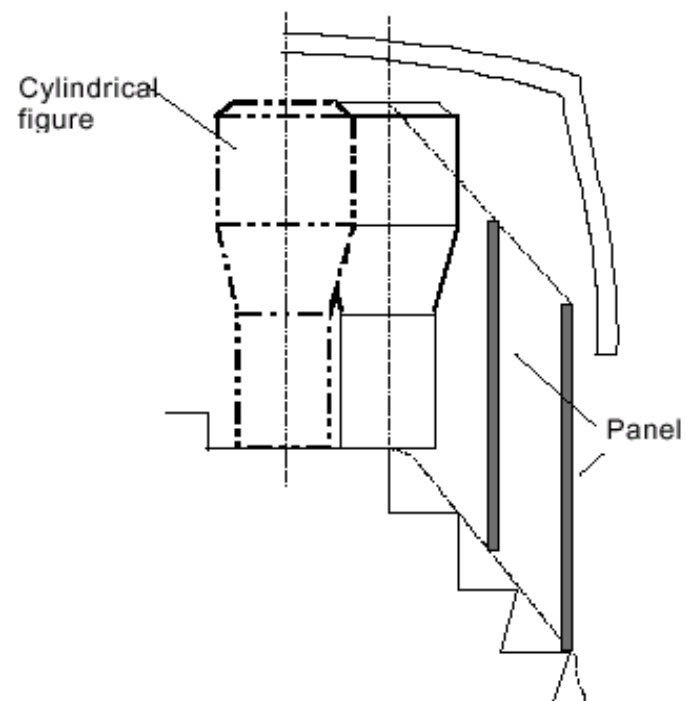


Figure 3
DETERMINATION OF UNOBSTRUCTED ACCESS TO DOOR

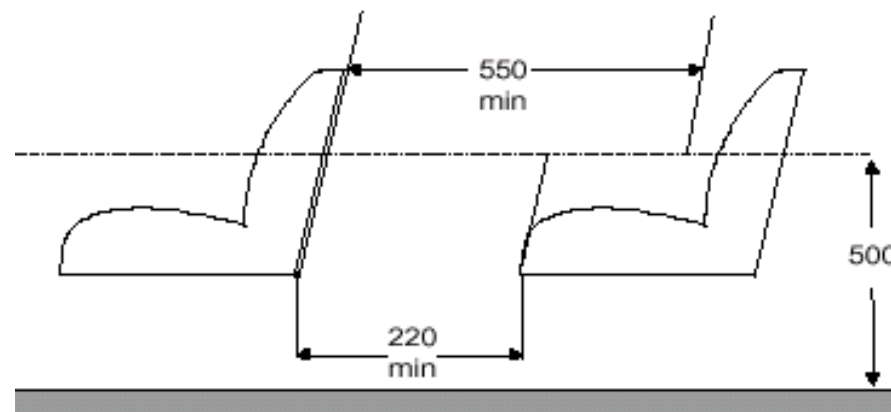
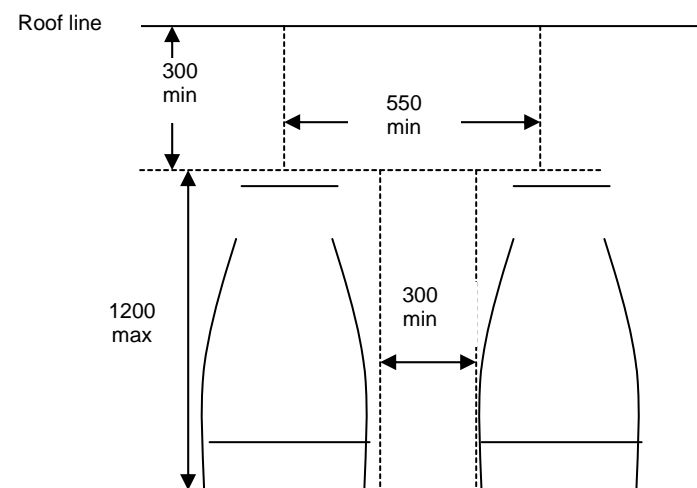


Figure 4
DETERMINATION OF UNOBSTRUCTED ACCESS TO DOOR



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Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/07/2009	Add the text "as close as practical" to RS34
3	29/04/2010	Add the text "from the ground located at the relevant service door" to RS 22

52J Emergency Doors

Application: All Classes

Method of Inspection	Required Standard
<p>This inspection is to ensure the minimum sizes of emergency doors there operation and access, meet the required standards.</p> <p>Note1: The evidence would either be an approval or test carried out to the requirements of Regulation 33. and in addition in the test report must be a statement the door could still be opened. (This is important as the basic test to Reg 33 would not cover opening of the door)</p> <p>Note 2: The diameter of the upper cylinder may be reduced at the top to 400 mm when a chamfer not exceeding 30 ° from the horizontal is included.</p> <p>Note 3:-The base of the first cylinder shall be within the projection of the second cylinder. (see figure 1)</p> <p>Note 4: Where folding seats are installed alongside the passage in item 14 or 15, the free space for the cylinder shall be required to be determined when the seat/s are in the position for use</p>	<p><u>Size of Emergency Doors</u></p> <p>Class I, II,& III (optional for class A or B)</p> <ol style="list-style-type: none"> 1. The minimum height of the emergency door aperture must be 1250mm. and the minimum width of the emergency door aperture must be 550mm <p>Alternative for Class A & B</p> <ol style="list-style-type: none"> 2. The minimum height of the emergency door aperture must be 1250mm. The upper corners may be reduced with round-offs, having a radius of not more than 150mm. The minimum width of an emergency door aperture must be 550mm. The minimum width may be reduced to 300mm in cases where intruding wheel arches so require, providing that the width of 550mm is achieved at the minimum height of 400mm above the lowest part of the door aperture <p>Alternative for Class B vehicles with a technically permissible maximum mass not exceeding 3,5 tonnes and up to 12 passengers seats in which each seat has unobstructed access to at least two doors</p> <ol style="list-style-type: none"> 3. The minimum height of the emergency door aperture must be 1100mm. The upper corners may be reduced with round-offs, having a radius of not more than 150mm. The minimum width of an emergency door aperture must be 550mm. The minimum width may be reduced to 300mm in cases where intruding wheel arches so require, providing that the width of 550mm is respected at the minimum height of 400mm above the lowest part of the door aperture

Emergency Doors 52J

Method of Inspection	Required Standard
	<p><u>Technical requirements for Emergency doors</u></p> <p>All Classes</p> <p>4. All Emergency doors must be capable of being easily opened from inside and from outside when the vehicle is stationary. However, the door may be able to be locked from the outside, provided that the door can always be opened from the inside by the use of the normal opening mechanism."</p> <p>All Classes with power operated Emergency doors</p> <p>5. All power operated emergency doors must meet the following criteria:-</p> <ul style="list-style-type: none"> a. The emergency control must override all other door controls b. The interior emergency control must be placed on, or within 300 mm of, the door, at a height of not less than c. 1600 mm above the first step; d. All emergency controls must be easily seen and clearly identified, when approaching the door and when standing in front of the door and if additional to the normal opening controls, be clearly marked for emergency use. e. The emergency control must be capable of operation by one person when standing immediately in front of the door f. The operation of the emergency control must cause the door to open to a width that the gauge as defined in 14, or 15 below, can pass through within a maximum of 8 seconds after the operation of the control, or enable the door to be easily opened by hand to a width that the gauge can pass through within a maximum of 8 seconds after the operation of the control

Emergency Doors 52J

Method of Inspection	Required Standard
	<p data-bbox="1115 197 2121 264">g. Any protection device for an emergency control must be easily moved or broken to allow easy access to the control</p> <p data-bbox="1115 300 2121 405">h. The operation of the emergency control, or the removal of a protective cover over the control, must be indicated to the driver both audibly and visually</p> <p data-bbox="1115 440 2121 571">i. The operation of the emergency control must be such that after operating the emergency control to open the door, and returning the control to its normal position, the door does not re-close until the driver operates a closing device.</p> <p data-bbox="1025 606 1182 635">All classes</p> <p data-bbox="1075 670 2024 705">6. Sliding emergency doors must only be fitted to a class A or B vehicle.</p> <p data-bbox="1025 740 1196 769">Class A & B</p> <p data-bbox="1075 804 2092 871">7. Where sliding emergency doors are fitted one of the following criteria must be met:-</p> <p data-bbox="1173 906 2121 1011">a. All passengers must have access to at least two doors, being either, service doors or emergency doors, and one of these doors must not be a sliding door. or</p> <p data-bbox="1173 1046 2121 1145">b. Satisfactory documentary evidence that the door is capable of being opened without the use of tools after a frontal barrier collision test in accordance with Regulation 33 is required (see note 1)</p> <p data-bbox="1025 1181 1196 1209">All Classes</p> <p data-bbox="1075 1244 2092 1382">8. The exterior emergency door opening control (lower deck only of a double deck vehicle) must be positioned between 1000mm and 1500mm from the ground, and the control must not be more than 500mm from nearest door edge.</p>

Emergency Doors 52J

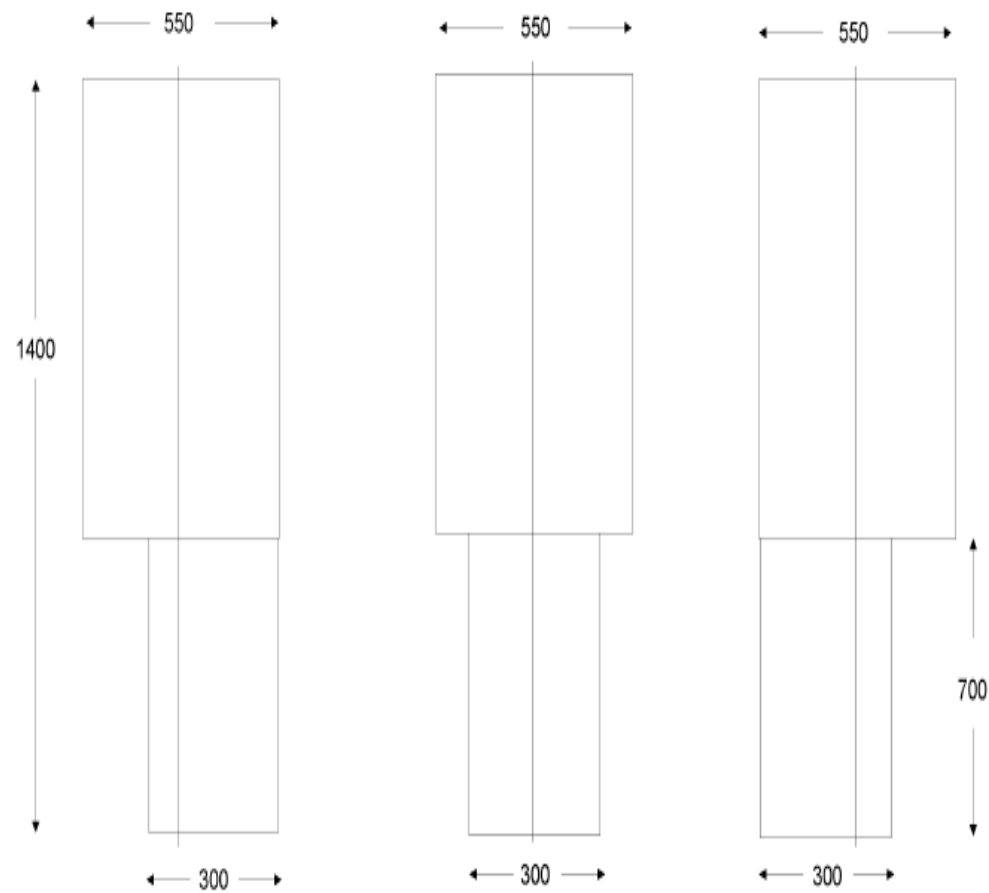
Method of Inspection	Required Standard
	<p>Class I, II, & III</p> <p>9. Any interior door opening controls not located in the drivers area, must be positioned between 1000mm and 1500mm from the upper surface of the floor or step closest to the control, and the control must not be more than 500mm from nearest door edge. This does not include the emergency control for power operated doors.</p> <p>All classes</p> <p>10. All hinged emergency doors fitted to the side of the vehicle must be hinged at their forward edge and open outwards.</p> <p>11. Any hinged emergency door fitted with a check strap must allow the door to, open to and remain open at, an angle of at least 100°. If a means is provided to hold the door in a position sufficient to give free passage to the emergency door access gauge, the 100° minimum angle shall not apply.</p> <p>12. All Emergency doors must be proofed against unintentional operation. (able to be opened without a deliberate intentional action) However, this requirement shall not apply if the emergency door is locked automatically when the vehicle is moving at a speed exceeding 5 km/h.</p> <p>13. All emergency doors must be provided with an audible device to warn the driver when they are not securely closed. The warning device must be operated by movement of the door catch or handle and not by movement of the door itself.</p>

Emergency Doors 52J

Method of Inspection	Required Standard
	<p data-bbox="1030 231 1429 263"><u>Access to Emergency Doors</u></p> <p data-bbox="1030 295 1982 367">All classes except class A or B vehicles using the drivers door as an emergency exit.(see also alternative in item 15)</p> <p data-bbox="1075 406 2116 582">14. The free space between the gangway and the emergency door aperture must permit the free passage of a vertical cylinder 300 mm in diameter and 700 mm high from the floor and supporting a second vertical cylinder 550 mm in diameter, the aggregate height of the assembly being 1400 mm. (see notes 2, 3 & 4)</p> <p data-bbox="1030 630 1966 694">All classes except class A or B vehicles using the drivers door as a emergency exit.</p> <p data-bbox="1075 726 2105 798">15. As an alternative to item 14, the appropriate gangway figure for the class of vehicle, as described in section 52M, may be used to assess the access</p>

Emergency Doors 52J

Figure 1



Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

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52K Emergency Windows

Application: All Classes

Method of Inspection	Required Standard
<p>Note 1: As an alternative, for a Emergency window situated in the rear face of the vehicle, it must be possible to inscribe in the emergency window aperture a rectangle 350mm high and 1550mm wide. The corners of the rectangle may radiused to a curvature not exceeding 250mm.</p> <p>Note 2: The height of the floor is (taken to be the general level of the floor excluding any local variations such as the presence of a wheel arch or transmission housing)</p> <p>Note 3: This dimension can be reduced to 500mm provided that the window aperture is equipped with a guard up to a height of 650mm to prevent the possibility of passengers falling out of the vehicle. Where the window aperture is equipped with a guard, the size of the window above the guard shall not be less than the minimum size prescribed for an emergency window.</p> <p>Note 4: To be tested by a test gauge of :-</p> <p>A thin plate having a size of 600 X 400mm with its corners radiused by 200mm. However, in the case of an emergency window in the rear face of the vehicle, the test gauge may alternatively have a size of 1400mm X 350mm with corners radiused by 175mm.</p> <p>The direction of motion of the test gauge must be the direction in which a passenger evacuating the vehicle would be expected to move. The test gauge must be kept perpendicular to that direction of motion.</p>	<p><u>All</u> Emergency Windows</p> <ol style="list-style-type: none"> 1. An emergency window must have a minimum area of 400,000 mm², and be possible to inscribe within this area a rectangle of 500mm X 700mm (see Note 1). <p>For Break Glass type Exits</p> <ol style="list-style-type: none"> 2. The emergency window must be made of readily breakable safety glass. (Laminated glass or plastic are not acceptable materials for break glass windows) 3. A suitable 'break glass' device must be provided internally adjacent to each window and be readily available to ensure that the window can be broken. The "break glass" device for emergency windows in the rear face of the vehicle must be positioned centrally above or below the emergency window or, alternatively, a device must be positioned adjacent to each end of the window. 4. The height of the lower edge of an emergency window fitted in the side of the vehicle from the general level of the floor immediately below must not be more than 1200mm (see Note 2) 5. The height of the lower edge must not be less than 500mm from the general level of the floor immediately below (see note 2)

Emergency Windows 52K

Method of Inspection	Required Standard
	<p>For Hinged Type Exits</p> <ul style="list-style-type: none"> 6. All hinged emergency windows must open outwards. 7. Hinged windows must be able to be easily and instantaneously operated from inside and outside the vehicle by a suitable device. 8. Any hinged window which is capable of being locked from the outside must be so constructed as to be capable of being opened from the inside at all times. 9. Any emergency window that is hinged horizontally at the top edge must be fitted with a device to hold it fully open. 10. The height of the lower edge of an emergency window fitted in the side of the vehicle from the general level of the floor immediately below it is not more than 1200mm (see Note 2) 11. The height of the lower edge of a hinged window must not be less than 650mm from the general level of the floor immediately below it. (see Notes 2 & 3) 12. Every hinged emergency window which is not clearly visible from the driver's seat must be fitted with an audible warning device to warn the driver when it is not completely closed, which operates on the hinged window lock and not on the movement of the hinged window itself. 13. An emergency window must be capable of operating so as not to obstruct the clear passage from inside or outside of the vehicle.

Emergency Windows 52K

Method of Inspection	Required Standard
	<p>For Ejectable Type Windows</p> <p>14. All ejectable emergency windows must open outwards.</p> <p>15. Ejectable emergency windows must not become totally detached from the vehicle when operated.</p> <p>16. All ejectable windows must not be able to be inadvertently ejected.</p> <p>17. All ejectable windows must be capable of easy and instantaneous operation from inside and outside the vehicle by a suitable device</p> <p>18. Any ejectable emergency window which is capable of being locked from the outside must be so constructed as to be capable of being opened from the inside at all times.</p> <p>19. The height of the lower edge of an ejectable emergency window fitted in the side of the vehicle from the general level of the floor immediately below must not be more than 1200mm (see Note 2).</p> <p><u>Access to all types of Emergency Window</u></p> <p>20. The appropriate test gauge must be able to be moved from the gangway to the exterior of the vehicle through every emergency window. (See note 4)</p>

Emergency Windows 52K

Record of Revision

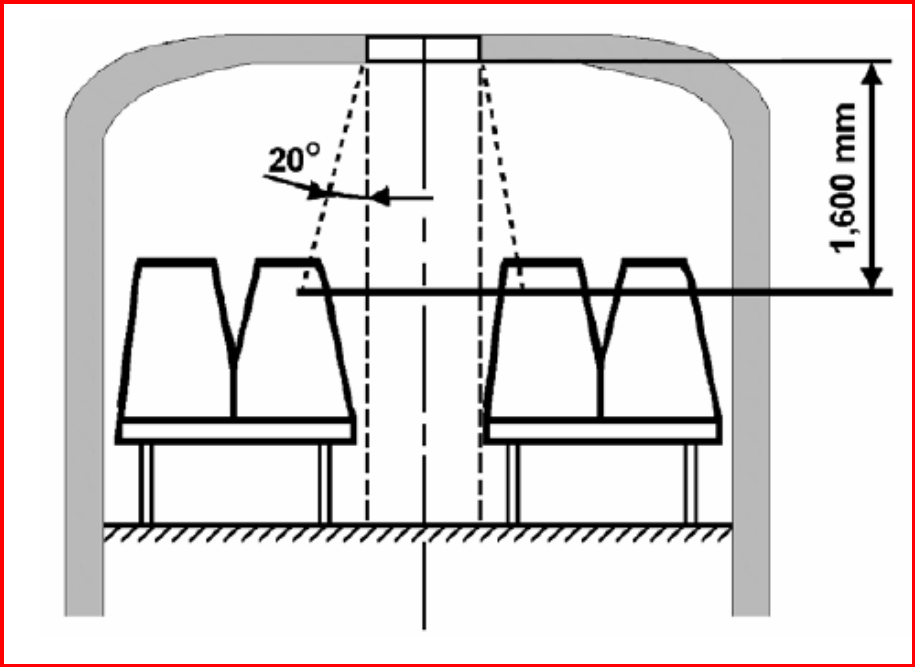
Revision	Date	Description of Change
1	24/04/2009	

52L Emergency Hatches

Application: All Classes

Method of Inspection	Required Standard
<p>This inspection is to ensure the minimum sizes of emergency hatches, their operation and access meet the required standards.</p> <p>Escape hatches may be in the roof and be ejectable, hinged or made of readily breakable safety glass. Alternatively they may be in the floor of the vehicle and be either hinged or ejectable</p> <p>Note 1: This requirement shall not apply if the floor hatch is locked automatically when the vehicle is moving at a speed exceeding 5 km/h.</p> <p>Note 2: However, this requirement shall not be construed as precluding the possibility of locking the escape hatch for the purpose of securing the vehicle when unattended, provided that the escape hatch can always be opened or removed from the inside by the use of the normal opening or removal mechanism.</p> <p>Note 3: Supports may be foldable or movable provided that they can be locked in their position of use.</p> <p>Note 4: When the structural thickness of the roof is more than 150 mm, the smaller section of the pyramid shall contact the aperture area of the escape hatch at the level of the outside surface of the roof.</p>	<p><u>Size of Escape hatches</u></p> <ol style="list-style-type: none"> 1. All escape hatches must have a minimum area of 400,000 mm², and within this area, it must be possible to inscribe a rectangle of 500mm x 700mm. <p><u>Technical requirements for escape hatches</u></p> <ol style="list-style-type: none"> 2. 2) All escape hatches must operate so as not to obstruct the clear passage from inside or outside the vehicle 3. All floor Escape hatches must be fitted with an audible warning device to warn the driver when it is not securely closed. The floor escape hatch lock, and not the movement of the hatch itself, shall actuate this device. 4. All floor escape hatches must be proofed against unintentional operation (able to be opened without a deliberate intentional action). (see note 1) 5. All ejectable floor escape hatches must eject into the passenger compartment. 6. All hinged floor escape hatches must hinge into the passenger compartment. 7. Ejectable escape hatches must not become totally detached from the vehicle when operated.

Emergency Hatches 52L

Method of Inspection	Required Standard
<p>Figure 1</p> 	<ol style="list-style-type: none"> 8. Ejectable escape hatches must be proofed against inadvertent operation. (able to be opened without a deliberate intentional action). 9. Hinged escape hatches must be hinged along the edge towards the front or rear of the vehicle and must hinge through an angle of at least 100 °. 10. All escape hatches (other than break glass types) must be capable of being easily opened or removed from the inside and from the outside. (see note 2) 11. Break glass types of escape hatch must have a device provided adjacent to the hatch, readily available to persons inside the vehicle, to ensure that the hatch can be broken. 12. Break glass types of escape hatch must be made of readily breakable safety glass <p><u>Access to escape Hatches</u></p> <p>Escape hatches in the roof</p> <ol style="list-style-type: none"> 13. On vehicles other than Class 1 and A, at least one escape hatch must be located such that a four-sided truncated pyramid having a side angle of 20 ° and a height of 1600 mm touches part of a seat or equivalent support. The axis of the pyramid shall be vertical and its smaller section shall contact the aperture area of the escape hatch. (See figure 1 & notes 3 & 4))

Emergency Hatches 52L

Method of Inspection	Required Standard
	<p>Escape hatches in the floor</p> <p>14. All floor escape hatches must have direct and free access to the exterior of the vehicle.</p> <p>15. All floor escape hatches must have a clear space above the hatch equivalent to the height of the gangway for the appropriate class of vehicle. (See section 52M)</p> <p>16. There must not be any heat source or moving components within 500 mm from any part of the hatch aperture</p> <p>17. It must be possible to move a test gauge in the form of a thin plate having dimensions 600 mm x 400 mm with corners radiused by 200 mm in a horizontal position from a height above the floor of the vehicle of 1 m, to the ground.</p>

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

52M Gangways and Staircase

Application: All Classes

Method of Inspection	Required Standard																																				
<p>The definition of gangway is contained in the Definitions section, and the definition of forward limitations of gangways, where there is no exit forward of a seat or row of seats is shown in figures 5, 6, 7below. These definitions will be required to be used in conjunction with this section.</p> <p>Note 1: The gauging device may come into contact with strap hangers, if fitted, or other flexible objects such as seat belt components, and move them away.</p> <p>Note 2: In measuring the gangway width, no account shall be taken of whether or not the available space defined in (4) of section 52P protrudes into the gangway</p> <p>Note 3: Dimension in brackets (or first dimension in brackets containing 2 dimensions) applies to any part of the gangway of the lower deck to the rear of a transverse vertical plane situated 1500 mm forward to the centre of the rear axle (foremost rear axle in the case of vehicles with more than one rear axle),</p> <p>Note 4: 2nd dimension in brackets applies in the case of a service door which is situated forward the front axle in any part of the gangway situated between two transverse vertical planes situated 800 mm forwards and behind the centre line of the front axle.</p>	<p>All classes Single deck</p> <p>1. The appropriate form described in figure 1 and the table below, must be able to move freely down the gangway. (see notes 1, 2, 3, 4 and figure 1)</p> <table><tr><th></th><th>Class I</th><th>Class II</th><th>Class III</th><th>Class A</th><th>Class B</th></tr><tr><td>Diameter of lower cylinder ‘A’</td><td>450(**)</td><td>350</td><td>300</td><td>350</td><td>300</td></tr><tr><td>Height of lower cylinder</td><td>900</td><td>900</td><td>900</td><td>900</td><td>900</td></tr><tr><td>Diameter of upper cylinder ‘C’</td><td>550</td><td>550</td><td>450</td><td>550</td><td>450</td></tr><tr><td>Height of upper cylinder ‘B’</td><td>500(*)</td><td>500(*)</td><td>500(*)</td><td>500(*)</td><td>300</td></tr><tr><td>Overall height ‘H’</td><td>1900(*)</td><td>1900(*)</td><td>1900(*)</td><td>1900(*)</td><td>1500</td></tr></table> <p>(*) The height of the upper cylinder and herewith the overall height may be reduced by 100mm in any part of the gangway to the rear of : A transverse vertical plane situated 1.5m forward of the centre line of the rear axle (foremost rear axle in the case of vehicles with more than one rear axle) and</p> <p>A transverse vertical plane situated at the rear edge of the service door or of the rearmost service door if there are more than one service door.</p> <p>(**) On vehicles of Class I, the diameter of the lower cylinder may be reduced from 450 mm to 400 mm in any part of the gangway to the rear of:</p> <p>A transverse vertical plane situated 1,5 m forward of the centre line of the rear axle (foremost rear axle in the case of vehicles with more than one rear axle), and</p> <p>A transverse vertical plane situated at the rear edge of the rearmost service door. (For the purpose of the above, each rigid section of an articulated vehicle shall be considered separately).</p>		Class I	Class II	Class III	Class A	Class B	Diameter of lower cylinder ‘A’	450(**)	350	300	350	300	Height of lower cylinder	900	900	900	900	900	Diameter of upper cylinder ‘C’	550	550	450	550	450	Height of upper cylinder ‘B’	500(*)	500(*)	500(*)	500(*)	300	Overall height ‘H’	1900(*)	1900(*)	1900(*)	1900(*)	1500
	Class I	Class II	Class III	Class A	Class B																																
Diameter of lower cylinder ‘A’	450(**)	350	300	350	300																																
Height of lower cylinder	900	900	900	900	900																																
Diameter of upper cylinder ‘C’	550	550	450	550	450																																
Height of upper cylinder ‘B’	500(*)	500(*)	500(*)	500(*)	300																																
Overall height ‘H’	1900(*)	1900(*)	1900(*)	1900(*)	1500																																

Gangways and Staircase 52M

Method of Inspection	Required Standard						
<p>Note 5:- In the case of a vehicle without a roof, the exits on the deck without a roof, must be such as to fulfil those prescriptions that are not incompatible with the absence of the roof.</p>	All classes Double Deck						
	<p>2. The appropriate form described in figure 2 and the table below, must be able to move freely down the gangway. (see notes 1, 2, 3, 4, 5 and figure 2)</p>						
		Class I		Class II		Class III	
	Upper /lower deck	UD	LD	UD	LD	UD	LD
	Diameter of lower cylinder	450 (400)	450 (400)	350	350	300	300
	Height of lower cylinder	900	1020 (900/990)	900	1020 (900/990)	900	1020 (900/990)
	Diameter of upper cylinder	550	550	550	550	450	450
	Height of upper cylinder	500	500	500	500	500	500
	Overall height	1680	1800 (1680/1770)	1680	1800 (1680/1770)	1680	1800 (1680/1770)

Gangways and Staircase 52M

Method of Inspection	Required Standard
	<p>Class A or B</p> <p>3. As an alternative to the requirements set out in item 1) above, a vehicle of class A or B may meet the following requirements:-</p> <ul style="list-style-type: none"> a. Measured parallel with the longitudinal axis of the vehicle, there must be a clearance of not less than 220 mm at any point and 550 mm at any point being more than 500 mm above the floor or steps. (see figure 3) b. Measured perpendicular to the longitudinal axis of the vehicle, there must be a clearance of not less than 300 mm at any point and 550 mm at any point being more than 1200 mm above the floor or steps or less than 300 mm below the ceiling. (see figure 4) <p>All classes where there is no exit forward of a seat or row of seats:</p> <p>4. Where there is no exit forward of a seat or row of seats the following criteria will apply:-</p> <ul style="list-style-type: none"> a. In the case of forward-facing seats, the front edge of the cylindrical gauge defined in 1) above must reach at least until the transverse vertical plane tangential to the foremost point of the foremost front row seat back and be retained in that position. From this plane, it must be possible to move the panel shown in figure 5, in such a way that starting from the contact position with the cylindrical gauge, the panel side facing the exterior of the vehicle is displaced forwards a distance of 660 mm. b. In the case of sideways facing seats, the forward part of the cylindrical gauge, defined in 1) above, must reach at least the transversal plane which coincides with a vertical plane passing through the centre of the forward seat (see figure 6) c. In the case of rearward facing seats, the forward part of the cylindrical gauge, defined in 1) above must reach at least the transverse vertical plane tangential to the face of the seat cushions of the forward row or seat (see figure 7)

Gangways and Staircase 52M

Method of Inspection	Required Standard
	<p>All classes</p> <p>5. Laterally movable seats must only be fitted on vehicles of Class III.</p> <p>Class III</p> <p>6. Where laterally movable seats are fitted on one side or on both sides of the gangway, it must be possible with the seats extended laterally, to have free access with a reduced width of the gangway to a figure corresponding to a lower cylinder diameter of 220 mm, on condition that the operation of a control on each seat, readily accessible to a person standing in the gangway, shall be sufficient to cause the seat to return easily and, if possible, automatically, even when it is loaded, to the position corresponding to a minimum width of 300 mm.</p> <p>Articulated vehicles</p> <p>7. The form described in 1) single deck or 2) double deck, above must be capable of passing unobstructed through the articulated section. No part of the soft covering of that section, including parts of bellows, is allowed to project into the gangway.</p> <p>All classes</p> <p>8. Steps may be fitted in a gangway. The width of such steps must not be less than the width of the gangway at the top of the step/s.</p> <p>9. Folding seats allowing passengers to sit in the gangway must not be fitted.</p> <p>10. The surface of the gangway must have a slip resistant surface</p> <p>Class I, II, or A</p> <p>11. The longitudinal slope of the gangway must not exceed 8%</p> <p>Class III or B</p> <p>12. The longitudinal slope of the gangway must not exceed 12.5%</p>

Gangways and Staircase 52M

Method of Inspection	Required Standard
	<p>All classes</p> <p>13. The gangway slope in the case of the plane perpendicular to the longitudinal axis of symmetry of vehicle, must not exceed 5%</p> <p>Intercommunicating Staircases</p> <p>All Classes double deck</p> <p>14. The upper deck gangway must be connected by one or more intercommunicating staircases to the access passage of a service door or to the lower deck gangway within 3 metres of a service door</p> <p>15. It must be possible to move freely the form defined in the figure 8, starting from the gangway of the lower deck up to the last step, in the probable direction of motion of a person using the staircase.</p> <p>16. Intercommunicating staircase/s must afford protection so that, during heavy braking of the vehicle when moving in the forward direction, there is no danger of a passenger being projected downwards. The requirements are fulfilled if one of the following conditions is met.</p> <ul style="list-style-type: none"> a. No part of the staircase is forward descending b. The staircase is equipped with guards or a similar provision c. There is an automatic device in the upper part of the staircase which prevents the use of the staircase when the vehicle is in motion; this device must be easily operable in an emergency <p>17. The riser of each step in a intercommunicating staircase must be closed</p>

Gangways and Staircase 52M

Figure 1

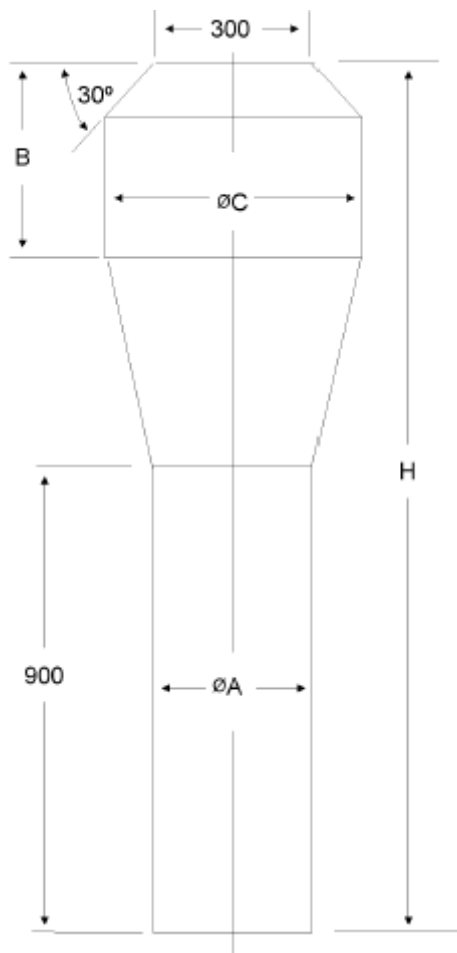
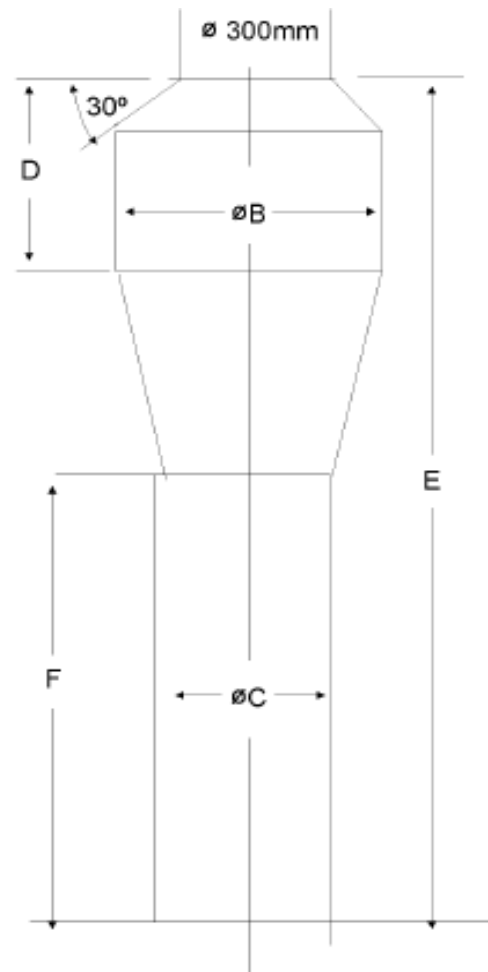


Figure 2



Gangways and Staircase 52M

Figure 3

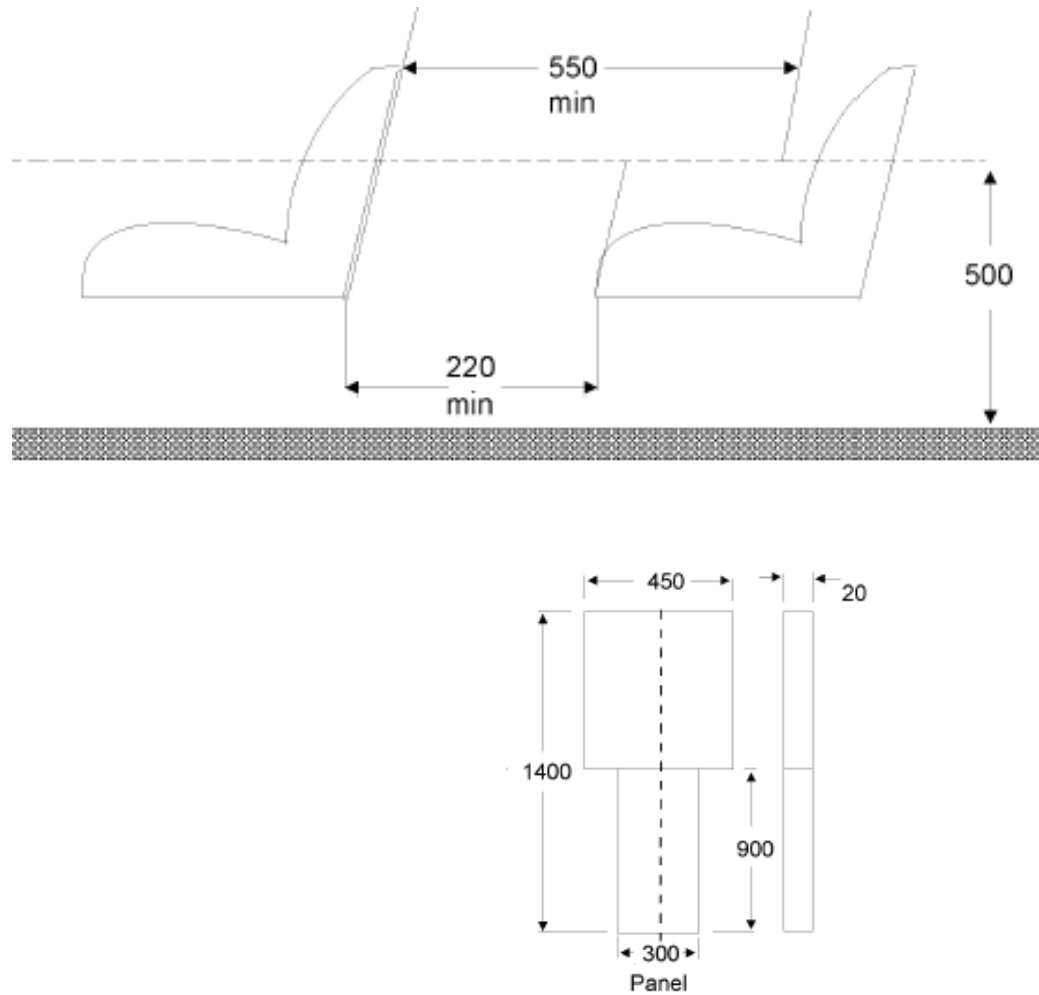
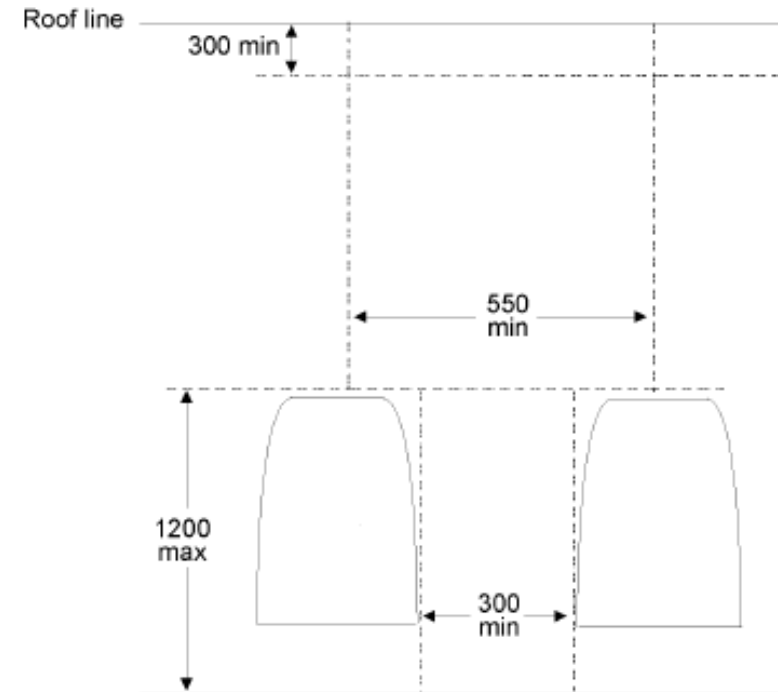


Figure 4



Gangways and Staircase 52M

Figure 5

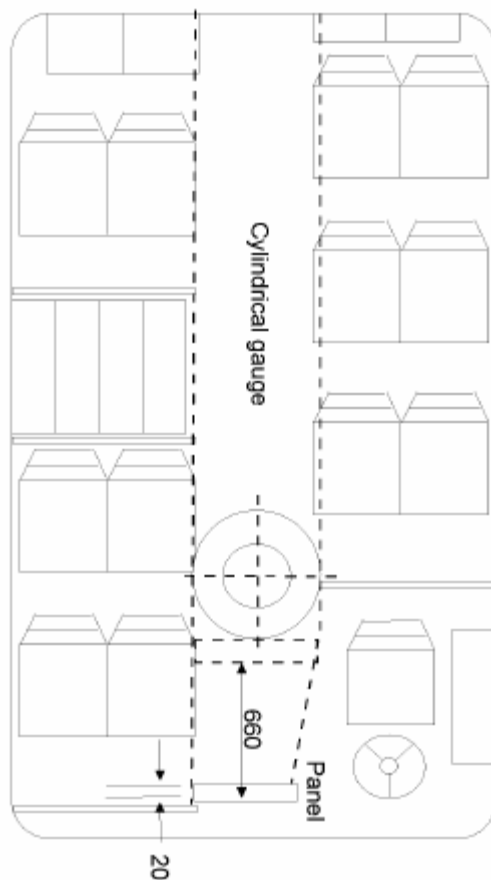


Figure 6

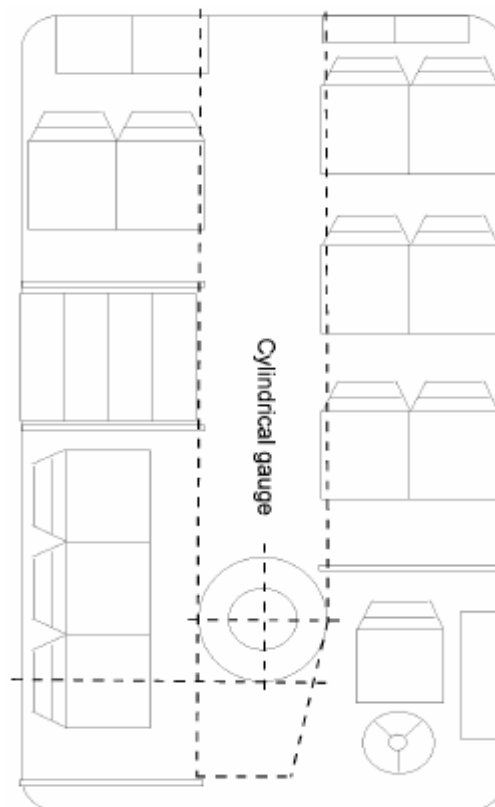
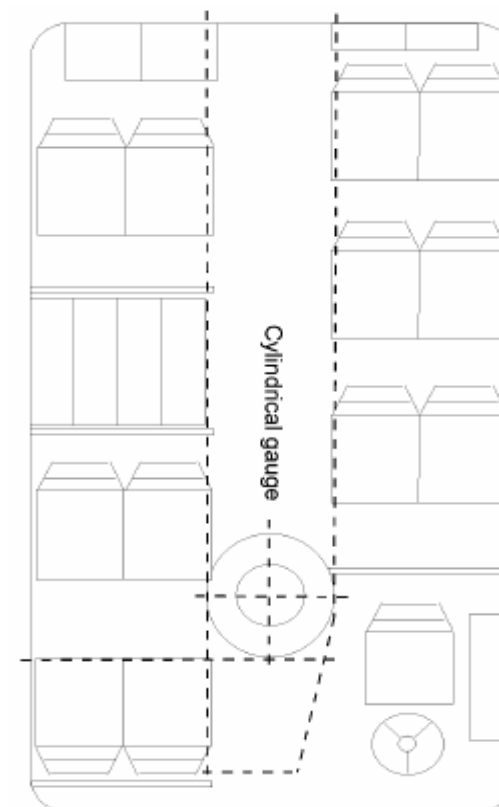
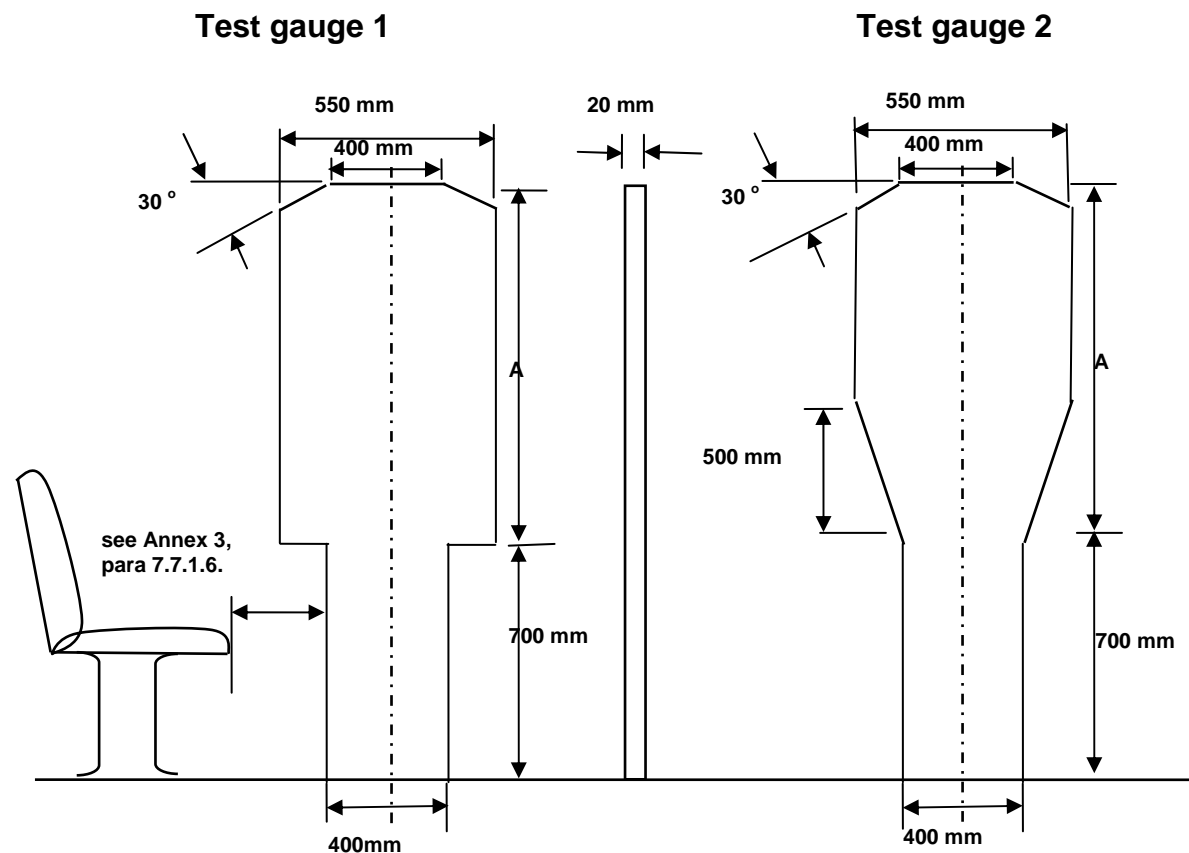


Figure 7



Gangways and Staircase 52M

Figure 8

Vehicle class	Height of the upper panel (mm) (Dimension "A" figure 1)	
	Test gauge 1	Test gauge 2
Class A	950 ^{*/}	950
Class B	700 ^{*/}	950
Class I	1,100	1,100
Class II	950	1,100
Class III	850	1,100

^{*/} For vehicles of Class A or B, the lower panel may be displaced horizontally relative to the upper panel provided that it is in the same direction."

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	24/04/2010	Correct spelling mistake in RS 8

52N Steps

Application: All Classes

Method of Inspection	Required Standard																					
<p>This section deals with the requirements regarding steps for passengers at service and emergency doors and within the vehicle.</p> <p>Note 1: The height of a step shall be measured at the centre of its width.</p> <p>Note 2: The measurements should be taken with the kneeling system not activated and as far as the first step in relation to the ground should be measured with the vehicle on level ground, at its mass in running order and the tyre equipment and pressure being as specified by the manufacturer for the technically permissible maximum laden mass</p> <p>Note 3: At a double doorway the steps in each half of the access passage shall be treated separately.</p> <p>Note 4: The height of other steps (E) in figure 1 need not be the same for each step</p> <p>Note 5: A transition in height within the gangway is classed as a step.</p>	<p>All steps</p> <p>1. All steps must meet the height and depth requirements shown in the table below:-(see notes1, 2, 3, 4 & Figure 1)</p> <table><tr><th colspan="2">Classes</th><th>I and A</th><th>II, III and B</th></tr><tr><td rowspan="2">First step from the ground ‘D’</td><td>Max height in (mm)</td><td>340 (1)</td><td>380 (1)(2)(5)</td></tr><tr><td>Min depth (mm)</td><td colspan="2">300 (*)</td></tr><tr><td rowspan="3">Other Steps ‘E’</td><td>Max height in (mm)</td><td>250 (3)</td><td>350 (4)</td></tr><tr><td>Min height in (mm)</td><td colspan="2">120</td></tr><tr><td>Min depth (mm)</td><td colspan="2">200</td></tr></table> <p>(*) 230mm for vehicles having a capacity not exceeding 22 passengers.</p> <p>(1) 700mm in the case of an emergency door in a single deck : 850mm in the case of an emergency door in the lower deck of a double deck vehicle 1500mm in the case of an emergency door in the upper deck of a double deck vehicle.</p> <p>(2) 430mm in the case of a vehicle with solely mechanical suspension.</p> <p>(3) 300mm in the case of steps at a door behind the rearmost axle.</p> <p>(4) 250mm in gangways for vehicles having a capacity not exceeding 22 passengers.</p> <p>(5) For at least one service door: 400mm for other service doors.</p> <p>Note:1. At a double doorway the steps in each half of the access passage shall be treated separately.</p> <p>2. In the figure 1 below dimension E, need not be the same for each step.</p>	Classes		I and A	II, III and B	First step from the ground ‘D’	Max height in (mm)	340 (1)	380 (1)(2)(5)	Min depth (mm)	300 (*)		Other Steps ‘E’	Max height in (mm)	250 (3)	350 (4)	Min height in (mm)	120		Min depth (mm)	200	
Classes		I and A	II, III and B																			
First step from the ground ‘D’	Max height in (mm)	340 (1)	380 (1)(2)(5)																			
	Min depth (mm)	300 (*)																				
Other Steps ‘E’	Max height in (mm)	250 (3)	350 (4)																			
	Min height in (mm)	120																				
	Min depth (mm)	200																				

Steps 52N

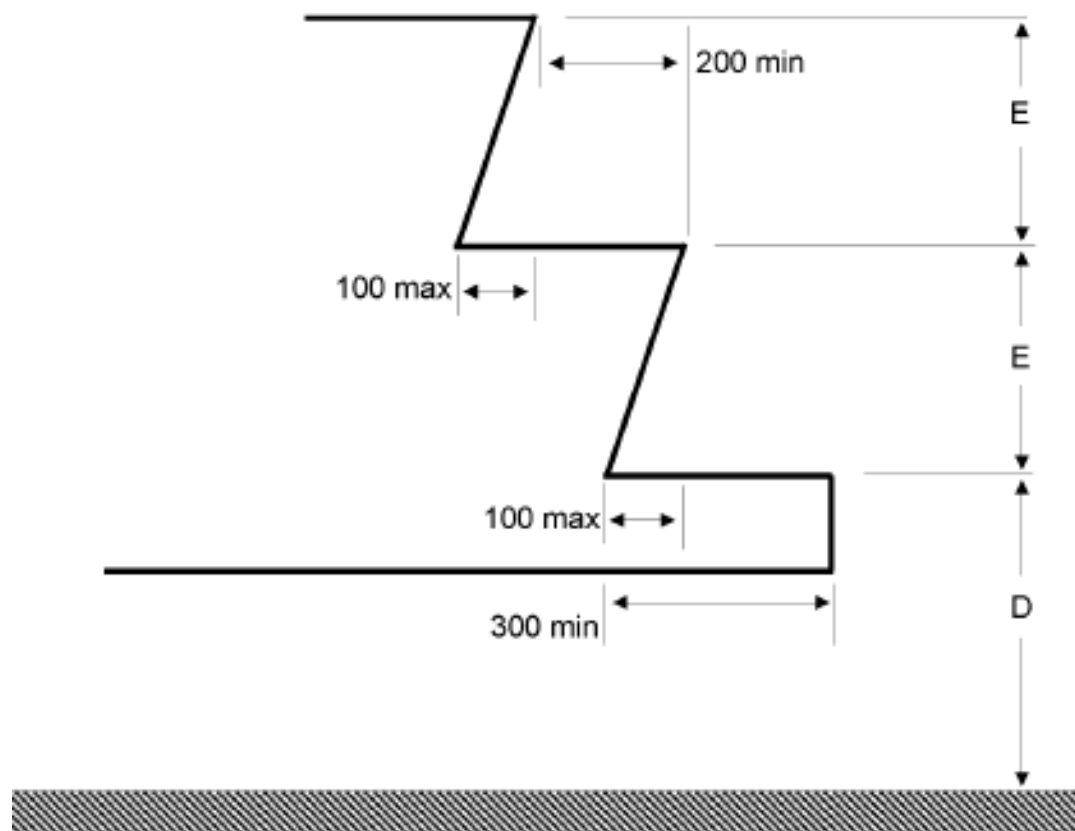
Method of Inspection	Required Standard											
<p>Note 6: Satisfactory documentary evidence must be provided for both:</p> <ul style="list-style-type: none">suitable testing of the step, andthe step is fitted to the vehicle as per manufacturers instructions	<div><div><div>2.</div><div>The height of any transition from a sunken gangway to a seating area shall not be considered to be a step, however the vertical distance between the gangway surface and the floor of the seating area must not exceed 350 mm. (See note 5)</div></div><div><div>3.</div><div>The width and shape of every step must be such that a rectangle as prescribed in the table below can be placed on that step with not more than 5 % of the area of the appropriate rectangle overhanging the step. At a double doorway each half of the doorway must fulfill this requirement</div></div></div> <table><tr><th colspan="2">Number of passengers</th><th>>22</th><th>≤22</th></tr><tr><td rowspan="2">Area</td><td>First step (mm)</td><td>400 x 300</td><td>400 x 200</td></tr><tr><td>Other steps (mm)</td><td>400 x 200</td><td>400 x 200</td></tr></table> <div><div><div>4.</div><div>For any steps fitted in the gangways, the width of such steps must not be less than the width of the gangway at the top of the steps.</div></div><div><div>5.</div><div>Where there is more than one step, each step must not extend into the area of the vertical projection of the next step by more 100 mm and the projection over the tread below leaves a free surface of at least 200 mm (see figure 1).</div></div><div><div>6.</div><div>All step nosing's must be designed such as to minimise the risk of tripping and must contrast visually with their immediate surroundings.</div></div><div><div>7.</div><div>All steps must have a slip resistant surface.</div></div><div><div>8.</div><div>The slope of any step must not exceed 5% in any direction. (see note 2)</div></div></div>	Number of passengers		>22	≤22	Area	First step (mm)	400 x 300	400 x 200	Other steps (mm)	400 x 200	400 x 200
Number of passengers		>22	≤22									
Area	First step (mm)	400 x 300	400 x 200									
	Other steps (mm)	400 x 200	400 x 200									

Steps 52N

Method of Inspection	Required Standard
	<p><u>Additional Requirements for retractable steps</u></p> <p>The operation of retractable steps may be synchronised with that of the corresponding service or emergency door;</p> <ol style="list-style-type: none"> 9. When the associated door is closed no part of the retractable step must project more than 10 mm beyond the adjacent line of the bodywork. 10. When the door is open and the retractable step is in the extended position, the surface area must conform to relevant requirements in 1) to 8) above. 11. Any power-operated step must have a system to prevent the vehicle moving from rest, under its own power, when the step is in the extended position. 12. Any manually operated step must have an audible indication to alert the driver when the step is not fully retracted. 13. Power operated steps must not be capable of being extended when the vehicle is in motion. 14. Power operated steps must conform to the following requirements:- <ol style="list-style-type: none"> a. If the device to operate the powered step fails, the step must retract and remain in the retracted position b. The operation of the corresponding door must not be hindered in the event of a failure identified in a) above, or should not be likely to be hindered by the step being damaged or obstructed. 15. For any doors not within the driver's direct field of view, if a passenger is standing on a power-operated retractable step, the corresponding door must be incapable of being closed. (Compliance with this requirement must be checked by placing a mass of 15 kg, representing a small child, at the centre of the step).

Method of Inspection	Required Standard
	<p>16. The corners of retractable steps facing forwards or rearwards must be rounded to a radius of not less than 5 mm; and the edges must be rounded to a radius of not less than 2.5 mm.</p> <p>17. When the passenger door is open and the step is in the extended (in use) position, the step must be held securely in this position</p> <p>18. When a mass of 136 kg is placed in the centre of a single step or a mass of 272 kg is placed in the centre of a double step the deflection at any point on the step, measured relative to the body of vehicle, must not exceed 10 mm. (See note 6)</p>

Figure 1



Steps 52N

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/07/2009	Reword RS17 to incorporate the term "in use"
3	22/01/2010	Note 6 amended to give the required information

520 Handrails and Handholds

Application: All Classes

Method of Inspection	Required Standard
<p>This inspection is to ensure that all relevant structural and positional requirements meet the required Standards</p> <p>Note 1:- Strap hangers, if fitted, may be counted as handholds, provided that they are held in their position by suitable means.</p> <p>Note 2:- This does not apply to an area adjacent to a door where the door or its mechanism in open position would prevent the use of this handhold.</p> <p>Note 3:- Exception may be given in the middle of large platforms, but the sum of these exceptions must not exceed 20% of the total standing area.</p> <p>Note 4:- In the case of double doors this requirement can be fulfilled by fitting one central stanchion or one central handrail.</p>	<p><u>General requirements for handrails and handholds</u></p> <p>All classes.</p> <ol style="list-style-type: none"> 1. All handrails and handholds must be of adequate strength 2. All handrails and handholds must be so designed and installed as to present no risk of injury to passengers. 3. All handrails and handholds must be of a section enabling passengers to grasp them easily and firmly. 4. All handrails (except handrails on doors or those mounted solely to a seat and, in the case of a vehicle of Class II, III and B in access passages) must contain a length of at least 100mm conforming to the following requirements: - <ol style="list-style-type: none"> a. No dimension of the cross section must be smaller than 20 mm or greater than 45 mm 5. All handrails mounted on doors or those mounted solely to a seat and, in the case of a vehicle of Class II, III and B in access passages, must meet the requirements in a) above or contain a length of at least 100mm conforming to the following requirements, no dimension of the cross section must be smaller than 15 mm, the other dimension must be at least 25 mm and not greater than 45 mm.

Handrails and Handholds 520

Method of Inspection	Required Standard
	<p>6. Required areas of handrails must not contain sharp bends</p> <p>7. The clearance between a handrail or handhold (except handrails on doors or those mounted solely to a seat and, in the case of a vehicle of Class II, III and B in access passages) and the adjacent part of the vehicle body, seat, door or walls must be at least 40 mm.</p> <p>8. The clearance between any handrail on doors or those mounted solely to a seat and, in the case of a vehicle of Class II, III and B in access passages and the adjacent part of the vehicle body, seat, door or walls must be at least 35 mm.</p> <p>9. The surface of every handrail, handhold or stanchion must contrast visually with their immediate surroundings and be slip-resistant.</p> <p><u>Handrails and handholds for standing passengers</u></p> <p>Classes I.II & A</p> <p>10. There must be adequate handrails and/or handholds (located between 800 mm and not more than 1950 mm above the floor) for every standing passenger, this can be assessed by using the following criteria; -</p> <ul style="list-style-type: none"> a. For all possible sites of the testing device shown in figure 1, at least two handrails or handholds, must be reached by the device's movable arm. (The testing device may be freely turned about its vertical axis). (see note 1) b. For every standing position identified in a) above at least one of the two required handrails or handholds must not be more than 1500 mm above the level of the floor at that position. (see notes 2 and 3) c. Any areas where standing passengers are allowed and are not separated by seats from the side walls or rear wall of the vehicle must be provided with horizontal handrail/s parallel to the walls and installed at a height of between 800 mm and 1500 mm above the floor.

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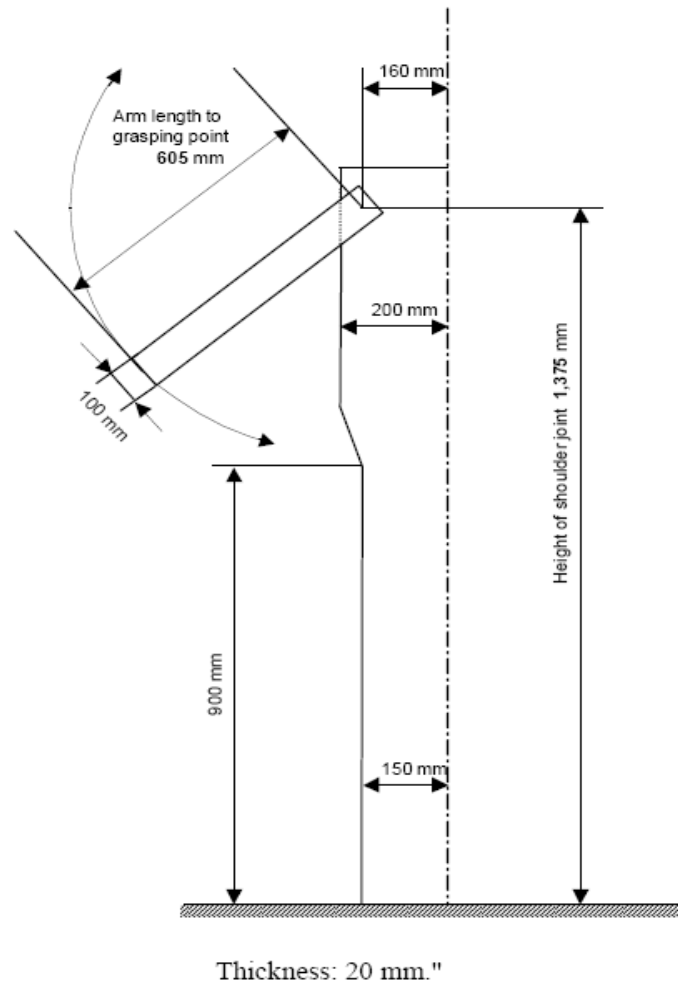
Method of Inspection	Required Standard
	<p><u>Handrails and handholds for service doors</u></p> <p>Class I, II, III</p> <p>11. All service door apertures must have handrails and/or handholds on each side, having a grasping point available to a person, standing on the ground adjacent to the service door, situated, vertically, between 800 mm and 1100 mm above the ground, and not more than 400 mm inwards from the outer edge of the first step (See note 4).</p> <p>Class A, or B</p> <p>12. All service doors must have a handrail or handhold on at least one side of the door aperture. (See note 4)</p> <p>All Classes</p> <p>13. Each successive step/s in the access passage must have a handrail and/or handhold, between 800 mm and 1100 mm above the surface of each step, and for the position appropriate to a particular step, not outwards from the outer edge of the step considered, and not more than 600 mm inwards from that same edge.</p> <p><u>Handrails and handholds for intercommunication staircases</u></p> <p>All Classes Double deck</p> <p>14. For a person standing on the lower deck adjacent to the intercommunication staircase, there must be a handrail and/or handhold positioned at each side of the staircase, between 800 mm and 1100 mm above the lower deck, and not more than 400 mm inwards from the outer edge of the first step</p> <p>15. There must be handrails and/or handholds positioned at each side of the staircase, between 800 mm and 1100 mm above the tread edge of each step (including a person standing on the upper deck adjacent to the intercommunication staircase), not outwards from the outer edge of the step considered, and not more than 600 mm inwards from the same edge.</p>

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Method of Inspection	Required Standard
	<p><u>Passenger protection on Vehicles without a roof</u></p> <p>All Classes</p> <p>16. The vehicle must have a continuous front panel over the full width of that part of the vehicle that does not have a roof, with a height of not less than 1,400 mm from the general level of the floor adjacent to the front panel;</p> <p>17. The vehicle must have a continuous protection around the side and rear of that part of the vehicle that does not have a roof, with a height of not less than 1,100 mm at the sides and 1,200 mm at the rear of the vehicle, measured from the general level of the floor adjacent to the panels. The protection shall consist of continuous side and rear panels with a height of not less than 700 mm from the general level of the floor adjacent to the panels, combined with one or more continuous guard rail(s) that fulfils the following characteristics:</p> <ul style="list-style-type: none"> a. No dimension of its section must be less than 20 mm, or more than 45 mm; b. The size of any aperture between a guard rail and any adjacent guard rail or panel must not exceed 200 mm; c. It must be firmly attached to the structure of the vehicle; d. Doors at exits must be considered to form part of this protection.

Handrails and Handholds 520

Figure 1



Handrails and Handholds 520

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	22/01/2010	Re numbered standards

52P Passenger Seats and Space

Application: All Classes

Method of Inspection	Required Standard														
<p>This inspection is to ensure all passenger seats (including folding seats), and their associated free space meet the required Standards.</p> <p>Note 1: For vehicles 2,35 m in width or less, and Class IIIS, the width of the available space for each seating position, measured from a vertical plane passing through the centre of that seating position at heights between 270 and 650 mm above the uncompressed seat cushion shall be 200 mm</p> <p>Note 2: For vehicles of class A or B in the case of seats adjacent to the wall of the vehicle, the available space does not include, in its upper part, a triangular area 20 mm wide by 100 mm high (see figure 2a). In addition, the space needed for safety belts and their anchorages and for the sun visor should be considered as exempted.</p> <p>Note 3: All measurements should be taken, with the seat cushion and squab uncompressed, in a vertical plane passing through the centre line of the individual seating place. With reclining passenger seats and adjustable driving seats their seat backs and other seat adjustments should be in the normal position of use specified by the seat manufacturer. Any folding table fitted to a seat back must be in the folded (Stowed) position. Seats which are mounted on a track or other system which permits the operator or the user to easily vary the interior configuration of the vehicle need to be measured as presented</p>	<p>All classes.</p> <p>1. All passenger seats must have a minimum width of seat cushion measured from a vertical plane passing through the centre of that seating position of (Dimension F in figure 1):-</p> <table><tr><td>Class I, II, A, B, & Class IIIS</td><td>200mm</td><td>both sides of the centre line</td></tr><tr><td>Class III</td><td>225mm</td><td>both sides of the centre line</td></tr></table> <p>2. All passenger seats must have a minimum depth of seat cushions of (Dimension K in figure 2):-</p> <table><tr><td>Class I, A, B, & Class IIIS</td><td>350mm</td></tr><tr><td>Class II, & III</td><td>400mm</td></tr></table> <p>Measured along the centre line of the seating position.</p> <p>3. The height of the uncompressed seat cushion relative to the floor must be such that the distance from the floor to a horizontal plane tangential to the front upper surface of the seat cushion is between 400 and 500 mm: this height may however be reduced to not less than 350 mm at the wheel arches and at the engine compartment. (Dimension H in figure 2)</p> <p>4. The minimum width of the available space for each seating position, shown as dimension G figure 1 measured from a vertical plane passing through the centre of that seating position at heights between 270 and 650 mm above the uncompressed seat cushion must not be less than:- (see notes 1 & 2)</p> <table><tr><td>Individual seats</td><td>250mm</td></tr><tr><td>Continuous rows of seats for 2 or more passengers</td><td>225mm</td></tr></table>	Class I, II, A, B, & Class IIIS	200mm	both sides of the centre line	Class III	225mm	both sides of the centre line	Class I, A, B, & Class IIIS	350mm	Class II, & III	400mm	Individual seats	250mm	Continuous rows of seats for 2 or more passengers	225mm
Class I, II, A, B, & Class IIIS	200mm	both sides of the centre line													
Class III	225mm	both sides of the centre line													
Class I, A, B, & Class IIIS	350mm														
Class II, & III	400mm														
Individual seats	250mm														
Continuous rows of seats for 2 or more passengers	225mm														

Passenger Seats and Space 52P

Method of Inspection	Required Standard				
<p>Note 4: The seat back of another preceding seat or a partition whose contour corresponds approximately to that of the inclined seat back may intrude into this space as long as it meets the requirements set out in a) above. The local presence in this space of seat legs is also be permitted provided that adequate space remains for the passenger's feet. In the case of seats alongside the driver's seat in vehicles of class A or B, intrusion of the dashboard, instrument panel, gear change control, windscreen, sun visor, seat belts and seat belt anchorages is be allowed.</p> <p>Note 5: The local presence in the minimum clear space of seat legs, passenger footrests and of intrusions as provided by item 7 a to i shall be permitted provided that adequate space remains for the passengers' feet. This foot space may partly be situated in and/or above the gangway but shall not create any obstruction when measuring the minimum gangway width in accordance with section 52M. In the case of seats alongside the driver's seat in vehicles of class A or B, intrusion of the seat belts and seat belt anchorages shall be allowed.</p> <p>Note 6: For a vehicle of Class B with a technically permissible maximum mass not exceeding 3,5 tonnes and up to 12 passengers seats, and also for the seat(s) alongside the driver in a vehicle of Class A or B, this height dimension may be reduced to 1200 mm measured from the floor, and 800 mm measured from the highest point of the uncompressed seat cushion.</p> <p>Note 7: For double deck vehicles the free height measured from the highest point of the uncompressed seat cushion, should be no less than 900mm for the lower deck and 850mm for the upper deck.</p>	<p>5. The spacing of all passenger seats must meet the following minimum requirements:- (see figure 3 & note 3)</p> <ol style="list-style-type: none"> In the case of seats facing in the same direction, the distance between the front of a seat backrest and the back of the backrest of the seat preceding it shall when measured horizontally and at all heights above the floor between the level of the top surface of the seat cushion and a point 620mm above the floor be not less than <table data-bbox="1211 459 1872 531"> <tr> <td>Class I, A, B, & Class IIIS</td> <td>650mm</td> </tr> <tr> <td>Class II & III</td> <td>680mm</td> </tr> </table> Where transverse seats face one another the minimum distance between the front faces of the seat backrests of facing seats, as measured across the highest points of the seat cushions, shall be not less than 1300 mm. Where a seat faces a partition or table or similar structure the requirements are shown in figure 4 (see note 4). For a seat behind a seat and/or a seat facing the gangway, a minimum clear foot space of at least 300 mm depth and at least the width specified in item 1 above must be provided as shown in figure 5 (see note 5). <p>Class I II, & A</p> <p>6. The following conditions must be met for Priority seating:-</p> <ol style="list-style-type: none"> There must be at least four in class I, two in class II vehicles and one in a class A vehicle, forward or rearward facing seats specifically intended and marked for passengers with reduced mobility other than wheelchair users. The seats identified in a) above must comply with the requirements for priority seats in section 52Z The seats identified in a) above must have suitably designed and placed handholds to facilitate entry and exit of the seat. The seats identified in a) above must be provided with communication devices complying with section 52Q of this manual, useable from the seated position. 	Class I, A, B, & Class IIIS	650mm	Class II & III	680mm
Class I, A, B, & Class IIIS	650mm				
Class II & III	680mm				

Passenger Seats and Space 52P

Method of Inspection	Required Standard
<p>Note 8: This free space shall be extended over the zone defined, by longitudinal vertical planes 200 mm either side of the median vertical plane of the seating position, and by a transverse vertical plane through the rearmost upper point of the front face of the seat backrest and by a transverse vertical plane 280 mm in front of the foremost point of the uncompressed seat cushion, measured in each case at the median vertical plane of the seating position.</p> <p>Note 9: Front dome is taken to be the curved part of the roofline directly above the windscreen, used to accommodate destination signs etc.</p>	<p><u>Free Space for seating positions</u></p> <p>All classes</p> <p>7. Over each seating position, and except in the case of the front row seats in a vehicle up to 22 passengers, its associated foot space, there must be a free space with a height of not less than 900 mm measured from the highest point of the uncompressed seat cushion and at least 1350 mm from the mean level of the floor in the foot space. (see notes 6, 7 & 8).</p> <p>From the edges of the space defined above the following intrusions are permitted:-</p> <ul style="list-style-type: none"> a. In the case of the upper part of outboard seats, a zone with a rectangular cross-section 150 mm in height and 100 mm in width, (see figure 6) b. In the case of the upper part of outboard seats, a zone with a triangular cross-section whose apex is situated 700 mm from the top and whose base is 100 mm in width. (See figure 7). The space needed for safety belts and their anchorages and for the sun visor is also excluded. c. In the case of the footwell of an outboard seat, a zone of a cross-sectional area not exceeding 0,02 m² (0,03 m² for Class I low-floor vehicles) and having a maximum width not exceeding 100 mm (150 mm for Class I low-floor vehicles) (see figure 8) d. For vehicles in class A or B. In the case of the seating places nearest to the rear corners of the body, the outer rear edge of the free space, viewed in plan, may be rounded to a radius not exceeding 150 mm. (see figure 9) e. Intrusion of the back of another seat, its supports and its attachments (e.g. folding table) f. For class A, & B vehicles, intrusion of a wheel arch provided that one of the following two conditions is fulfilled:

Passenger Seats and Space 52P

Method of Inspection	Required Standard
	<ul style="list-style-type: none"> i. The intrusion does not extend beyond the median vertical plane of the seating position (see figure 10) or ii. The nearest edge of the area 300 mm in depth available for the feet of the seated passenger is advanced no more than 200 mm from the edge of the uncompressed seat cushion and to not more than 600 mm in front of the squab of the seat, these measurements being made in the median vertical plane of the seating position (see figure 11) <p>g. In the case of two seats facing each other the provision in “ f ii “ above shall apply to only one of the seats and the remaining space for the feet of seated passengers must be at least 400 mm in width;</p> <p>h. For vehicles of class A, or B. In the case of seats alongside the driver's seat, intrusion of the dashboard/instrument panel, windscreen, sun visors, seat belts, seat belt anchorages and front dome; (See note 9)</p> <p>i. Intrusion of hopper type windows, when open, and their fittings.</p> <p>Vehicles which contain seating intended solely for use when the vehicle is stationary, but which are not designed to carry more than eight persons (excluding the driver) when in motion.</p> <p>8. All seats not intended for use whilst the vehicle is in motion must be clearly marked to indicate their use.</p>

Passenger Seats and Space 52P

Figure 1

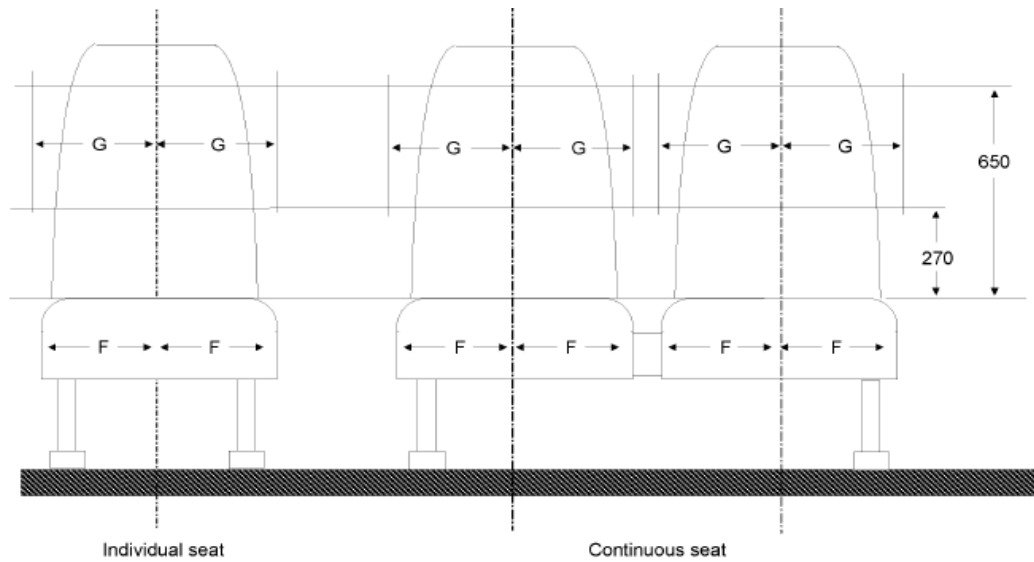


Figure 2

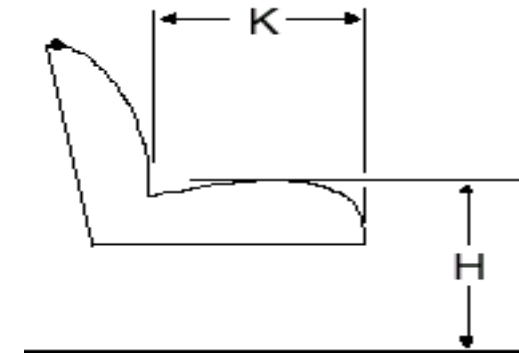


Figure 2a

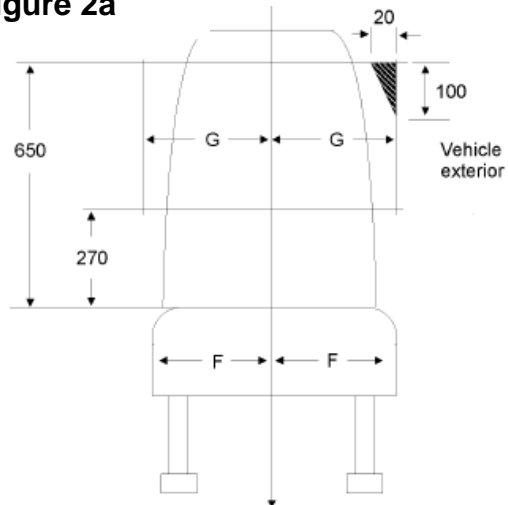


Figure 3

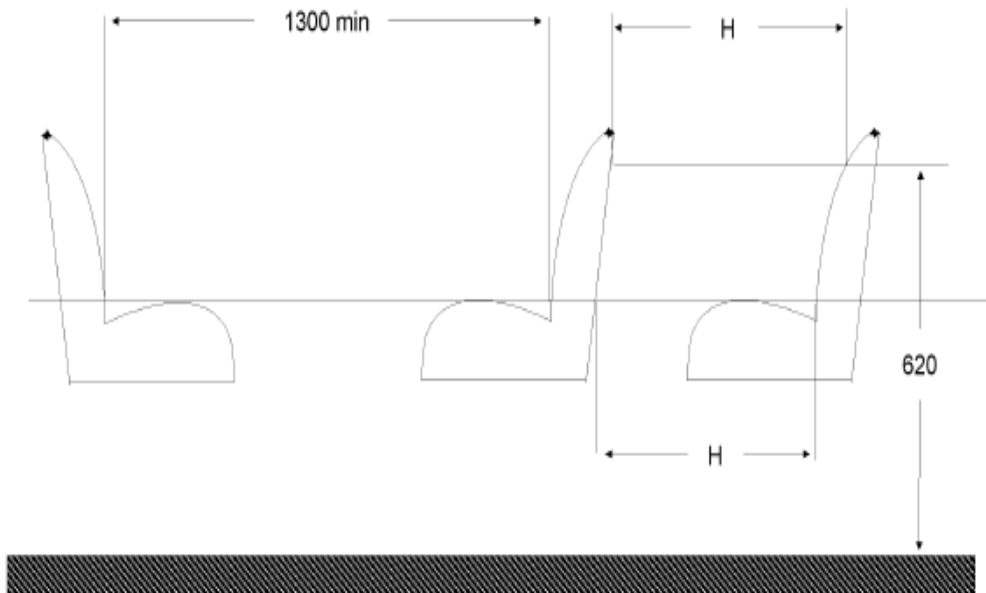


Figure 4

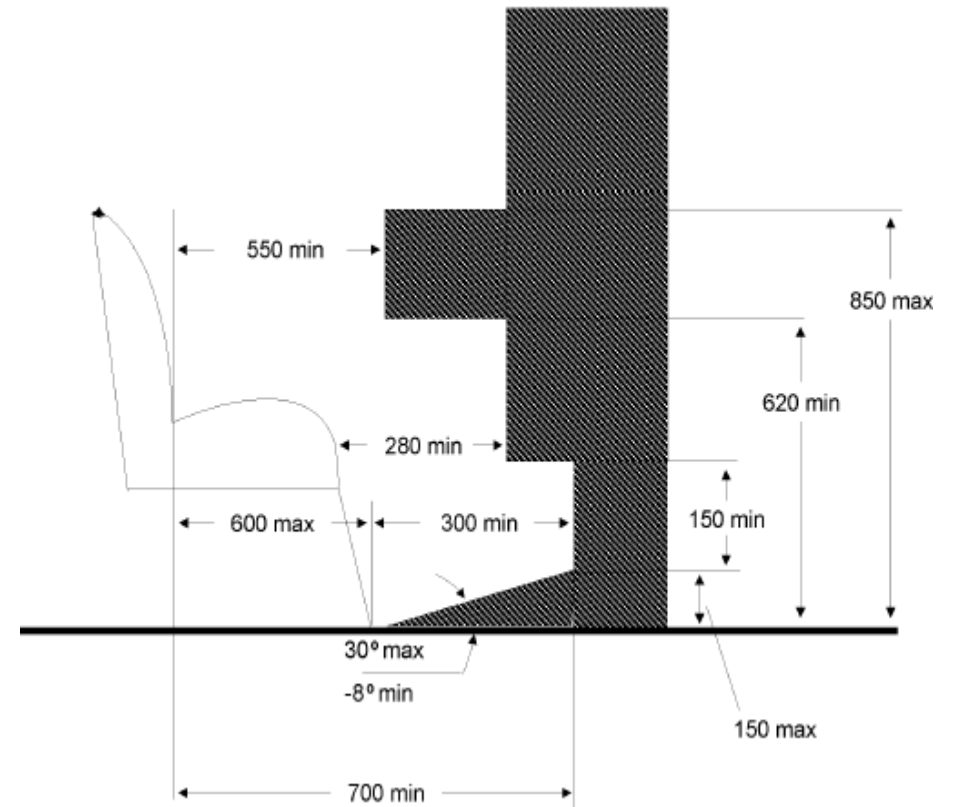


Figure 5

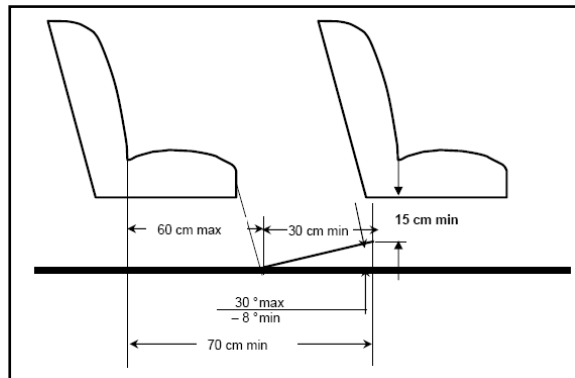


Figure 6

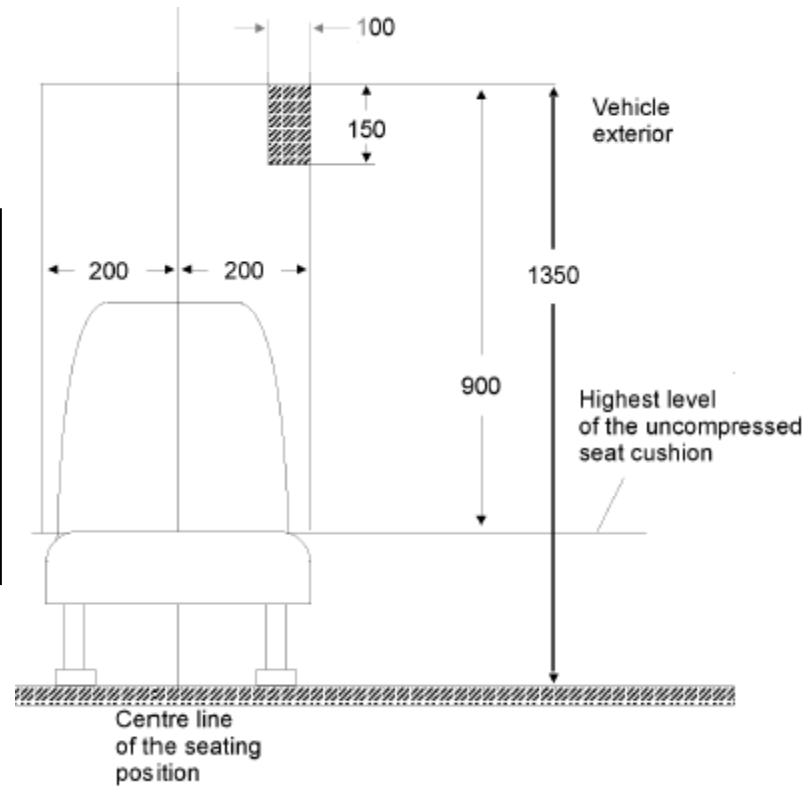


Figure 7

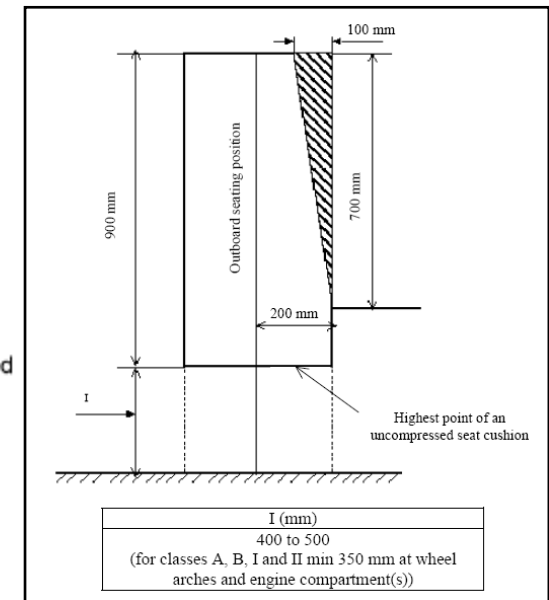


Figure 8

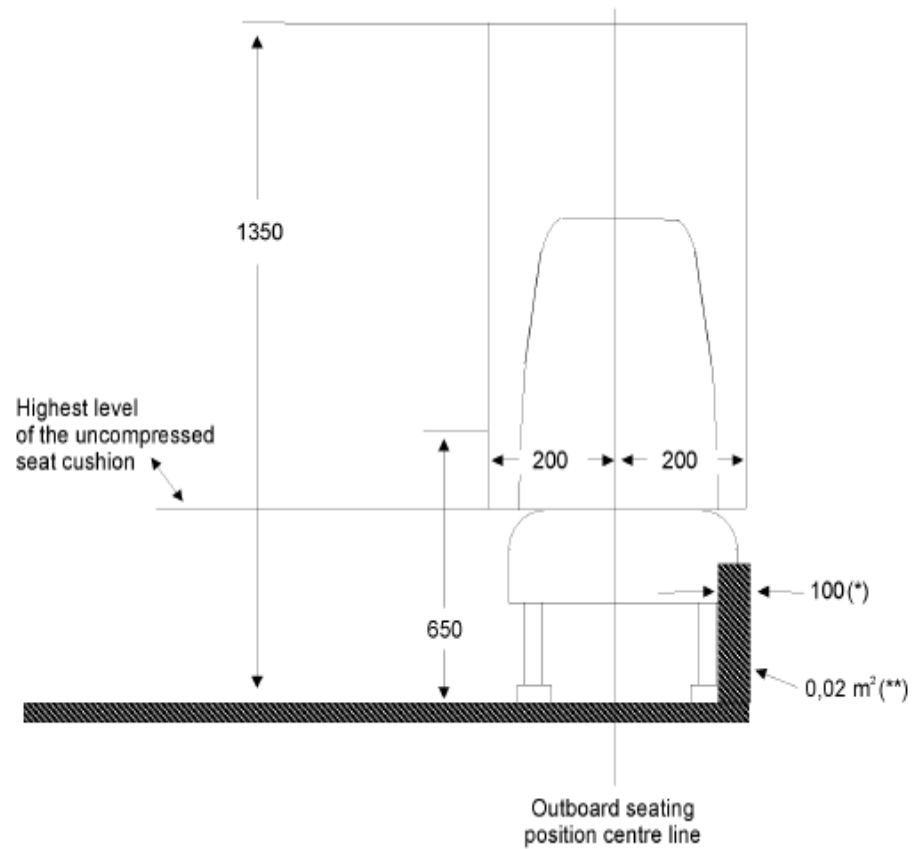
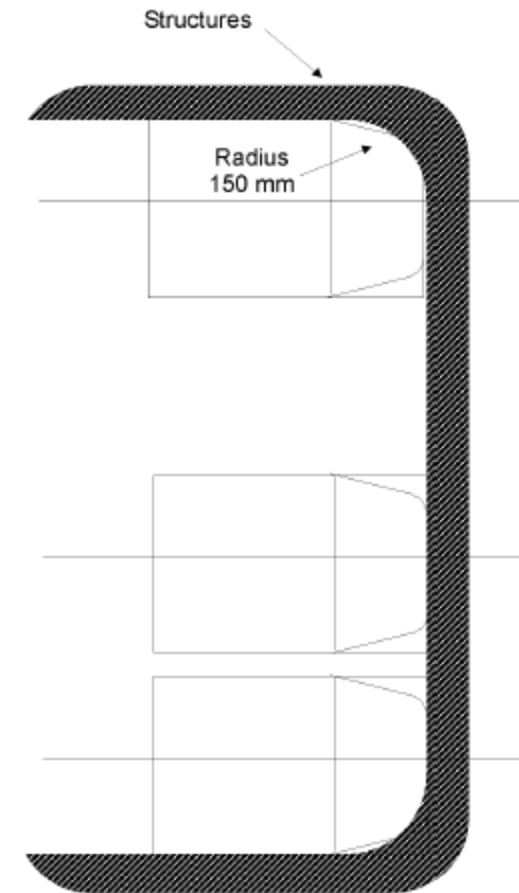


Figure 9



Passenger Seats and Space 52P

Figure 10

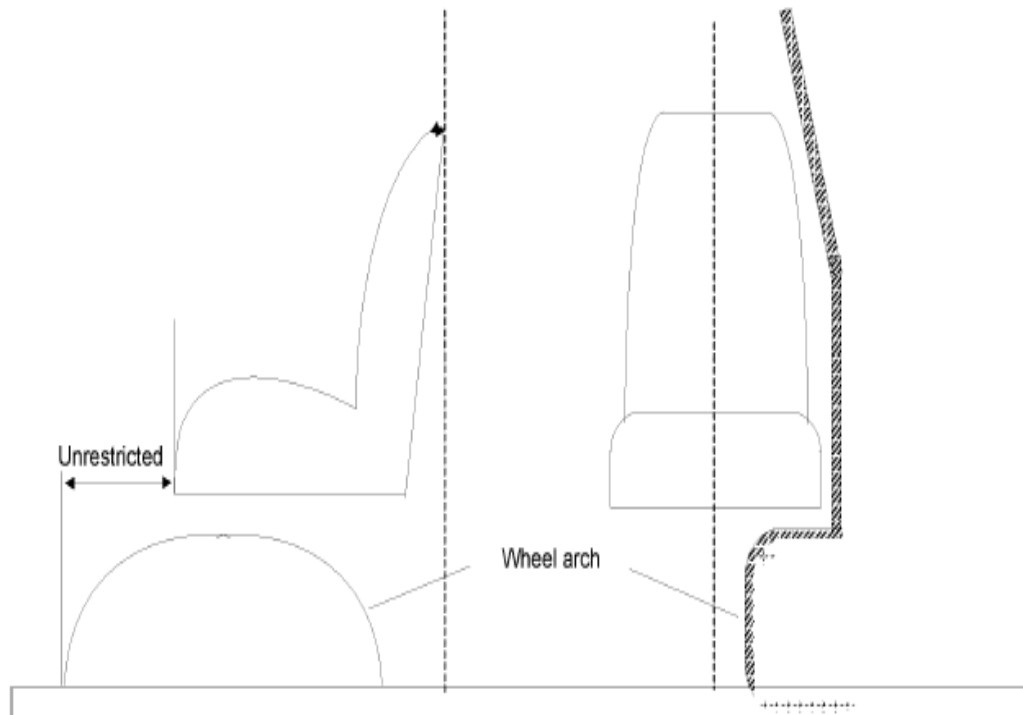
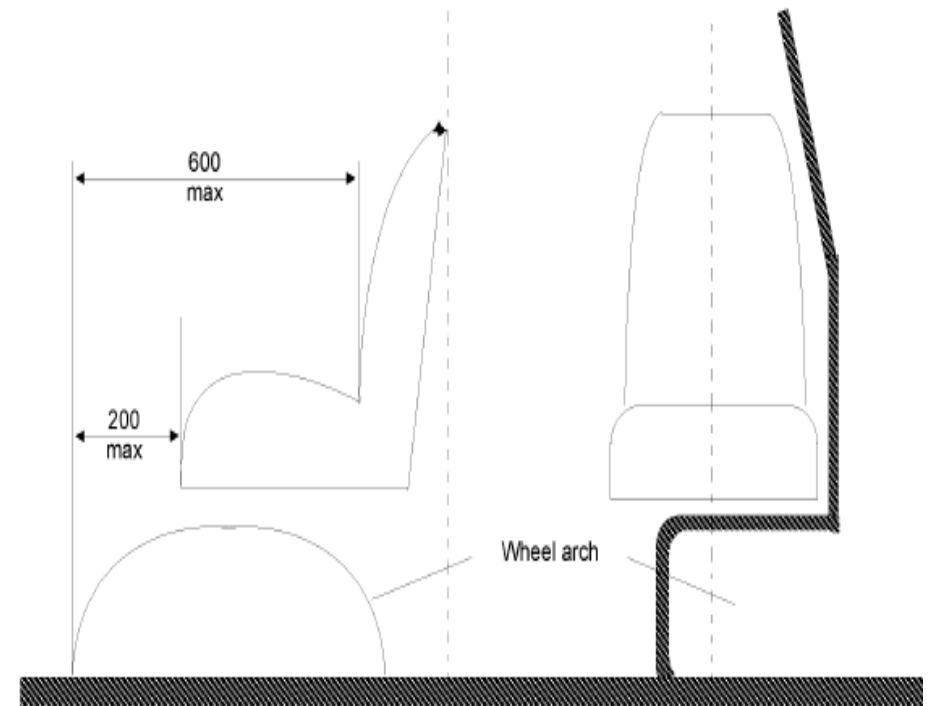


Figure 11



Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/07/2009	Change the word School Bus to Class 111S / change the word squab to backrest in RS 5 a & b
3	29/10/2010	Delete paragraph of text from RS7

52Q Communication With Driver

Application: All Classes

Method of Inspection	Required Standard
<p>This inspection is to ensure adequate numbers of communication devices are fitted and meet the required Standards</p> <p>Note 1: A minimum of a control for every third row of passenger seats would be classed as adequate.</p> <p>Note 2: Acceptable visual means include a mirror, periscope or video camera/monitor.</p>	<p>Classes I, II & A</p> <ol style="list-style-type: none"> 1. A means must be provided to signal the driver to stop the vehicle 2. The controls for all such communication devices must be distributed adequately and evenly throughout the vehicle. (see note 1). 3. All controls must be capable of being operated with the palm of the hand. 4. The controls must not be more than 1500 mm from the floor of the vehicle. (this does not exclude the possibility of installing higher additional communication devices) 5. The controls must contrast visually with their immediate surroundings 6. When the controls are activated, the activation must bring on an illuminated sign or signs displaying the words 'Bus Stopping' or equivalent wording or pictogram. (Articulated vehicles require signs in each rigid section of the vehicle. Double-deck vehicles require them on each deck). 7. The illuminated stopping signs must remain illuminated until the service door/s is opened.

Communication With Driver 52Q

Method of Inspection	Required Standard
	<p>All classes</p> <ul style="list-style-type: none">8. For crew compartments that do not have access to the driver or passenger compartments, a means of communication between the driver and this crew compartment must be provided.9. Toilet compartments must be fitted with a means for summoning assistance in an emergency. <p>Vehicles without a roof</p> <ul style="list-style-type: none">10. The driver must be provided with a visual means to enable the behaviour of passengers in the area without a roof to be observed (see note 2).11. An intercommunication system must be provided to enable the driver to communicate with the passengers in the area without a roof.

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

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52R Hot Drinks Machine & Cooking Equipment

Application: All classes with hot drinks and/or cooking equipment

Method of Inspection	Required Standard
This inspection is to ensure safety precautions meeting the required standard, are met on vehicles equipped with hot drinks and / or hot food equipment.	<ol style="list-style-type: none">1. Any hot-drink machines and/or cooking equipment must be installed or guarded so that no hot food or drink is likely to be spilled on any passenger due to emergency braking or cornering forces.2. Where vehicles are fitted with hot-drink machines and / or cooking equipment, all passenger seats must have adequate provision for setting down hot food or drink whilst the vehicle is in motion.

Hot Drinks Machine & Cooking Equipment 52R

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

52S Doors and Interior Compartments

Application: All Classes

Method of Inspection	Required Standard
<p>This inspection is to ensure every door to a toilet or other interior compartment, including cupboards etc (but not including removable maintenance panels, or driver's compartments), meets the required Standard.</p> <p>Note 1: Interior compartment is a separate compartment that can be opened without the use of tools.</p>	<ol style="list-style-type: none">1. All doors to interior compartments must be self-closing, and must not be fitted with any device to hold it open if, when open, it could obstruct passengers in an emergency. (See note 1)2. When a door is open it must not conceal any handle, control device for opening the door, or obligatory marking associated with any service door, emergency door, emergency exit, fire extinguisher or first kit aid.3. Where the compartment can be occupied by a passenger, the door must not be capable of being locked from the outside unless it can always be opened from the inside.4. Where the compartment can be occupied by a passenger, there must be a means to enable the door to be opened from outside the compartment in an emergency.

Doors and Interior Compartments 52S

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

52T Artificial Lighting

Application: All Classes

Method of Inspection	Required Standard
<p>This inspection is to ensure that artificial lighting is fitted and meets the required standard.</p> <p>Note 1: Individual lights for each of the items listed are not required providing adequate illumination can be maintained during normal use</p> <p>Note 2: A circuit serving only permanent entry and exit lighting can be considered as one of these circuits</p> <p>Note 3: This could be by screens, partitions or the design of the lighting circuit, or a combination of these features</p>	<ol style="list-style-type: none"> 1. The following areas must be adequately illuminated by electrical lighting (see note 1):- <ol style="list-style-type: none"> a. All passenger compartments b. Any crew compartments c. Any toilet compartments d. Any articulated sections of the vehicle e. Any step or steps f. The access to any exits and the area immediately around the service door(s) including, when in use, any boarding device fitted g. The internal markings and internal controls of all exits h. All places where there are obstacles i. In the case of double deck vehicles without a roof, at least one lighting device must be placed as near as practicable to the top of every staircase leading to the upper deck 2. There must be at least two internal lighting circuits such that failure of one will not affect the other. (see note 2) 3. There must be provisions to protect the driver from the effects of glare and reflections caused by artificial interior lighting. (see note 3). Any lighting likely to affect adversely and significantly the driver's vision must only be capable of being operated while the vehicle is at rest

Artificial Lighting 52T

Method of Inspection	Required Standard
	<p>4. Control of the mandatory interior lighting must be by manual switches under the control of the driver or automatically controlled.</p> <p>5. Additional service door lighting to aid passengers boarding and alighting the vehicle and to enable the presence of a passenger on the ground outside the service door to be detected by the driver from his seat may be provided if it meets the following requirements:</p> <ul style="list-style-type: none"> a. It must be white in colour; b. It must illuminate a flat, horizontal portion of the ground having a width of 2 m measured from a plane parallel to the median longitudinal vertical plane of the vehicle which passes through the outermost point of the closed service door and over a length extending from a transverse plane which passes through the foremost edge of the closed service door to a transverse plane passing through the centre line of the foremost wheels situated to the rear of the service door, or, in the case where there are no such wheels, to a transverse plane passing through the rear of the vehicle; c. It must produce limited dazzle outside a zone on the ground having a maximum width of 5 m measured from the side of the vehicle and a maximum length limited by a transverse plane passing through the front of the vehicle and a transverse plane passing through the rear of the vehicle; d. If the lower edge of the lighting device is less than 2 m from the ground, it must not project more than 50 mm beyond the overall width of the vehicle measured without this device and have a radius of curvature of not less than 2.5 mm; e. It must be activated and deactivated manually by a separate switch, <p>and;</p> <ul style="list-style-type: none"> f. It must be installed so that the device can only be switched on when a service door is operated and the vehicle speed does not exceed 5 km/h and is switched off automatically before the vehicle reaches a speed exceeding 5 km/h.

Artificial Lighting 52T

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

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52U Guarding of Step Wells

Application: All Classes

Method of Inspection	Required Standard
<p>This inspection applies to all areas, where any seated passenger is likely to be thrown forward into a step well as a result of heavy braking and ensures safety precautions meeting the required Standard are met.</p>	<p>All classes</p> <ol style="list-style-type: none"> 1. All areas, where any seated passenger is likely to be thrown forward into a step well as a result of heavy braking, must either be fitted with a guard or, in the case of a class A or B vehicle, a seat belt. Where fitted, the guard must meet the following dimensional requirements; - <ol style="list-style-type: none"> a) The guard must have a minimum height from the floor on which the passenger's feet rest of 800 mm b) The guard must extend inwards from the wall of the vehicle at least as far as 100 mm beyond the longitudinal centre line of any seating position where the passenger is at risk or to the riser of the innermost step; whichever is the lesser dimension. <p>Double Deck vehicles. All classes</p> <ol style="list-style-type: none"> 2. On the upper deck every intercommunication staircase well must be protected by an enclosed guard having the following minimum dimensions. <ol style="list-style-type: none"> a) A minimum height of 800 mm measured from the floor b) The lower edge of the guard is not more than 100 mm from the floor. 3. The front windscreen ahead of passengers occupying upper-deck front seats must be provided with a padded guard. The higher edge of that protection shall be situated vertically between 800 mm and 900 mm above the floor where the passenger's feet rest.

Guarding of Step Wells 52U

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

52V Baggage and Occupant Protection

Application: All Classes

Method of Inspection	Required Standard
This inspection is to ensure that baggage racks and compartments meet the required Standards with regard to passenger safety.	<ol style="list-style-type: none">1. All baggage racks must be designed to prevent objects placed on them from falling on passengers, when the vehicle brakes, or is cornering.2. All baggage compartments fitted inside the passenger compartment must be designed to prevent baggage from falling in the event of sudden braking3. If the driver's compartment is without a roof, the driver must have some special protection against strong wind, sudden dust, heavy rain, etc.

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

52W Trap Doors

Application: All Classes

Method of Inspection	Required Standard
This inspection is to ensure all trap doors meet the required Standards.	<ol style="list-style-type: none">1. All trap doors that are not escape hatches, on the floor of a vehicle must be fitted and secured in a manner, that they cannot be dislodged or opened without the use of tools or keys2. The lifting and securing devices on all trap doors that are not escape hatches, on the floor of a vehicle; must not project by more than 8 mm above floor level.3. The trap doors and there lifting and securing devices, that are not escape hatches, on the floor of a vehicle, must have the edges of their projections rounded.

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

52X Visual Entertainment

Application: All Classes

Method of Inspection	Required Standard
<p>This inspection is to ensure all forms of visual entertainment for passengers, for example television monitors or videos, meet the required Standards.</p> <p>Note 1: - This shall not apply to any television monitor or similar device used as part of the driver's control or guidance of the vehicle, for example to monitor service doors.</p>	<ol style="list-style-type: none">1. All visual entertainment screens must be located out of the driver's view when the driver is seated in his normal driving position. (See note 1).

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

52Y Articulated Section of Articulated Vehicles

Application: All classes of articulated vehicles

Method of Inspection	Required Standard
<p>This inspection is to ensure that the articulated section of an articulated vehicle meets the required Standards</p>	<ol style="list-style-type: none"> 1. The articulated section that interconnects rigid portions of the vehicle must be so designed and constructed as to allow at least one rotary movement about at least one horizontal axis, and at least one vertical axis. 2. When the articulated vehicle at its mass in running order is stationary on a horizontal level surface, any uncovered gap between the floor of either of the rigid sections and the floor of the rotating base or of the element replacing that base must not exceed:- <ol style="list-style-type: none"> a. 10 mm when all the wheels of the vehicle are on the same plane. b. 20 mm when the wheels of the axle adjacent to the articulated section are resting on a surface which is 150 mm higher than the surface on which the wheels of the other axles are resting. 3. When the articulated vehicle at its mass in running order is stationary on a horizontal level surface, the difference in level between the floor of the rigid portions and the floor of the rotating base, measured at the joint, shall not exceed: <ol style="list-style-type: none"> a. 20 mm when all the wheels of the vehicle are on the same plane b. 30 mm when the wheels of the axle adjacent to the articulated section are resting on a surface which is 150 mm higher than the surface on which the wheels of the other axles are resting

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Method of Inspection	Required Standard
	<p>4. On vehicles that do not comply with the conditions in 2 + 3 above, or</p> <p>Where the floor cannot carry the mass of the passengers, or</p> <p>Where the movements of the walls constitute a danger to passengers</p> <p>Means must be provided to physically prevent access by passengers to any part of the articulated section</p> <p>5. When the vehicle is moving in a straight line the longitudinal median planes of its rigid portions must coincide and form a continuous plane without any deflection.</p>

Articulated Section of Articulated Vehicles 52Y

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

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52Z Access for Passengers with Reduced Mobility

Foreword

- **Class I vehicles**

Must comply with this section (52Z) or alternatively the applicant may opt to comply with the requirements of The Public Service Vehicles Accessibility Regulations 2000 or the Technical requirements of Public Service Vehicles Accessibility Regulations (Northern Ireland) 2003.

- **For Class, II and III vehicles requiring an Accessibility certificate**

Can obtain an Accessibility Certificate, by full compliance with this section (52Z) and the destination requirements of 'The Public Service Vehicles Accessibility Regulations 2000 or alternatively, by compliance with the requirements of 'The Public Service Vehicles Accessibility Regulations 2000 or the Technical requirements of the Public Service Vehicles Accessibility Regulations (Northern Ireland) 2003.

- **For vehicles not requiring an Accessibility certificate**

Any accessibility features fitted to the vehicle must comply with the relevant requirements of this section (52Z)

Application: All Classes

Method of Inspection	Required Standard
<p>This section deals with the technical requirements for devices facilitating access for passengers with reduced mobility.</p> <p>All the relevant requirements of this section must be complied with in full for vehicles of Class I, or any vehicle of Class II or III, requiring the equivalent of an Accessibility Certificate.</p> <p>For vehicles not requiring an Accessibility Certificate, any features fitted in the vehicle, to facilitate access by passengers with reduced mobility, must comply with the relevant requirements contained in this section.</p> <p>Note 1: The transition from a sunken gangway to a seating area shall not be considered to be a step.</p> <p>Note 2: Intrusion of a seat back or other object into this space shall be permitted provided that a minimum clear vertical space extending 230 mm in front of the seat cushion is maintained.</p> <p>Note 3: Where the priority seat is positioned facing a bulkhead more than 1,200 mm in height this space shall be 300 mm.</p> <p>Note 4: From the edges of the free space defined, intrusions are permitted in accordance with paragraphs 7 (a) to 7 (d) of section 52P</p>	<p>Steps</p> <p>Class I & A</p> <ol style="list-style-type: none"> 1. The height of the first step from the ground of at least one service door must not exceed 250 mm. or <p>As an alternative, the first step from the ground must not exceed 270 mm in two door openings, one entrance and one exit. (A kneeling system and/or retractable step may be engaged).</p> <p>Class II, III & B</p> <ol style="list-style-type: none"> 2. The height of the first step from the ground of at least one service door must not exceed 320 mm. (A kneeling system and/or retractable step may be engaged). <p>All Classes</p> <ol style="list-style-type: none"> 3. If only one service door meets this requirement there must be no barrier or sign which prevents that door from being used as both an entrance and an exit. <p>Class 1 & A</p> <ol style="list-style-type: none"> 4. The height of steps in an access passage at the above-mentioned door(s), and in the gangway, must be not more than 200 mm (See note 1) <p>Class II, III & B</p> <ol style="list-style-type: none"> 5. The height of steps in an access passage at the above-mentioned door(s), and in the gangway, must be not more than 250 mm (See note 1)

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Method of Inspection	Required Standard
<p>Note 5: For vehicles of class A, in the case of seats adjacent to the wall of the vehicle, the available space does not include, in its upper part, a triangular area 20 mm wide by 100 mm high. In addition, the space needed for safety belts and their anchorages and for the sun visor should be considered as exempted.</p> <p>Note 6: Intrusions of handholds or handrails may protrude by a maximum of 100 mm from the sidewall into the clear space over the vertical projection of the foot space.</p> <p>Note 7: In the case of a rearward facing wheelchair the slope in the longitudinal direction shall not exceed 8 per cent provided that this slope inclines upwards from the front end to the rear end of the special area.</p> <p>Note 8: In the case of a wheelchair space designed for a forward facing wheelchair, the top of preceding seat-backs may intrude into the wheelchair space if a clear space is provided as shown in Figure 2.</p> <p>Note 9: For vehicles of Class B fitted with more than one wheelchair space, the second and subsequent wheelchair spaces, must have a special area at least, 700mm wide and 1200mm long.</p> <p>Note 10: In the case of vehicles of Class I and A fitted with more than one wheelchair space this test must be completed for each wheelchair space with all other wheelchair spaces occupied by the reference wheelchair.</p> <p>Note 11: A minimum of one complete set of wheelchair / wheelchair user, restraints needs to be with the vehicle at time of examination</p>	<p><u>Priority seats and space for passengers with reduced mobility</u></p> <p>All Classes</p> <ol style="list-style-type: none"> 6. There must be adequate space for a guide dog under, or adjacent to, at least one of the priority seats. This space must not form a part of the gangway. 7. Armrests must be fitted on seats between the seating position and the gangway and must be capable of being moved easily out of the way to permit clear access to the seat. In the case of seats facing each other one of the gangway seats may alternatively be fitted with a vertical stanchion. This stanchion must be positioned so that the seat occupant is kept securely on the seat and easy access to the seat is possible. 8. The legal minimum width of a priority seat cushion, measured from a vertical plane passing through the centre of that seating position, must be 220 mm on each side. 9. The height of the uncompressed priority seat cushion relative to the floor must be such that the distance from the floor to a horizontal plane tangent to the front upper surface of the seat cushion is between 400 mm and 500 mm. 10. The foot space at priority seating positions must extend forward of the seat from a vertical plane through the forward edge of the seat cushion. The foot space must not have a slope in any direction of more than 8 percent. <p>Class I & A</p> <ol style="list-style-type: none"> 11. Each priority seating position must have a free height of not less than 1,300 mm, measured from the highest point of the uncompressed seat cushion. This free height must extend over the vertical projection of the whole of the seat area and the associated foot space. (see notes 2 to 6)

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Method of Inspection	Required Standard
	<p>Class II</p> <p>12. Each priority seating position must have a free height of not less than 900 mm, measured from the highest point of the uncompressed seat cushion. This free height must extend over the vertical projection of the whole of the seat and the associated foot space. (see notes 2 to 6)</p> <p>All Classes</p> <p>13. Vehicles fitted with a priority seat must have pictogram(s) in accordance with Figure 1 visible from the outside, both on the front nearside of the vehicle and adjacent to the relevant service door(s). A pictogram must be placed internally adjacent to the priority seat/s.</p> <p><u>Communication devices</u></p> <p>14. Communication devices must be placed adjacent to any priority seat and within any wheelchair area and must be at a height between 700 mm and 1,200 mm above the floor</p> <p>15. Communication devices situated in the low floor area must be at a height between 800 mm and 1,500 mm where there are no seats.</p> <p>16. If a vehicle is fitted with a ramp or lift, a means of communication with the driver must be fitted on the exterior of the vehicle, adjacent to the door and at a height between 850 mm and 1,300 mm from the ground. (This requirement does not apply to a door situated in the direct field of vision of the driver)</p>

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Method of Inspection	Required Standard
	<p><u>Handrails to priority seating</u></p> <p>17. A horizontal handrail at a height of between 800 mm and 900 mm above the floor level must be provided between the priority seats and at least one service door suitable for boarding and alighting. A break is permitted where it is necessary to gain access to a wheelchair space, a seat, a staircase, an access passage or a gangway. Any break in the handrail must not exceed 1,050 mm and a vertical handrail must be provided on at least one side of the break.</p> <p>18. Handrails or handholds must be placed adjacent to priority seating positions to facilitate entry and exit of the seat, and must be designed in such a way as to allow the passenger to grasp them easily.</p> <p><u>Floor slope</u></p> <p>19. The slope of any gangway, access passage or floor area between any priority seat or wheelchair space and at least one entrance and one exit or a combined entrance and exit must not exceed 8 per cent. Such sloping areas must be provided with a slip-resistant surface.</p> <p><u>Wheelchair accommodation provisions</u></p> <p>20. For each wheelchair user provided for in the passenger compartment there must be a special area at least 750 mm wide and 1,300 mm long. The longitudinal plane of the special area must be parallel to the longitudinal plane of the vehicle and the floor surface of the special area must be slip-resistant and the maximum slope in any direction shall not exceed 5 per cent. (See notes 7, 8 & 9) (Time Bound Concession)</p> <p>21. There must be at least one doorway through which wheelchair users can pass. In the case of vehicles of Class I, at least one wheelchair access door shall be a service door. The wheelchair access door must bear a boarding device complying with the provisions for a lift or a ramp.</p>

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Method of Inspection	Required Standard
	<p>22. The minimum width of all doors providing wheelchair access to the vehicle must be 900 mm, (this may be reduced by 100 mm when the measurement is made at the level of handholds).</p> <p>23. A door for wheelchair access, that is not a service door, must have a minimum height of 1,400 mm.</p> <p>24. It must be possible to move from the outside of the vehicle through at least one of the doors for wheelchair access into the special area(s) with a reference wheelchair of the dimensions shown in Figure 3. (For Class I and A vehicles with more than one wheelchair space see note 10)</p> <p>25. In vehicles of Class I and A fitted with a ramp for wheelchair access, it must be possible for a reference wheelchair having the dimensions shown in figure 3, to enter and exit a vehicle with the wheelchair moving in a forward direction.</p> <p>26. Vehicles fitted with a wheelchair space must have pictogram(s) in accordance with figure 4 visible from the outside, both on the front nearside of the vehicle and adjacent to the relevant service door(s).</p> <p>27. Pictograms conforming to Figure 4 must be placed internally adjacent to each wheelchair space indicating whether the wheelchair is to be positioned facing the front or the rear of the vehicle.</p> <p><u>Seats and standing passengers in the wheelchair space</u></p> <p>28. Folding seats may be fitted in a wheelchair space. However, such seats when folded into the stowed position and not capable of use by a seated passenger, must not intrude into the wheelchair space.</p> <p>29. A vehicle may be equipped with demountable seats fitted in the wheelchair space provided that such seats may be easily removed by the driver or a crew member.</p>

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Method of Inspection	Required Standard
	<p>30. Where the foot space of any seat, or part of a folding seat when in use, intrudes into a wheelchair space, those seats must have signs fixed on or adjacent to them with the following text, equivalent text or pictogram:</p> <p style="text-align: center;">"Please give up this space for a wheelchair user"</p> <p>31. In vehicles where any wheelchair space is designated for use exclusively by a wheelchair user, those spaces must be clearly marked with the following text, equivalent text or pictogram:</p> <p style="text-align: center;">"Area designated for use exclusively by a wheelchair user"</p> <p><u>Stability of wheelchairs</u></p> <p>32. For vehicles required to have seat belts fitted. The wheelchair space must be designed for the wheelchair user to travel facing forwards and must be fitted with restraint systems complying with either the requirements specified in Annex 1 or those specified Annex 2 of this section (see note 11)</p> <p>33. For vehicles not required to have seat belts fitted. The wheelchair space may comply with the requirements of standard 32, or shall comply with the requirements specified Annex 3 (rearward facing unrestrained wheelchairs).</p> <p><u>Door Controls</u></p> <p>34. If a door intended for wheelchair access, is fitted with opening controls for use under normal circumstances, these controls must meet the following criteria:</p> <p style="margin-left: 40px;">i) In the case of exterior controls, be on or adjacent to that door at a height between 850 mm and 1,300 mm from the ground and be not more than 900 mm from the door,</p> <p style="text-align: center; margin-left: 280px;">and</p>

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Method of Inspection	Required Standard
	<p>ii) In the case of interior controls in vehicles of Class I, II and III, be on or adjacent to that door at a height of between 850 mm and 1,300 mm from the upper surface of the floor nearest the control and be not more than 900 mm in any direction from the door aperture.</p> <p><u>Provisions for boarding devices</u></p> <p>General requirements for all boarding devices</p> <p>35. The controls actuating the boarding devices must be clearly marked as such. The extended or lowered position of the boarding device must be indicated by a tell-tale to the driver.</p> <p>36. In the event of the failure of a safety device, lifts, ramps and kneeling systems shall be incapable of operation, unless they can be safely operated by manual effort. The type and location of the emergency operating mechanism shall be clearly marked.</p> <p>37. In the event of power failure, lifts and ramps must be capable of manual operation</p> <p>38. Access to one of the service or emergency doors on the vehicle may be obstructed by a boarding device providing the following two conditions are satisfied from both inside and outside the vehicle.</p> <p>a. The boarding device does not obstruct the handle or other device for opening the door.</p> <p>b. The boarding device can be readily moved to leave the doorway clear for use in an emergency.</p> <p>Specific requirements for Kneeling Systems</p> <p>39. A kneeling system must be provided with a switch to enable and disable its operation.</p>

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Method of Inspection	Required Standard
	<p>40. Any control which initiates the lowering or raising of any part or the whole of the bodywork relative to the road surface must be clearly identified and be under the direct control of the driver.</p> <p>41. The lowering process must be capable of being stopped and immediately reversed by a control both within the reach of the driver, whilst seated in the cab, and also adjacent to any other operating controls provided for the operation of the kneeling system.</p> <p>42. Any kneeling system that is fitted to a vehicle must not allow the vehicle to be driven at a speed of more than 5 km/h when the vehicle is lower than the normal height of travel.</p> <p>General requirements for Lifts.</p> <p>43. Lifts must only be capable of operation when the vehicle is at standstill.</p> <p>44. Any movement of the platform must be prevented unless a device preventing the wheelchair from rolling off has been activated or has automatically come into operation.</p> <p>45. The lift platform must not be less than 800 mm wide, and not less than 1,200 mm long</p> <p>46. The lift must be capable of operating when carrying a mass of at least 300 kg.</p> <p>Specific requirements for power operated lifts</p> <p>47. The operating control must be designed in such a way that, if released, it automatically returns to the off position. As it does so the movement of the lift must immediately be stopped and it must be possible to initiate a movement in either direction.</p>

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Method of Inspection	Required Standard
	<p>48. A safety device (e.g. reversing mechanism) must protect areas not visible to the operator, where the movement of the lift might trap or crush objects.</p> <p>49. In the event of one of these safety devices coming into operation, the movement of the lift must immediately be stopped and movement in the opposite direction initiated.</p> <p>50. Where the lift is at a service door situated within the direct field of vision of the driver of the vehicle, the lift may be operated by the driver when in the driver's seat.</p> <p>51. In all others cases, the controls must be adjacent to the lift. They must be capable of being activated and deactivated only by the driver from his seat.</p> <p>Specific requirements for manually operated lifts</p> <p>52. The lift must be designed for operation by controls adjacent to the lift.</p> <p>53. The lift shall be so designed that excessive forces are not required to operate it.</p> <p>General requirements for ramps</p> <p>54. The ramp must only be capable of operation when the vehicle is at standstill.</p> <p>55. Edges on the outside must be rounded to a radius of no less than 2.5 mm. Corners on the outside must be rounded to a radius of not less than 5 mm.</p> <p>56. The useable surface of a ramp must be at least 800 mm wide. The slope of the ramp, when extended or folded out on to a kerb of 150 mm in height, must not exceed 12 per cent. The slope of the ramp, when extended or folded out to the ground, must not exceed 36 per cent. (A kneeling system may be used to achieve this test).</p> <p>57. Any ramp which when ready for use exceeds 1,200 mm in length must be fitted with a device to prevent the wheelchair rolling off the sides.</p>

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Method of Inspection	Required Standard
	<p>58. Any ramp shall be capable of operating safely with a load of 300 kg.</p> <p>59. The outer edge of ramp surfaces available for use by a wheelchair must be clearly marked with a band of colour 45 mm to 55 mm in width which contrasts visually with the remainder of the ramp surface. The band of colour must extend along the outermost edge and along both edges parallel to the direction of travel of the wheelchair.</p> <p>60. A portable ramp must be secure when in its position for use. A portable ramp must be provided with a suitable position where it can be safely stowed and where it is readily available for use.</p> <p>61. Deployment and stowage of the ramp may be either manual or power-operated.</p> <p>62. Any manually-operated ramp must be so designed that excessive forces are not required to operate the ramp.</p> <p>Specific requirements for power operated ramps</p> <p>63. Deployment and stowage of the ramp must be indicated to a person stood externally to the vehicle in the vicinity of the ramp, by flashing lights emitting a yellow colour, and an audible signal.</p> <p>64. Any movement occurring during deployment and stowage of the ramp that may create a risk of injury shall be protected by a safety device(s).</p> <p>65. The safety devices called for in standard 64 must stop the movement of the ramp when the ramp is subject to a mean reactive force not exceeding 150 N. The peak force may be higher than 150 N for a short time provided that it does not exceed 300 N.</p> <p>66. The horizontal movement of a ramp must be interrupted when a mass of 15 kg is placed upon it.</p>

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Method of Inspection	Required Standard
	<p>67. Where the driver has adequate view of the ramp sufficient to monitor its deployment and use, to ensure the safety of passengers, the ramp may be operated by the driver when in the driver's seat. (This requirement may be met by a suitable indirect vision device(s)). In all others cases, the controls must be adjacent to the ramp. They must be capable of being activated and deactivated only by the driver from his seat.</p>

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Figure 1



Pictogram for passengers with reduced mobility other than wheelchair users

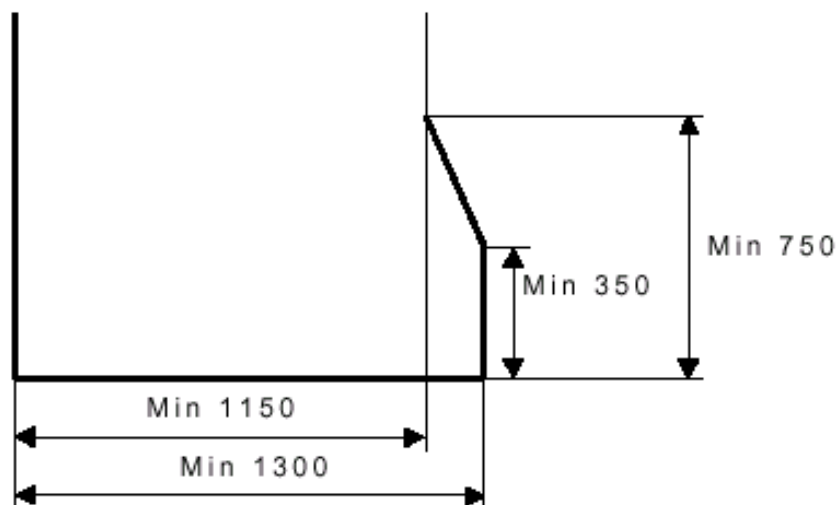
Colour: blue basis with white symbol

Size: at least 130 mm diameter

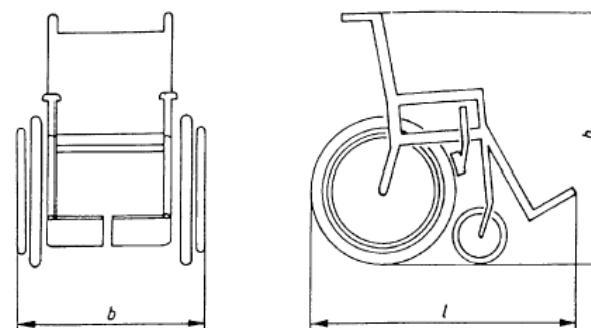
Reference for the design principles of safety symbols: ISO 3864-1:2002"

Figure 2

Minimum clear space for the wheelchair user at the wheelchair space

**Figure 3**

REFERENCE WHEELCHAIR



Overall length, l : 1200 mm

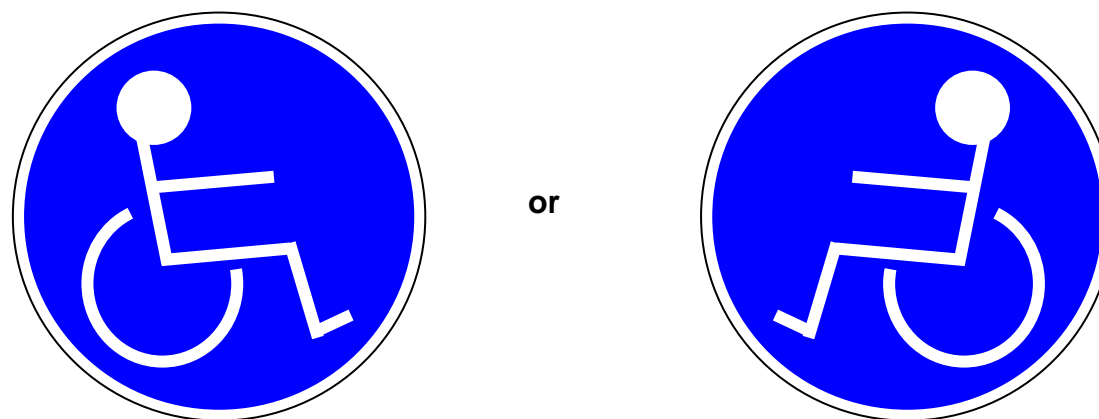
Overall width, b : 700 mm

Overall height, h : 1090 mm

Note:

A wheelchair user seated in the wheelchair adds 50 mm to the overall length and makes a height of 1350 mm above the ground.

Figure 4



Pictogram for wheelchair users

Colour:

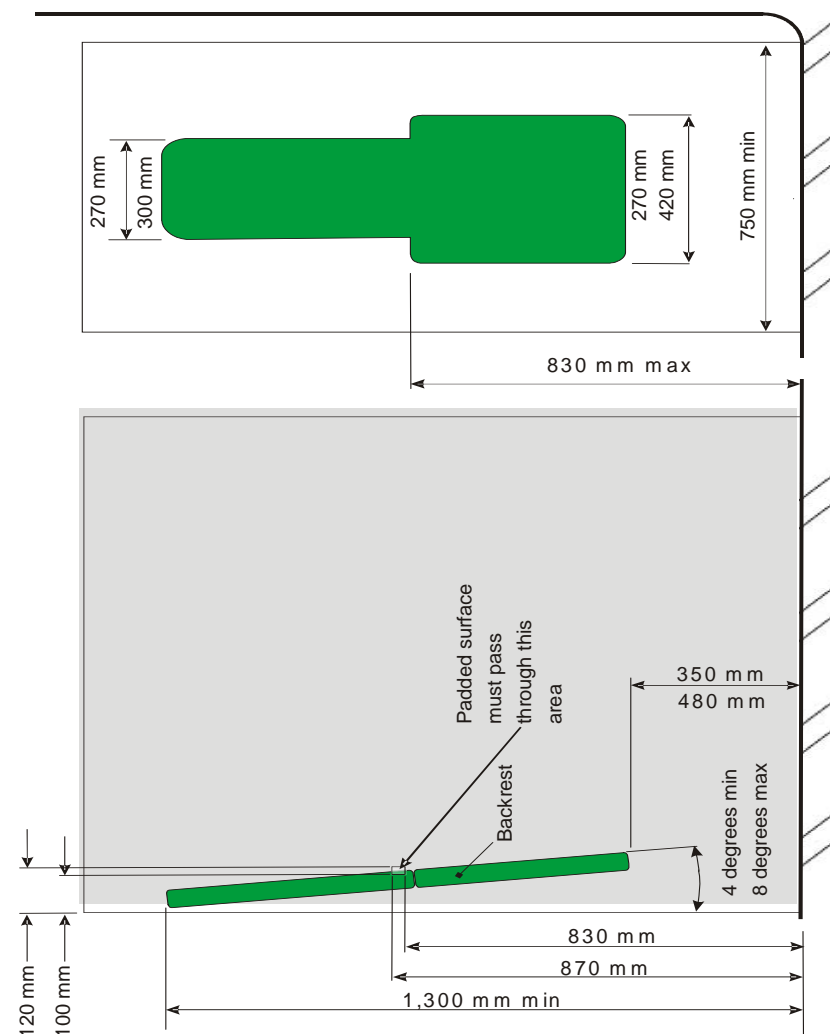
blue basis with white symbol

Size:

at least 130 mm diameter

Reference for the design principles of safety symbols:

ISO 3864-1:2002

Figure 5**EXAMPLE OF A BACKREST FOR A REARWARD-FACING WHEELCHAIR**

The padded surface of a backrest shall form a single and continuous plane.

Annex 1

Forward-facing wheelchair - static test requirements

- 1) Each wheelchair space must be provided with a restraint system capable of restraining the wheelchair and the wheelchair user.
- 2) This restraint system and its anchorages must be designed to withstand forces equivalent to the ones required for the passenger seats and occupant restraint systems. This can be demonstrated by documentary evidence of compliance with the following static test criteria.
- 3) The forces referred to in the test must be applied in both the forward and rearward direction, separately, and on the restraint itself.
- 4) The forces must be maintained for a period of not less than 0.2 seconds.
- 5) The restraint system must be capable of withstanding the test. Permanent deformation, including partial rupture or breakage of the restraint system shall not constitute failure if the required force is sustained for the specified time. Where applicable, the locking device enabling the wheelchair to leave the vehicle shall be operable by hand after removal of the traction force.
- 6) In every case the forces must be applied to the wheelchair user restraint system by means of a traction device appropriate to the belt type as specified in Regulation No. 14.

Test Requirements M2.

In a forward direction in the case of a separate wheelchair and wheelchair user restraint system

- a) $1,110 \pm 20$ daN in the case of a lap belt. The force must be applied on the wheelchair user restraint system in the horizontal plane of the vehicle and towards the front of the vehicle if the restraint system is not attached to the floor of the vehicle. If the restraint system is attached to the floor, the force must be applied in an angle of 45 ± 10 degrees to the horizontal plane of the vehicle and towards the front of the vehicle;
- b) 675 ± 20 daN in the horizontal plane of the vehicle and towards the front of the vehicle on the lap portion of the belt and 675 ± 20 daN in the horizontal plane of the vehicle and towards the front of the vehicle on the torso portion of the belt in the case of 3-point belt.
- c) $1,715 \pm 20$ daN in an angle of 45 ± 10 degrees to the horizontal plane of the vehicle and towards the front of the vehicle on the wheelchair restraint system.
- d) The forces must be applied simultaneously.

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In a forward direction, in the case of a combined wheelchair and wheelchair user restraint system.

- a) $1,110 \pm 20$ daN in an angle of 45 ± 10 degrees to the horizontal plane of the vehicle and towards the front of the vehicle on the wheelchair user restraint system in the case of a lap belt.
- b) 675 ± 20 daN in an angle of 45 ± 10 degrees to the horizontal plane of the vehicle and towards the front of the vehicle on the lap portion of the belt and 675 ± 20 daN in the horizontal plane of the vehicle and towards the front of the vehicle on the torso portion of the belt in the case of 3-point belt.
- c) $1,715 \pm 20$ daN in an angle of 45 ± 10 degrees to the horizontal plane of the vehicle and towards the front of the vehicle on the wheelchair restraint system.
- d) The forces must be applied simultaneously.

In all cases in a rearward direction

- a) 810 ± 20 daN in an angle of 45 ± 10 degrees to the horizontal plane of the vehicle and towards the rear of the vehicle on the wheelchair restraint system.

Test Requirements M3.

In a forward direction in the case of a separate wheelchair and wheelchair user restraint system

- a) 740 ± 20 daN in the case of a lap belt. The force must be applied on the wheelchair user restraint system in the horizontal plane of the vehicle and towards the front of the vehicle if the restraint system is not attached to the floor of the vehicle. If the restraint system is attached to the floor, the force must be applied in an angle 45 ± 10 degrees to the horizontal plane of the vehicle and towards the front of the vehicle.
- b) 450 ± 20 daN in the horizontal plane of the vehicle and towards the front of the vehicle on the lap portion of the belt and 450 ± 20 daN in the horizontal plane of the vehicle and towards the front of the vehicle on the torso portion of the belt in the case of 3-point belt.
- c) $1,130 \pm 20$ daN in an angle of 45 ± 10 degrees to the horizontal plane of the vehicle and towards the front of the vehicle on the wheelchair restraint system.
- d) The forces must be applied simultaneously.

In a forward direction, in the case of a combined wheelchair and wheelchair user restraint system.

- a) 740 ± 20 daN in an angle of 45 ± 10 degrees to the horizontal plane of the vehicle and towards the front of the vehicle on the wheelchair user restraint system in the case of a lap belt.
- b) 450 ± 20 daN in an angle of 45 ± 10 degrees to the horizontal plane of the vehicle and towards the front of the vehicle on the lap portion of the belt and 450 ± 20 daN in the horizontal plane of the vehicle and towards the front of the vehicle on the torso portion of the belt in the case of 3-point belt.
- c) $1,130 \pm 20$ daN in an angle of 45 ± 10 degrees to the horizontal plane of the vehicle and towards the front of the vehicle on the wheelchair restraint system.
- d) The forces must be applied simultaneously.

In all cases in a rearward direction

- a) 810 ± 20 daN in an angle of 45 ± 10 degrees to the horizontal plane of the vehicle and towards the rear of the vehicle on the wheelchair restraint system.

Annex 2

Forward-facing wheelchair - hybrid test requirements

A wheelchair space must be fitted with a wheelchair restraint system suitable for general wheelchair application and must allow the carriage of a wheelchair and a wheelchair user facing the front of the vehicle;

A wheelchair space must be fitted with a wheelchair user restraint system which shall comprise of a minimum of two anchorage points and a pelvic restraint (lap belt) designed and constructed of components intended to perform in a similar manner to those of a seat belt.

Any restraint system fitted to a wheelchair space shall be capable of being easily released in the case of an emergency.

Wheelchair restraint system

A wheelchair restraint system shall either:

Meet the dynamic test requirements described in A) below. And be securely attached to vehicle anchorages meeting the static test requirements in B) below **or**

Be securely attached to vehicle anchorages such that the combination of restraint and anchorages meets the requirements of A) below.

A)

A wheelchair restraint system shall be subject to a dynamic test carried out in accordance with the following requirements:

- a) A representative wheelchair test trolley of mass 85 kg shall, from a speed of between 48 km/h to 50 km/h to rest, be subject to a deceleration-time pulse:
 - i. exceeding 20 g in the forward direction for a cumulative period of at least 0.015 seconds;
 - II. exceeding 15 g in the forward direction for a cumulative period of at least 0.04 seconds;
 - III. exceeding a duration of 0.075 seconds;
 - IV. not exceeding 28 g and for not more than 0.08 seconds;
 - V. not exceeding a duration of more than 0.12 seconds,

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And

(Except in cases where the same restraints are used for the forward and rearward direction or if an equivalent test has been conducted)

- b) A representative wheelchair test trolley of mass 85 kg shall, from a speed of between 48 km/h to 50 km/h to rest, be subject to a deceleration-time pulse:
 - i. exceeding 5 g in the rearward direction for a cumulative period of at least 0.015 seconds;
 - ii. not exceeding 8 g in the rearward direction and for not more than 0.02 seconds;

For the above tests the wheelchair restraint system shall be attached to either:

Anchorage fixed to the test rig which represents the geometry of the anchorages in a vehicle for which the restraint system is intended, **or**

Anchorage forming part of a representative section of the vehicle, together with any fitting provided in the vehicle, which are likely to contribute to the strength or rigidity of the structure, for which the restraint system is intended

B)

A static test shall be carried out on the anchorage points for both the wheelchair restraint system and the wheelchair user restraint in accordance with the following requirements:

- i) The forces specified shall be applied by means of a device reproducing the geometry of the wheelchair restraint system;
- ii) The forces must be applied as rapidly as possible through the central vertical axis of the wheelchair space.
- iii) The force shall be maintained for a period of not less than 0.2 seconds.
- iv) The test shall be carried out on a representative section of the vehicle structure together with any fitting provided in the vehicle which is likely to contribute to the strength or rigidity of the structure.

Forces required for wheelchair restraint (M2 vehicles)

In the case of anchorages provided for a wheelchair restraint system:

1,110 ± 20 daN applied in the longitudinal plane of the vehicle and towards the front of the vehicle at a height of not less than 200 mm and not more than 300 mm measured vertically from the floor of the wheelchair space,

and

550 ± 20 daN applied in the longitudinal plane of the vehicle and towards the rear of the vehicle at a height of not less than 200 mm and not more than 300 mm measured vertically from the floor of the wheelchair space.

The forces specified shall be applied by means of a device reproducing the geometry of the wheelchair restraint system;

The forces shall be applied simultaneously in the forward direction and at an angle of 10 ± 5 degrees above the horizontal plane

The forces shall be applied in the rearward direction and at an angle of 10 ± 5 degrees above the horizontal plane

Forces required for wheelchair restraint (M3 vehicles)

In the case of anchorages provided for a wheelchair restraint system:

740 ± 20 daN applied in the longitudinal plane of the vehicle and towards the front of the vehicle at a height of not less than 200 mm and not more than 300 mm measured vertically from the floor of the wheelchair space,

and

370 ± 20 daN applied in the longitudinal plane of the vehicle and towards the rear of the vehicle at a height of not less than 200 mm and not more than 300 mm measured vertically from the floor of the wheelchair space;

The forces specified shall be applied by means of a device reproducing the geometry of the wheelchair restraint system

The forces shall be applied simultaneously in the forward direction and at an angle of 10 ± 5 degrees above the horizontal plane

The forces shall be applied in the rearward direction and at an angle of 10 ± 5 degrees above the horizontal plane

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Forces required for wheelchair user restraint (M2 & M3 vehicles)

In the case of anchorages provided for a wheelchair user restraint system the forces shall be in accordance with the requirements of Regulation No. 14. The forces shall be applied by means of a device reproducing the geometry of the wheelchair user restraint and by means of a traction device as appropriate to the belt type as specified in Regulation No. 14.

General requirements

A wheelchair user restraint shall comply with the test requirements specified in Regulation No. 16 or have met the requirements of the above tests. (A seat belt approved to Regulation No. 16 and so marked shall be deemed to comply).

The above tests will be deemed to have failed unless the following requirements are met:

No part of the system shall have failed, or shall have become detached from its anchorage or from the vehicle during the test;

.Mechanisms to release the wheelchair and user shall be capable of release after completion of the test;

The wheelchair shall not move more than 200 mm in the longitudinal plane of the vehicle during the test;

No part of the system shall be deformed to such an extent after completion of the test that, because of sharp edges or other protrusions, the part is capable of causing injury.

Operating instructions must be clearly displayed adjacent to the wheelchair spaces

Annex 3

Rearward facing wheelchair - requirements

Vehicles not required to have occupant restraint systems fitted may, as an alternative to the provisions of Annex 1 or 2, be provided with a wheelchair space designed for the wheelchair user to travel unrestrained with the wheelchair facing rearwards against a support or backrest, in accordance with the following provisions:-

- a) One of the longitudinal sides of the space for a wheelchair must rest against a side or wall of the vehicle or a partition
- b) A support or backrest perpendicular to the longitudinal axis of the vehicle must be provided in the forward end of the wheelchair space.
- c) The support or backrest must be designed for the wheels or the back of the wheelchair to rest against the support or backrest in order to avoid the wheelchair from tipping over and must comply with the provisions:-
 - i) **A backrest** fitted to a wheelchair space must be fitted perpendicular to the longitudinal axis of the vehicle and must be capable of bearing a load of 250 ± 20 daN applied to the centre of the padded surface of the backrest, at a height of not less than 600 mm and of not more than 800 mm measured vertically from the floor of the wheelchair space, for a minimum of 1.5 seconds by means of a block 200 mm x 200 mm in the [horizontal](#) plane of the vehicle towards the front of the vehicle. The backrest must not deflect more than 100 mm or suffer permanent deformation or damage.
 - ii) **A support** fitted to a wheelchair space must be fitted perpendicular to the longitudinal axis of the vehicle and must be capable of withstanding a force of 250 ± 20 daN applied to the centre of the support, for a minimum of 1.5 seconds in the horizontal plane of the vehicle towards the front of the vehicle in the middle of the support. The support must not deflect more than 100 mm or suffer permanent deformation or damage.

(An **example** of a suitable backrest is shown in Figure 5)

- d) A handrail or handhold must be fitted to the side or wall of the vehicle or a partition in such a way to allow the wheelchair user to grasp it easily. This handrail must not extend over the vertical projection of the wheelchair space, except where the handrail is at a height not less than 850 mm above the floor of the wheelchair space then it is permitted to intrude by not more than 90 mm
- e) A retractable handrail or any equivalent rigid device must be fitted on the opposite side of the wheelchair space in order to restrict any lateral shift of the wheelchair and to allow the wheelchair user to grasp it easily.
- f) A sign shall be fixed adjacent to the wheelchair area with the following text:

"This space is reserved for a wheelchair. The wheelchair must be placed facing rearwards resting against the support or backrest with the brakes on".

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Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/07/2009	Add the title Class 1 etc to RS 11, 12 & 13
3	29/04/2010	Add note 10 and link it to RS 32
4	29/10/2010	Rewrite RS17 & RS20, add new note and link to RS20, re-number notes and clean up text in Annex 3

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General Construction

Application: All Vehicles subject to IVA requirements

Method of Inspection	Required Standard
<p>The following section assesses the vehicles suitability for use under all normal operating conditions, including when it is laden to its maximum permitted axle/gross vehicle weight and considers the effects of vibrations and the forces imposed by its design speed, acceleration characteristics, braking and cornering. The vehicle must at all times present no danger to the occupants or other road users.</p> <p>Note 1: A television monitor which can be seen from the driving position and capable of operation when the vehicle is in motion is not acceptable, unless it provides visibility to the rear of the vehicle, a navigation map, vehicle specific information or a combination of these items.</p> <p>Note 2 This assessment includes the attachment of any component/assembly of any structure, the strength and suitability of materials used, (including pipes etc), all fastenings, (welding, brazing, bonding, rivets, nuts and bolts etc) are to be assessed for suitability, completeness and security.</p> <p>Note 3 When assessing a component for leaks the original design of the component will be taken into consideration.</p> <p>Note 4: This does not apply to control leads (fly leads) used on specialised equipment i.e. power ramps and access lifts.</p>	<ol style="list-style-type: none"> 1. All aspects of the design and construction of the vehicle must be such that no Immediate danger is caused or likely to be caused to any person in the vehicle or to other road users (see Note 1) 2. When driven, the safe control of the vehicle must not be impaired or likely to be impaired, due to a design or construction feature of characteristic. 3. The vehicle structure and all components including their attachment must be suitable and of adequate strength. (see note 2) 4. A transmission/braking component which rotates during vehicle operation, electrical component, steering or suspension component, wheel or tyre must not foul on another component, or be likely to foul under normal operating conditions. 5. Fuel and electrical components must not be subject to either a corrosive environment or be exposed to heat sources likely to cause premature failure. 6. All steering, suspension, brake and fuel system components must not be leaking. (See note 3) 7. All electrical cables/wires must be free from chaffing and secured at intervals of at least every 300mm unless contained in a secure hollow component. (see note 4) 8. All electrical components must be secure be of adequate capacity and insulated as required as to prevent short circuiting during operation.

General Construction

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	
2	29/07/2009	Add note 4 and link to RS 07

Glossary of Terms

Air Bag

A flexible bag fitted to a vehicle designed to be filled with gas under pressure in order to protect the driver or front seat passenger in the event of a collision involving the front of the vehicle.

Blunted Edge

An edge not likely to cause injury whatever the circumstances under finger/thumb pressure (contact is not likely to puncture the skin)

Body Plan Form

The area resulting from the vertical projection of the complete body onto a horizontal surface. For the purposes of this definition “complete body” means all parts of the bodywork and chassis, including any separate wheel guards but not including running gear such as wheels, axles, suspension, brakes and steering.

Breakaway Cable

A legally required safety device that activates the brakes if car and trailer become separated in transit. It works by pulling the brakes on then snapping.

Brake Efficiency

Maximum total brake force expressed as a percentage of maximum gross weight.

CNG

Compressed Natural Gas

Date of Manufacture

In the case of an Amateur Built Vehicle is, unless otherwise stated in the regulations or Inspection Manual:-

- the date on which the vehicle is presented for examination; or
- a date prior to the date the vehicle is presented for examination if there is conclusive evidence the vehicle was completed and included all the parts which it needs to comply with the prescribed requirements and was in such a condition as to be acceptable to test on that date.

Designated Seating Position

A position where there is a seat designated for normal use while the vehicle is travelling on the road.

Disabled Person's Belt

A seat belt which has been specifically designed or adapted for use by an adult or young person suffering from some physical defect or disability and which is intended for use solely by such a person.

Glossary of Terms

External Surface

In relation to the side of a vehicle, the vertical plane parallel with the longitudinal axis of the vehicle and coinciding with its lateral outer edge, disregard the protection of

- distortion of any tyre due to the weight of the vehicle
- connections for tyre pressure gauges
- anti-skid devices mounted on the wheels
- rear view mirrors
- lamps and reflectors
- custom seals and devices for securing and protecting such seals
- special equipment

Hard Parts

Parts made of a material of hardness exceeding 60 shore A. (Item 13)

Harness Belt

Means an adult belt which is a harness belt comprising a lap belt and shoulder straps.

Ignition Switch

A key operated switch normally used to start the engine.

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, the separation criteria should be assumed to be met.

Insecure

A component or its fixing is, due to its design or a construction feature, not completely attached to the vehicle structure or to another associated component as intended.

Kerbside Weight

The weight of the vehicle with no driver or passengers, a full fuel tank, an adequate supply of the necessary oils, water, fluids etc and no load other than tools and equipment normally carried.

Lap Belt

A seat belt which passes across the front of the wearer’s pelvic region and which is designed for use by an adult.

Longitudinal Plane

A vertical plane parallel to the longitudinal axis of the vehicle.

Glossary of Terms

LPG

Liquid Petroleum Gas.

Major Manufacturer

A vehicle manufacturer that provides vehicles approved to EC Whole Vehicle Type Approval standards.

Manufacturer's Plate

A piece of durable material eg metal or plastic that is likely to last the life of the vehicle and which is permanently marked with the required markings.

Mass In Running Order

In relation to the vehicle weight, means

Means the mass of the unladen vehicle with bodywork, and with coupling device in the case of a towing vehicle, in running order, (including coolant, oils, 90 per cent fuel, 100 per cent other liquids except used waters, tools, spare wheel and driver (75 kg), and, for buses and coaches, the mass of the crew member (75 kg) if there is a crew seat in the vehicle.

Nearside

Taken to be the side of the vehicle nearest the kerb when used in UK

Offside

Taken to be the side of the vehicle furthest away from the kerb when used in UK

Production Vehicle

A vehicle of a make, model and type, mass produced by the vehicle manufacturer.

Rigid Material

A material that has a hardness of no less than 50 shore A.

Seat Displacement Device

A device to permit; forward tipping of a seat, or the back rest to fold down.

Secondary coupling

This cable attaches the trailer to the towing vehicle whilst towing and provides a secondary link. A secondary coupling is a legal requirement for all unbraked trailers.

Servo Assisted

A system where the muscular energy of the driver is supplemented by another energy source

Glossary of Terms

Record of Revision

Revision	Date	Description of Change
1	24/04/2009	

Glossary of Terms