Driver & Vehicle Standards Agency

Individual Vehicle Approval (IVA) inspection manual

Trailers (O1, O2, O3 and O4)

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Helping you **stay safe** on **Britain's roads**

Any enquiries regarding this publication should be sent to us at enquiries@dvsa.gov.uk.

This document is also available from the DVSA section of GOV.UK website at https://www.gov.uk/vehicle-approval/overview

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Foreword

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

It is produced for the examiners who carry out the examinations and for trailer 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 trailers of the following categories:

O1, Very Light Trailers, 0.75 Tonnes or less

O2, Light Trailer, over 0.75 Tonnes up to 3.5 Tonnes

O3 Medium Trailers, over 3.5 Tonnes up to 10 Tonnes

O4. Heavy Trailers, over 10 Tonnes

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

- The Passenger Vehicle IVA Inspection Manual for vehicle category M1
- The Light Goods Vehicle IVA Inspection Manual for vehicle category N1
- The Heavy Goods Vehicle IVA Inspection Manual for vehicle categories N2 and N3
- The Bus and Coach IVA Inspection Manual for vehicle categories M2 and M3

Obligatory Approval certificates.

The IVA scheme is one of three routes for a new trailer to gain approval and thereby be legal for entry into service in UK. The other two routes are European Whole Vehicle Type Approval (EWVTA) and National Small Series Type approval (NSSTA). Refer to the Road Vehicles (Approval) Regulations 2020 (SI 2020 No. 818) for more information.

Trailer entry into service

New procedures to control the entry into service for heavy trailers will apply from 29 October 2012. From this date all new heavy trailers will be required to hold a valid approval certificate under one of the three approval schemes before obtaining a consent from DVSA to enter into service on the road.
As a general guide, all heavy trailers are subject to entry into service provisions if they are designed to carry goods, exceed 1020kg unladen weight and exceed 3500kg laden weight.
Most heavy trailers will also be subject to plating and testing unless they are deemed to be 'special purpose' or outside of the scope of plating and testing.

Trailers subject to annual test
For trailers that are currently subject to annual test, the trailer will need to be notified to DVSA ***before*** it is first placed on the road and used, and proof of a relevant approval certificate provided. (Although towing an unfinished trailer on the public road, to a place where the trailer will be finished, will be permitted, as long as no goods are carried).

Trailers <u>not</u> subject to annual test
For trailers that are not subject to annual test, from the applicable dates there will be a legal obligation on the **retailer** to keep a record of all the trailers that he has sold, which are sufficient to identify the trailer, and which include details of the approval certificate (where applicable).

Trailer Registration
Although not covered by type approval, presenters and suppliers are reminded that, since 28 March 2019, certain trailers engaged in international journeys to, or through, a foreign country that has ratified the 1968 Vienna Convention on Road Traffic need to be registered with DVLA. This applies to commercial trailers with a gross weight over 750kg (O2 and up) and all trailers with a gross weight over 3,500kg (O3 & O4).

Further information on trailer registration can be found on gov.uk: Trailer Registration Guidance

Approval Process

There is only one level of compliance to the IVA Approval process for trailers.

“Normal IVA Requirements” applies to Trailers.

The standards applicable are those given in each section of this manual and apply to trailers submitted for inspection on or after 29th April 2009.

With the IVA examination, 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 trailer or component, an EC certificate of conformity for an incomplete or base trailer 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 trailer to allow DVSA examiners to carry out a full and meaningful inspection.

Applications and supportive documentation will be assessed prior to the issue of an appointment. Examination of the trailer will include verification checks to confirm as far as possible compliance with the required standards.

A trailer built to a later Regulation or Directive that that stipulated in the "Summarised Table of requirements for Trailers" will be acceptable for IVA examination

Where evidence of compliance is supplied, and no obvious modification has been carried out – assume compliance has been met.

The physical examination criterion for this part of the process is contained in sections 1 to 50 of this manual.

Scope of Inspection

The design and construction requirements applicable to road vehicles are contained within the Road Vehicles (Approval) Regulations 2020. The examination 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.

Examiners are not required to carry out a roadworthiness inspection but where obvious safety defects are noted the trailer may be subject to prohibition action, The IVA certificate will not be issued and where applicable it may be indicated on the IVA 30 (refusal to issue a certificate) that a relevant section of the inspection was "Unable to be assessed fully" due to the condition of an item.

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.

NOTE: The trailer will be assessed for compliance in all modes of operation (as required for normal road use), for example, in the case of a lifting axle, with the axle up and down, etc. unless otherwise specified.

Method of Inspection

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

The visual assessment of certain items e.g., overrun brake couplings (which in Type Approval undergo a physical test) might not always be sufficient to satisfy the examiners that the trailer 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 inspection, evidence that the trailer complies with the relevant criteria may be submitted in the form of documentation. This can, for example, be satisfactory evidence that the trailer complies with the relevant requirements of a European or UN Directive/Regulation

For any technical subject an appropriate type approval certificate or a test report from a recognised test house will be accepted as an alternative provided that the trailer can be identified as belonging to the type to which the documentation refers.

In certain cases, calculations will be required to prove compliance. Where these are required, they should be submitted with the application for inspection to Technical Services Branch for verification prior to the inspection. Failure to produce these calculations may delay or 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.

Use of this manual

The manual has been arranged in the same order as the Framework Regulation from which the inspection criteria are derived. Each inspection area broadly covers the requirements that trailers must meet or exceed based upon the National IVA scheme.

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

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

Special Purpose Vehicles. (SPV)

Certain vehicles/trailers are classified as Special Purpose Vehicles. They may be subject to additional exemptions from the required standards, but only where the special function of the trailer makes it impossible to comply.

Trailer Caravans are considered to be Special Purpose but any applicants requesting exemption under Special Purpose Vehicle status for additional trailer types must at the time of application, submit to DVSA all vehicle specific documentary evidence supporting any such request.

NB. Vehicles fitted with specialised equipment may be subject to additional exemption where specified in the EC Framework Directive on items normally assessed by visual inspection only, (i.e., not subject to mandatory Directive compliance.) Applicants requesting such exemptions should at the time of application, submit to DVSA any vehicle specific documentary evidence supporting any such request

Use of a suitable towing vehicle

All trailers presented for IVA Inspection must be accompanied by a suitable towing vehicle. The vehicle must be compatible with the type of trailer and so equipped to allow the operation of all lights and any braking fitted to the trailer. Its coupling must allow the trailer to be at its normal running attitude.

The use of verified air brake/suspension or lighting simulators in place of a towing vehicle at Privately Owned Test Facilities (POTFs) may be acceptable subject to prior agreement by DVSA.

Special Types General Order

The following special trailers that are regulated under Great Britain's legislation for *special* (including extra-large) trailer types ("STGO") fall in scope of this manual:

A: Abnormal Indivisible Load (AIL) trailers – trailers that are designed to carry a bulky or heavy load that cannot be carried on regular trailers meeting the 'normal' regulations C&U and Authorised weight regulations.

	Normal size	Long (>12m*)	Wide (>2.55m) or both wide and long (>12m*)	Super-size: >6.1m wide, >30m long
Normal weight	*P&T, C&U*	*P&T, C&U*	STGO (Cat 1)	VSO
Cat 1 weights – 50T	P&T, STGO	P&T, STGO	STGO	VSO
Cat 2 – 80T	P&T, STGO	P&T, STGO	STGO %	VSO
Cat 3 – 150T	P&T, STGO	P&T, STGO	STGO %	VSO
Exceeds 150T	STGO	STGO	STGO %	VSO

P&T = Plating & Testing, C&U = Construction & Use
* - distance from king pin to rear: 12m for a semi-trailer/step frame trailer and 13.5m for a low loader.
% - exempt from Spray suppression

B: Road Recovery Vehicle (RRV) – an O4 trailer used to recover another vehicle, where the normal C&U limits are exceeded,

In addition, this manual covers one other category planned for inclusion in STGO which at present still require a Vehicle Special Order (VSO) to authorise each trailer:

C: Crane ballast trailers – trailers designed to carry the ballast required by mobile cranes. These are carrying a divisible load which is very heavy, but nevertheless are permitted in the interests of avoiding the need for two or more vehicles carrying ballast to follow the crane.

D: Modular trailers – trailers of modular construction, but not self-propelling, which have towing attachment devices at both ends, for towing devices and/or “Bridging members”, and can be operated in either direction, either as single or multiple configurations.

Refusal to examine

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

- the trailer is not submitted for examination at the time and place appointed
- the fee has not been paid
- the vehicle submitted for examination is of the incorrect category
- the trailer is presented in a dirty or dangerous condition such as to make it unreasonable for the examination to be conducted
- a load or items on the trailer are not secured or removed as requested
- a proper examination cannot be conducted because any door or other device designed to be readily opened cannot be opened
- the condition of the trailer (in the opinion of the examiner) is such that proper examination of the trailer would involve a danger of injury to any person or damage to the trailer or any other property
  there was no means of identifying the trailer, i.e., the trailer identification number was missing or did not relate to the trailer, or where evidence indicates that the VIN has been tampered with to change the identity of the vehicle
- the presenter does not remain with the trailer or in its vicinity and operate the controls, manoeuvre the trailer or to remove/refit panels as requested to allow a meaningful examination of the trailer, or is uncooperative.
- Unsuitable towing vehicle.

Trailers may be approved to a later level Directive or regulation, these approvals will be acceptable

Summarised Table of Requirements for Trailers							
IVA Item Number	**Directive Requirement**	**As amended by #**	**UNECE Regulation #**	**O1**	**O2**	**O3**	**O4**
03B Rear Under-run	70/221/EEC	2006/20/EC	**58.01**			Approval & Ins	Approval & Ins
04 Reg plate space	70/222/EEC		**34.02 & 58.01**	Inspection	Inspection	Inspection	Inspection
05 Steering effort	70/311/EEC	1999/7/EC	**79.01**	Inspection	Inspection	Approval	Approval
09 Braking	71/320/EEC	98/12/EC	**13.08 / 13H**	Approval	Approval	Approval	Approval
10 EMC	72/245/EEC	2006/28/EC	**10.03**			Approval	Approval
18 Statutory Plates	76/114/EEC	78/507/EEC.		Inspection	Inspection	Inspection	Inspection
20 Installation of lights			**48.03**	Inspection	Inspection	Inspection	Inspection
21 Retro reflectors			**3 / 150 / 104**	Inspection	Inspection	Inspection	Inspection
22 Side & stop lights			**7 / 148**	Inspection	Inspection	Inspection	Inspection
23 Direction indicators			**6 / 148**	Inspection	Inspection	Inspection	Inspection
24 Rear Reg lamp light			**4 / 148**	Inspection	Inspection	Inspection	Inspection
28 Rear Fog lights			**38 / 148**	Inspection	Inspection	Inspection	Inspection
29 Reverse lamps			**23 / 148**	Inspection	Inspection	Inspection	Inspection
36 Heater systems	2001/56/EC	2006/119/EC	**122.00**	Inspection	Inspection	Inspection	Inspection
42 Side Guards	89/297/EEC		**73.00**			Inspection	Inspection
43 Spray Suppression	91/226/EEC					Inspection	Inspection
45 Safety glass			**43.00**	Inspection	Inspection	Inspection	Inspection
46 Tyres	92/23/EEC	2005/11/EC		Inspection	Inspection	Inspection	Inspection
48 Masses & Dimensions	97/27/EC	2003/19/EC		Inspection	Inspection	Inspection	Inspection
50 Couplings	94/20/EC		**55.01**	Inspection	Inspection	Inspection	Inspection

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Add new text to foreword
3	30/04/2012	Add the use of verified brake/suspension/lighting simulators at POTFs, add SPV details
4	08/04/2013	Remove boat trailer from list of SPVs on page 4
5	29/10/2013	Amend paragraph 4 on page 3, revise list of Special Purpose vehicles and amend bullet point 8 on page 5 remove reference to UNECE Reg. 107.2 from Section 48 in table of Regs & Directives
6	29/10/2014	DVSA replaces VOSA, STGO information added
7	10/04/2018	STGO Modular trailer definition added, later regulations added, special equipment note added & changes to reasons to refuse, revisions to wording
8	09/12/2019	Information regarding trailer registration added.
9	01/09/2020	Directives/Regs updated

Non-European and Other Acceptable Standards

Mass-Produced trailers from USA or Canada.

Evidence that a trailer complies with the national standards of either the USA or Canada (defined in the table on page 2 of this section) are deemed acceptable and thus exempt from further physical inspection unless any modifications are evident.
Note: This does not necessarily mean that these standards are equivalent to those of IVA, but they are deemed of a suitably high level of safety.
.

To prove compliance with the listed standards, these trailers must be fitted with a Compliance plate which will contain the name of manufacturer, 17-digit VIN number, gross weights for trailer & axle(s) and the following:

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

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

Note: Any modifications to the trailer may invalidate the original compliance; enquiries must be made of the converter, in particular whether any increase in maximum permissible weights is technically justifiable and whether the braking system has been uprated.

Mass produced trailers from other territories: DVSA will update this manual from time to time with the latest information.

O1 / O2 Comparable Standards - IVA

Section No.	Subject Area	United States (U)	Canada (C)
45	Glass	FMVSS 205 (U1)	CMVSS 205 (C1)
46	Tyres	FMVSS 109 (U2)	CMVSS 110 (C3)
		FMVSS 110 (U3)	CMVSS 119/120
		FMVSS 119/120	CMVSS 139
		FMVSS 139	

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

(U) FMVSS = Federal Motor Vehicle Safety Standards
(C) CMVSS = Canadian Motor Vehicle Safety Standards

(U1) and (C1) Glass bearing the following marking complies with FMVSS 205 and CMVSS 205

- in the case of windows in a trailer caravan – AS1, AS2, AS3, AS10, AS11A, AS14, AS15, AS16.

(U2) Tyre speed capability may not be sufficient. It must be no less than the towing design speed.

(U3) and (C3) Non-pneumatic spare tyres are illegal for use in Great Britain.

Record of Revision

Revision	Date	Description of Change
1	29/10/2012	
2	29/10/2014	DVSA replaces VOSA
3	10/04/2018	Changes to FMVSS/CMVSS wording

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03B Rear Protective Devices (Under Run)

Application: All Trailers of category O3 and O4

Method of Inspection	Required Standard
Ensure the trailer or device **as presented** is accompanied by satisfactory evidence in the form of: • a type approval **(If a valid trailer approval relating to the trailer in its finished unmodified state is provided the installation check is not required)** **or** • a test report witnessed by an Approval Authority • a test report issued by an Approved Technical Service • evidence that calculations were provided at the time of application to the satisfaction of the Approval Authority. **And** in these cases, an Installation check is required **Exempt Trailers:**	**Approval** **1.** The trailer **as presented** must be accompanied by satisfactory evidence of compliance regarding the protective system (see note1 & exemptions) **2.** Separate devices must be correctly marked and be as specified in the approval / test report or calculation documents. **Installation check (see Note 1)** **3.** Where a separate device is fitted it must be fitted as per manufacturer's instructions. **4.** The lower edge of the rear under-run must at no point be more than 550mm above the ground. **5.** The width of the rear under-run must not extend beyond the width of the rear axle. (See **Notes 2, 3 & 4**) **6.** The width of the rear under-run must extend to within 100mm of the width of the rear axle on either side (see **Notes 2 and 3**). **7.** The rear under-run criteria must be met as close to the rear of the trailer as possible and must be capable of fulfilling its function (see **Note 5**).

Trailer type	Exemption Provided
Trailers designed to carry timber, beams, or girders of exceptional length	'Slung' trailers and other similar trailers for the transport of logs or other very long items, are exempt.
Vehicle transporters (trailers specially designed and constructed to carry other **vehicles** loaded on from the rear)	Exempt if the lower edge of the loading platform / bed structure is 550mm or less

Method of Inspection

Concrete pumping trailers*	Exempt if the operation of equipment is compromised by the fitment of an underrun
Skip loaders, including hook lifts	Exempt if the operation of equipment is compromised by the fitment of an underrun OR the upper edge of the loading platform is lower than 550mm
Gritter (vehicle fitted at the rear with apparatus for spreading material on a road)	Exempt
Highways Surface/Geological survey trailers	Exempt where fitment of devices would interfere with the operation equipment
STGO Modular Trailers	'STGO Modular trailers as defined in the foreword of this manual'
Trailers (including STGO) for which rear under-run protection is incompatible with their use are exempt. (Evidence may be required)	

In cases where it is impracticable to comply with the full requirements the protection device will be mounted as close to the rear as possible and must be capable of fulfilling its function.

Note 1: Evidence may be for a trailer, a separate device or that the rear of the trailer is so designed as to perform the same function. Where the rear body is so designed **the Installation Inspection as appropriate relates to the structure forming the rear of the trailer.**

Note 2: The width of the rear axle is measured at the outermost points of the wheels including the tyres (excluding any tyre bulging close to the ground). Where more than one rear axle is fitted the width used is that of the widest axle.

Required Standard

8. The section height of the rear under-run must not be less than 100mm.

9. The outer ends of the rear under-run must be rounded on the outside and have a radius of curvature of not less than 2.5mm.

10. Rear under run must be securely attached to the rear of the trailer.

11. Rear under-run mountings must clearly be of adequate strength to perform their function.

12. In the case of a movable rear under-run, the device must be able to be securely locked into the service position.

13. In the case of a movable rear under-run, the locking mechanism must be clearly of adequate strength to enable the device to perform its function.

Where platform lifts are incorporated into the under-run

14. The lateral distance between working elements of the lift and fixed elements of rear under-run must be a maximum of 25mm.

15. Each individual section of the rear under-run must have a rear facing surface area of at least 350cm^2.

Rear Protective Devices (Under Run) 03B

Method of Inspection	Required Standard
Note 3: Where the rear under-run is combined with a tail lift the lift structure may extend beyond the width of the rear axle to the width of the body, the requirements for the rear under run will be considered to be met providing the “device” meets all other dimensions up to the width of the rear axle. **Note 4:** Where the rear under-run device is contained in or comprises the vehicle bodywork, which itself extends beyond the width of the rear axle, RS5 shall not apply. **Note 5:** Items above 2m from the ground, shall not be taken into account when determining the RUPD distance from the rear of the trailer.	

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Add exemptions
3	30/04/2012	Modify exemptions
4	29/10/2014	Add STGO to the exemptions
5	10/04/2018	Amend exemptions & note, STGO added, RS 7 revised, note 4 added & section aligned with N2/3, add note 5

04 Rear Registration Plate Space

Application: All Trailers

Method of Inspection

All trailers must have a suitable place to mount a rear registration plate.

Trailers which are approved to Directive 70/222/EEC will not require an inspection to this section, providing the trailer has not been modified.

Minor intrusions up to 5mm by mounting channels / retaining lugs into the shaded area will be permitted. These hold the plate in place along its edges but will still allow the registration mark to be displayed.

Modular trailers as defined in the Foreword of this manual, must have a suitable illuminated plate fitted at time of examination that meets all requirements, this may not be permanently fixed, but brackets fitted to trailer for the plate, must be permanently affixed to ensure correct placement. The positioning of the rear lamps “when presented” will define the “Rear” of the trailer for the purpose of examination.

Note 1:. A plate hanging from the trailer with no structure or support brackets behind it would be considered unacceptable.

Note 2: Euro space dimensions taken from directive 70/222/EEC.

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 shaded portion (yellow on DVSA supplied equipment) 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.

Required Standard

1. All trailers 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 as possible, taking into account the shape of the bodywork.
3. An external body surface or a purpose-designed mounting system securely attached to the trailer must be provided to hold the plate in a fixed position. (See **Note 1**)
4. The whole of the shaded portion of the “IVA Test plate must be capable of being easily seen from every point along the test line. (See **Note 3**)

Table 1

		Width	Height
Euro space (see **Note 2**)	Option 1	520	120
	Option 2	340	240

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Reorder notes and link to Required Standards
3	30/04/2012	Remove the term ‘Yellow’ and replace with shaded
4	29/10/2012	Amend Note 3
5	29/10/2014	DVSA replaces VOSA, note 4 added
6	10/04/2018	Delete Note 1, reorder notes, amend note 2 for correct directive, new note 3 added & Modify RS2.

05 Steering Effort

Application: All Trailers of category O3 and O4 if fitted with steered axles

Method of Inspection	Required Standard
This section is applicable to trailers (with the exception of semi-trailers) which have more than one axle with steered wheels and semi-trailers which have at least one axle with steered wheels. Ensure the trailer has satisfactory evidence of compliance to the required standard.	**1.** The trailer **as presented** must be accompanied by satisfactory evidence of compliance with the required standard for Steering Effort.

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	09/12/2019	Clarification added to MOI.

09 Braking

Application: All Trailers of category O2, O3 and O4 (O1 if equipped with a braking system)

Method of Inspection	Required Standard
Ensure that the trailer **as presented** has satisfactory evidence of compliance to the required standard. **Note 1:** Vehicles subject to both P&T and STGO (dual use) will require evidence of compliance for P&T weights, and evidence of compliance for the higher weights of STGO. The latter should be in the form of calculations, (verified by a Technical Service) test track work is not requested. **Note 2:** Vehicles solely for STGO use will be required to provide evidence of compliance to the requirements via documentary evidence. This should comprise calculations (verified by a Technical Service) test track work is not requested. **O2 trailers and O1 trailers equipped with a braking system** Check that a test report for the foundation brake, the coupling, and a compatibility report are provided. Check that a breakaway cable is fitted to all trailers and is fitted with an attachment device such as a snap clip, carabena or shackle. **Note 3:** The braking systems shall be such that the trailer is stopped automatically if the coupling separates while the trailer is in motion. However, this requirement does not apply to trailers with a maximum mass not exceeding 1,5 metric tons provided that the trailers are fitted, in addition to the main coupling, with a secondary coupling	**1.** The trailer **as presented** must be accompanied by satisfactory evidence of compliance with the required standard for “Braking”. (See **Notes 1 & 2**) **O2 trailers and O1 trailers equipped with a braking system** **2.** Any cable used for brake transmission must be sheathed. **3.** A breakaway cable must be fitted to the trailer if over 1500kg (see **Note 3**). **4.** A breakaway cable must be able to apply the trailer brakes in the event of detachment. **5.** The breakaway cable must be fitted with an attachment device that enables the cable to be fitted to any suitable drawing vehicle. **6.** A breakaway cable must be fitted with a guide to ensure that the brake is applied with the trailer at any towing angle in the event of detachment. **7.** A parking brake lever must have unobstructed movement throughout its full travel.

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	29/10/2013	Insert new RS2 & RS7
3	29/10/2014	Add New Notes 1 and 2 – Link to RS1, old note 1 becomes note 3
4	10/04/2018	Revise Note 1 & 2

10 Electromagnetic Compatibility

Application: All Trailers

Method of Inspection	Required Standard
Ensure the trailer has satisfactory evidence of compliance to the required standard and has not been modified such to invalidate the approval. **Note 1:** STGO – Abnormal Indivisible Load Vehicles (GTW of at least 120,000kg) where due to its special build **No** base vehicle approval is available, will only require a declaration from the manufacturer for the equipment fitted. **Note 2:** This only applies to equipment that is likely to be used when the vehicle is being driven.	**1.** The trailer **as presented** must be accompanied by satisfactory evidence of compliance with the required standard for "EMC" (see **Note 1**). **2.** Where any additional equipment has been installed, a declaration supplied by the Manufacturer / applicant, confirming compliance of the additional items must be presented (see **Note 2**).

Record of Revision

Revision	Date	Description of Change
1	10/04/2018	Added to trailer manual

18 Statutory Plates

Application: All Trailers

Method of Inspection	Required Standard
All vehicles must be provided with a manufacturer's plate. Legislation places no restriction on the material from which the plate is made. The purpose of the plate is to impart information rather than to act as a proof of identity. Check that the manufacturer's plate (in the case of a multistage build, one for each stage) complies with the Required Standards. It would be helpful if separate plates are fitted in close proximity to each other, but this is not mandatory for vehicles covered by this manual. Visually check that the characters used for the Manufacturers Plate and Trailer Identification Number (TIN) complies to the required standards. 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. The manufacturer may give additional information. The approval number and build stage number 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	**Manufacturers TIN Plate** **1.** The trailer must be fitted with a manufacturer's plate in a conspicuous and readily accessible position. **2.** A manufacturer's plate must be fitted for each stage of a multistage build. **3.** The manufacturer's plate(s) must be made of a durable material. **4.** The manufacturer's plate(s) must be indelibly marked with the Trailer Identification Number (TIN) which matches the number marked into the trailer structure (see **Note1**). **5.** The manufacturer's plate(s) must be securely attached to a part of the trailer that will not be replaced through normal use (see **Note 2**). **6.** The manufacturer's plate(s) must show the required information, in the correct order inside a clearly marked rectangle. See Annex 1 **7.** The Trailer Identification Number on the manufacturer's plate must be marked in characters at least 4mm high. **8.** The characters on the manufacturer's plate (with the exception of the Trailer Identification Number) must be at least 2mm high. **Trailers exceeding the normal length or width (see Section 48B and 48C) (See Note 6)** **9.** The manufacturers plate must also show the following text "Designed to carry AIL of exceptional length.

Method of Inspection	Required Standard
a clearly marked rectangle which shall enclose only the listed information. The identification number of the base trailer (TIN) 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. 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 trailer identification number with his own vehicle/trailer manufacturer code and the trailer identification code if, and only if, the trailer must be registered under his own trade name. In such a case, the complete trailer identification number of the base vehicle must not be deleted. All trailers must have a trailer identification number marked onto the chassis by hammering, stamping or similar so that the vehicle can be clearly identified. **Note 1**: - For markings to be considered 'indelible' they should be unlikely to become disfigured or obliterated during the life of the trailer. 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 trailer. **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 trailer **Note 3:** As an exception, for technical reasons, it may also be marked on two lines. However, in this case no section may be	**10.** The manufacturers plate must also show the following text "Over-width trailer – for STGO use only". **<u>Permanent TIN Number</u>** **11.** The TIN must be marked on the chassis, frame, or other similar structure on the right-hand side of the trailer. (Viewed from the rear) **12.** The TIN must be placed in a clearly visible and accessible position by a method such as hammering or stamping so that it cannot be obliterated or deteriorate.) **13.** The TIN number must consist of 17 digits with the information shown in a single line (see **Notes 3 & 4**). **14.** Capital letters and numerals must be used for the TIN. **15.** There must not be any gaps between the characters for the TIN or unique trailer identifier number shown on the manufacturer's plate or stamped into the trailer (see **Note 4**). **16.** The characters used for the TIN number stamped into the chassis, frame or other similar structure must be at least 7mm high. **17.** Use of the letter I, the letter O, the letter Q, dashes, asterisks and other special signs are not permitted. **<u>Where the TIN has been changed in agreement with the Approval Authority</u>** **18.** Evidence of the agreement with the approval authority must be provided. **19.** The original complete trailer identification number of the base trailer must be present on the chassis. **20.** The complete new TIN must be stamped on the chassis as near as possible to the original TIN.

Method of Inspection	Required Standard
divided between the two lines. The beginning and end of each line must be indicated by a symbol which is neither an Arabic numeral nor a roman capital letter, and which cannot be confused with either. (First section would be 3 characters in length, second section would be 6 characters in length and the last section would be 8 characters in length). **Note 4:** The spacing of characters must be such that no additional characters could be added at a later date. **Note 5:** There is no specific format for the special type's plate. The diagram shown is purely an example. It is important to ensure the presence of all relevant information. **Note 6:** RS 9 & 10 are not applicable to modular trailers as defined in the Foreword of this manual. The manufacturer may display this information on the plate at their discretion	The last eight characters of the new TIN must be identical to the last eight characters of the base trailer TIN 10/04/2018 **Optional Dimension Plate O1 & O2 Trailers** **21.** Where fitted; a second plate must be fitted next to the manufacturer's plate and must contain the required dimensions listed in Annex 2 **Special Types Plate (**see **Note 5**) **22.** Trailers intended for use under STGO cat 2 and 3 conditions must be fitted with a "Special Types" plate that is securely fixed to the trailer in a conspicuous and readily accessible position. **23.** It must contain the heading "SPECIAL TYPES USE" in letters not less than 4mm high. **24.** It must be indelibly marked, in letters and figures not less than 4mm high, with the maximum weights (in kg or tonnes) at which, in the opinion of the manufacturer, the trailer may be used legally in the UK when travelling on roads at or below the speed in question, as per the table below, (with the speeds and number of axles as applicable): SPECIAL TYPES USE | | Axle 1 | Axle 2 | Axle 3 | Axle 4 | Max load on towing vehicle | Max gross weight | |---|---|---|---|---|---|---| | 20 mph | | | | | | | | 25 mph | | | | | | | | 30 mph | | | | | | | | 35 mph | | | | | | | | 40 mph | | | | | | |

Annex 1
Manufactures Plate (see Notes 1, 2, 3 & 4)

DVSA MOTORS INC	Name of Manufacturer
e11*2007/46*0291*02	Approval number and/or Build Stage number (If applicable)
SA9A3ACTBE123456	Trailer Identification Number (TIN)
38000Kg 41000Kg	Maximum permitted laden mass of trailer
8000Kg 9000Kg 8000Kg 9000Kg 8000Kg 9000Kg	Maximum permitted laden road mass for each axle, listed in order from front to rear
14000Kg	In the case of a **Semi trailer**, the maximum permitted mass on the fifth wheel kingpin (see **Notes 5 & 6**)
2015	**O1 trailers** only, Year of manufacture (**Optional** for other categories)

Note 1: Where the trailer is subject to a multistage build, a plate is required on completion of each stage as appropriate, every plate fitted must display the same TIN 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.

Note 2: For markings to be considered 'indelible' they should be unlikely to become disfigured or obliterated during the life of the trailer. 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 trailer.

Note 3: The spacing of characters must be such that no additional characters could be added at a later date.

Note 4: If any of the technically permissible masses are higher than the masses permitted in GB and NI for a trailer 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 mass in

GB/NI, and in the right-hand column, the technically permissible mass. This does not apply to a trailer issued with a Plating certificate under the Goods Vehicles (Plating and Testing) Regulations 1988 where only one column, giving the technically permissible masses, is permitted. (See Section 48)

Note 5: It is acceptable if the maximum mass on the fifth wheel kingpin is listed above the mass of the first axle.

Note 6: The maximum mass (T) on each axle group may be included within the rectangle.

Annex 2
Optional Dimension Plate (see Notes 1, 2, 3, 4 & 5)

DVSA MOTORS INC	Name of Manufacturer
SA9A3ACTBE654321	Trailer Identification Number (TIN)
7200mm	Length of trailer “Body”
2000mm	Width of trailer
6000mm	Data for the measurement of the length of vehicle combinations (see **Note 6**)

Note 1: Categories O1 & O2 – dimension plate only required to be displayed on trailers, while in use, which exceed 7000mm in length except those designed specifically to carry an indivisible load e.g., Glider Trailer.

Note 2: The spacing of characters must be such that no additional characters could be added at a later date.

Note 3: Alternatively, this data can be contained within the manufacturer's plate and in the case of a trailer requiring a Plating certificate the second plate is not required.

Note 4: Not required if the dimension information is contained on the manufacturer’s plate**.**

Note 5: For markings to be considered 'indelible' they should be unlikely to become disfigured or obliterated during the life of the trailer. 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 trailer.

Note 6: The distance (#) between the centre of the coupling device of the trailer (semi-trailer kingpin) and the rear of the trailer; in the case of a device with several coupling points, the minimum and maximum values must be given (# min and # max).

Annex 3
Maximum permitted weights in Great Britain and Northern Ireland

Trailers	**Weight (GVW)**
O1	Up to 750kg (0.75 tonnes)
O2	751kg (0.75 tonnes) up to 3500kg (3.5 tonnes)
O3	3501kg (3.5 tonnes) up to 10000kg (10.0 tonnes)
O4	10001kg (10.0 tonnes) +

Axles	**Weight**
Single axle	10 tonnes
Tandem axles of trailers and semi-trailers	
	The **sum** of the axle weights must not exceed
Distance between axle centres is less than 1metre	11 tonnes
from 1metre and less than 1.3metres	16 tonnes
from 1.3metres and less than 1.8metres	18 tonnes
1.8metres or more	20 tonnes
Tri-axle trailers and semi-trailers	
	The **sum** of the axle weights must not exceed
from between axle centres 1.3metres or less	21 tonnes
from 1.3metres and up to 1.4metres	24 tonnes

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Reword MOI and add RS for Dimension plate
3	30/04/2012	Add information to MoI for VIN number sections and add new standards
4	29/10/2012	Amend RS6, insert new RS8, amend RS9 and renumber following RSs
5	29/10/2013	Amend RS6, 7 & 13, insert new notes 4, 9 & 10, link RS6 to notes 4, 5 & 9 and RS8 to notes 2, 3, 4 & 9
6	29/10/2014	Insert new RS7 and 8, Add new standards for STGO Plates RS23 – RS26, clarify RS 9 & note 10
7	10/04/2018	Section Rewrite
8	01/09/2018	Replace Max permitted weights in GB and NI table as Annex 3
9	09/12/2019	Multi-stage plates clarified in MOI.

20 Installation of Lights

Application: All Trailers

Method of Inspection	Required Standard
The examiner will perform a visual check of all lamps and reflectors fitted to the trailer to ensure the correct colour light is visible to the front or rear and that no light emitting surfaces are obscured. Lamp/reflector **lateral position** is measured from the extreme outer edge of the trailer (disregarding tyres, mirrors, lamps, and reflectors) to the edge of the illuminated area (or reflective surface on a reflector) nearest that side of the trailer. Lamp/reflector **vertical position** is measured from the ground: • In the case of the **minimum** height to the lower edge of the illuminated area (reflective surface on a reflector). • In the case of the **maximum** height to the top edge of the illuminated area (reflective surface on a reflector). Additional reflectors fitted to O3/O4 trailers do not have to be triangular in shape. Modular trailers as defined in the foreword of this manual may be fitted with non-permanently fixed lamp unit or units and conspicuity. These units must be fitted at time of examination and have permanent locating devices to enable them to be fitted in one position only. All lamps will need to meet location requirements and angles of visibility. The positioning of the rear lamps will define the "Rear" of the trailer for the purpose of examination.	**1.** The trailer must be fitted with lamps or retro reflective material only capable of showing a white light to the front except for: • an amber light from a direction indicator • An amber light from a hazard beacon/warning lamp • a yellow light from a conspicuity marking material • an amber light from a side marker light • a green light from an ABS light • emergency vehicles only, a blue light from an external warning lamp or beacon **2.** The trailer must be fitted with lamps or retro reflective material only capable of showing a red light to the rear except for: • an amber light from a direction indicator • an amber light from a hazard beacon/warning lamp • a white light from a work lamp, reversing lamp, interior lamp, or a registration plate lamp • a yellow light from a rear registration plate • a yellow light from a conspicuity marking material • an amber light from a side marker light • emergency vehicles only, a blue light from an external warning lamp or beacon. **3.** The operation of any lamp must not affect any other lamp or be affected by the operation of any other lamp, unless specifically designed to do so.

Method of Inspection	Required Standard
If workshop tools or equipment are required to reinstate the function of a lamp that 'lamp' should be considered not 'fitted'. If a stop lamp meets the criteria of an optional lamp and is 'fitted', i.e., connected it must operate. Two or more lamps (see “A” and “B” in Figure 4), whether identical or not, having the same function and emitting light of the same colour are considered to be one lamp if the aggregate illuminated area of the lamps occupies 60% or more of the area of the smallest rectangle circumscribing those illuminated areas. **Note 1:** This does not apply to rear retro reflectors which must be visible at all times.	**4.** All lamps, reflectors and rear markers must be securely fitted to the trailer and not move by swivelling, deflecting, or otherwise while the trailer is in motion, except for a work lamp, used to illuminate a working area or the scene of an accident, breakdown, or road works in the vicinity of the trailer 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 • front and rear position lamps • front and rear indicators • rear retro reflectors must fulfil one of the following conditions: **a.** half (50%) of the apparent surface of the lamp or reflector is visible from directly in front of / behind as appropriate the trailer, **or** **b.** additional fully visible lamp (s) / reflectors satisfying all requirements for the above lamps / reflectors are activated / visible, **or** **c.** a notice on the trailer must inform the user that in certain positions of the movable components, other road users should be warned of the presence of the trailer on the road (e.g., by laying out a warning triangle) (see **Note 1**).

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.

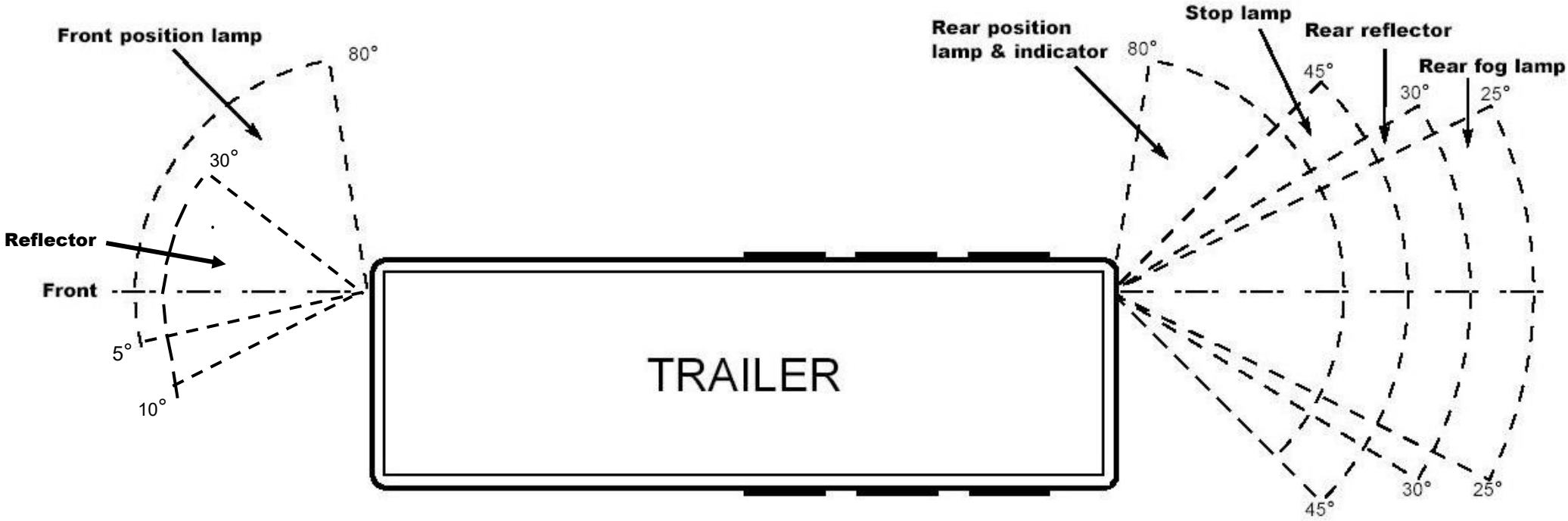


Figure 2
Vertical Angles of Visibility

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.

Front Position Lamps, Retro Reflectors, and Indicators (including Side Repeaters)
‘a’ = less than 750mm above ground level.
‘b’ = 750mm or more above ground level.
‘ar’ = Front retro reflector less than 750mm above ground level
‘br’ = Front retro reflector more than 750mm 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.

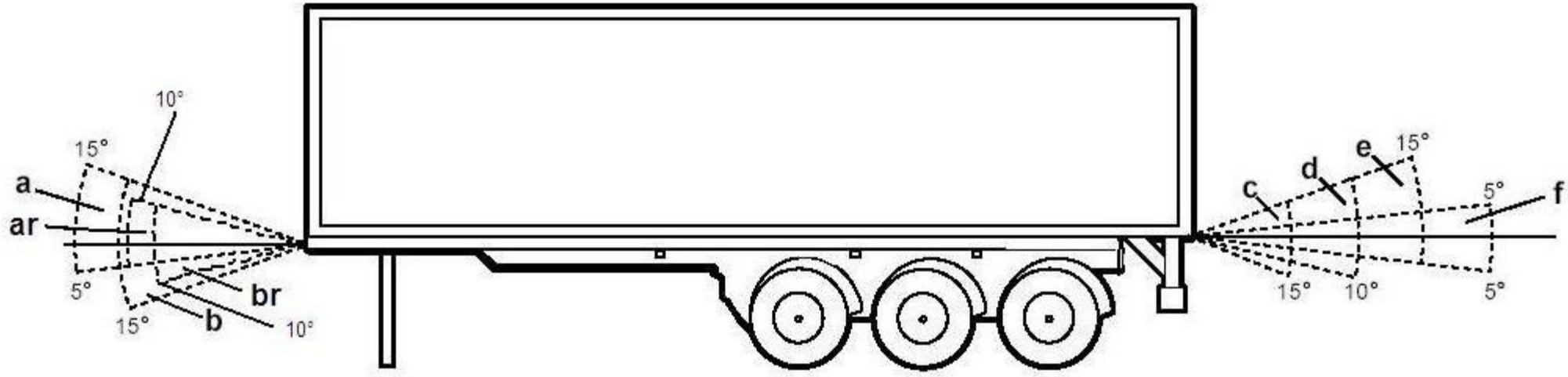


Figure 3
"To the rear" of the trailer means "in an area the sides of which are at an angle of 15 degrees out from the extreme outer edge of the trailer, (starting from the rear corner) and extending up to **25m** from the rear of the trailer (measured along the trailer longitudinal).

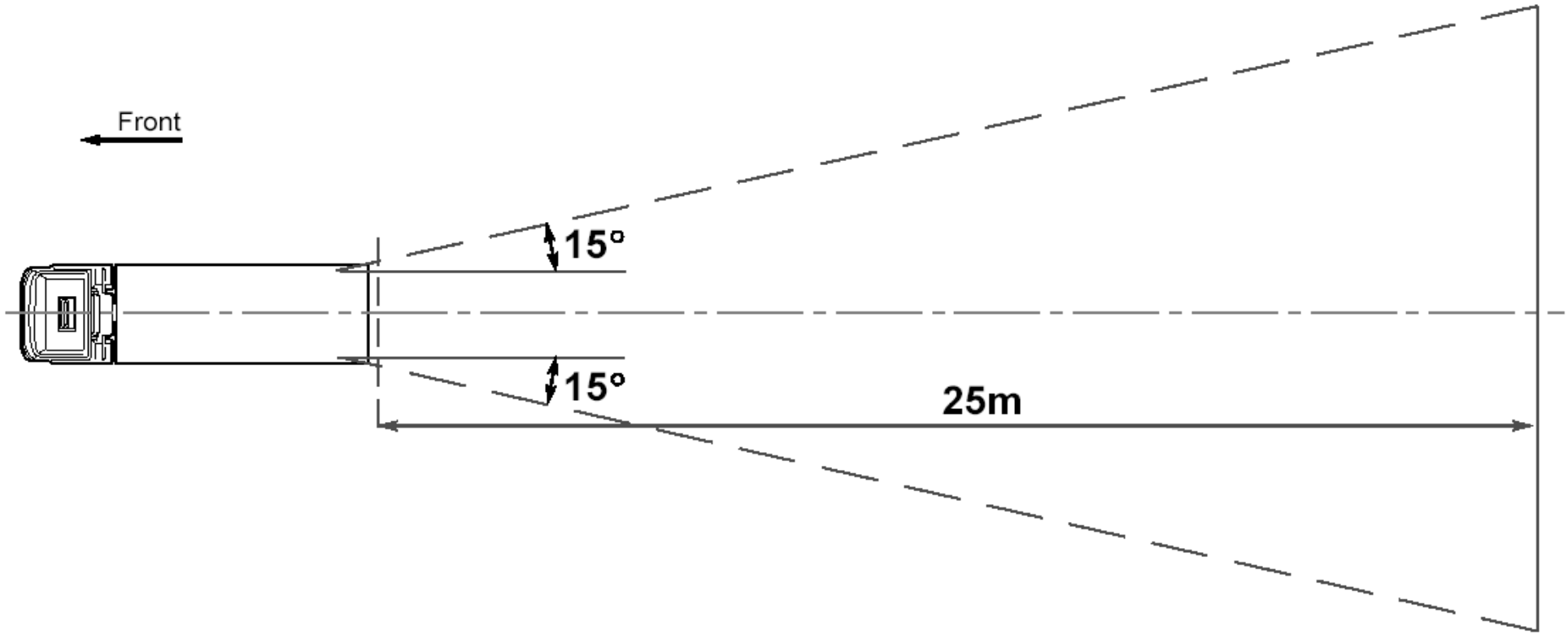


Figure 4

If the total of the red area is 60% or more of the area drawn around the lamps, the lamps are considered to be one lamp.

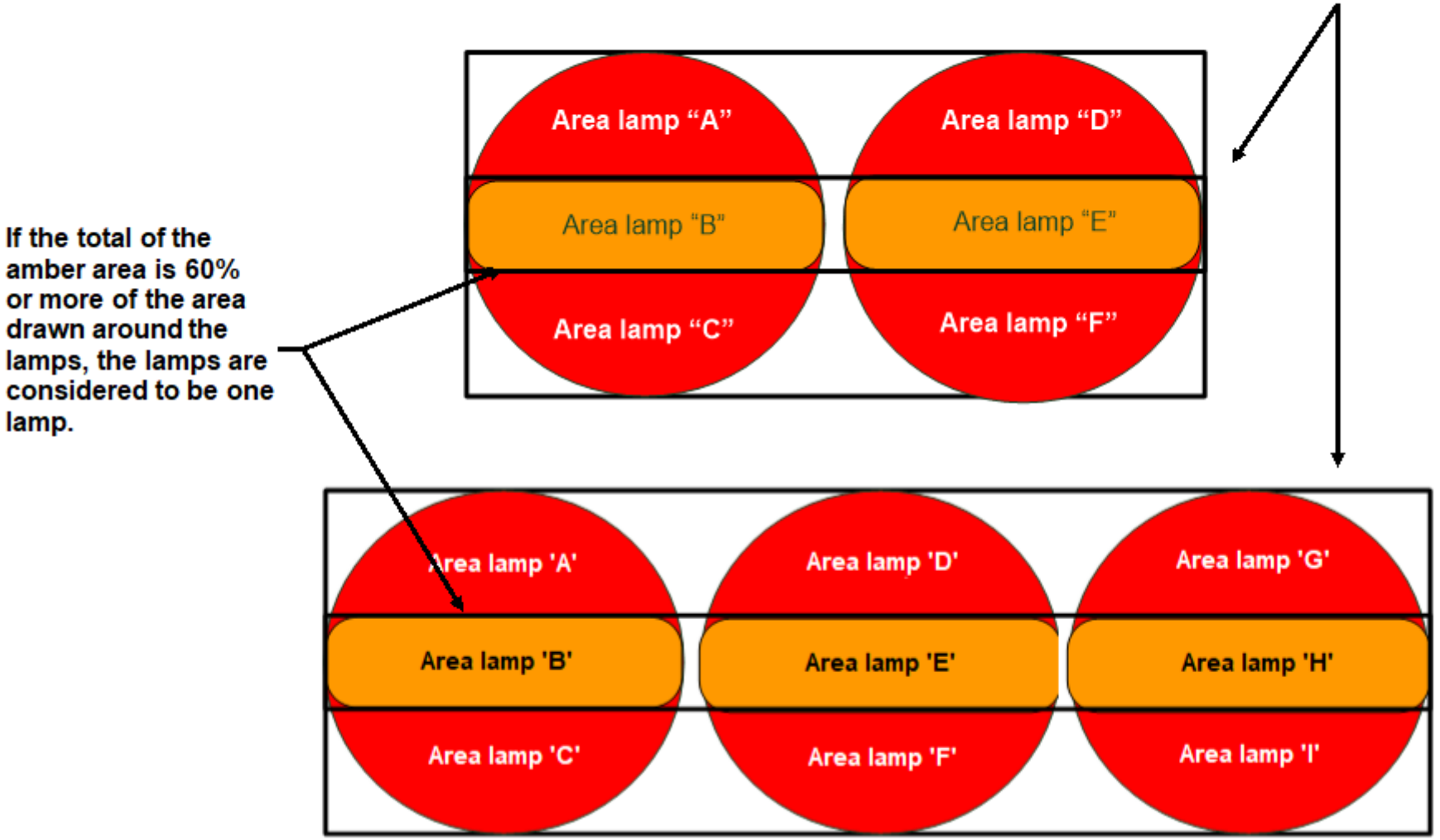
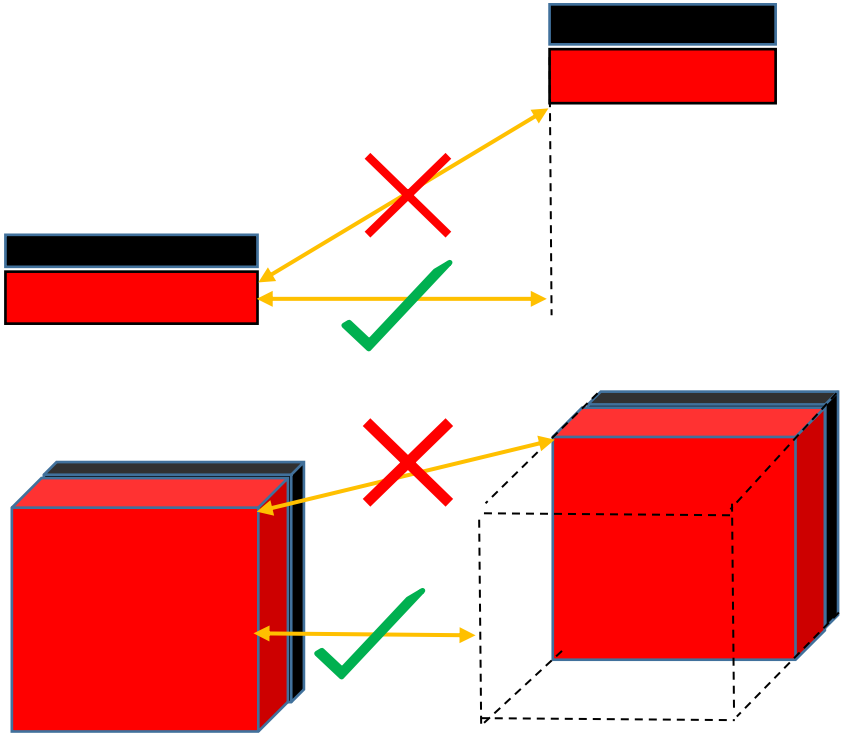


Figure 5

The methodology for assessing lamp separation.



Measuring lamp separation viewed in plan form (from above).

Measuring the same lamp separation viewed in end elevation (Directly behind the vehicle)

Reg 48.03 EOM (6.13.9) requirements:
The position of an end outline marker lamp in relation to corresponding position lamp shall be such that the distance between the projections on a transverse vertical plane of the points nearest to one another on the apparent surfaces in the direction of the respective reference axes of the two lamps considered is not less than 200 mm.
Note: Check each lamp against its specified separation dimension in its section of the manual. This applies equally to Conspicuity Markings

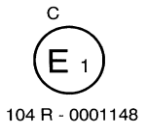
Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Add new RS 4 and renumber remaining standards
3	30/02/2012	Add exemptions to allowed light in RS 1 & 2
4	29/10/2012	Add angles of visibility of reflectors in Figures 1 & 2.
5	29/10/2013	Insert text in Note 2, correction to Figure 1, and amend Table 1 Side Retro-Reflectors (Application), insert new Fig. 4
6	29/10/2014	Add new Note 3
7	10/04/2018	Revise notes, rearrange RSs & add MOI Modular Trailers
8	09/12/2019	New Figure 5 added

21 Retro Reflectors

Application: (Reflectors) All Trailers, (Conspicuity Markings) O3 & O4 trailers more than 6 metres long and more than 2.1 metres wide. (Optional on O2 trailers; prohibited on O1 trailers.)

Method of Inspection	Required Standard
Carry out a visual check of all mandatory retro reflectors, conspicuity marking, and rear markers fitted to the trailer for colour, number, approval markings and correct positioning. Trailers are required to have a full contour marking on the rear, i.e., horizontal and vertical markings to outline the shape of the trailer, and partial contour markings on the side. Partial contour markings consist of a horizontal line showing the length of the trailer and 'tick' marks showing the upper corners of the trailer. (See figure 1, 2 & 3). **Note 1:** Geometric angles of visibility and positional requirements are not required for all optional reflectors and rear markers. **Note 2:** RS 1 is not applicable to O1 – O2 trailers imported from outside the EU. **Note 3:** Where the shape, structure, design or operational requirements make it impossible to install the mandatory contour marking, a line marking is acceptable (see figure 6).	**Retro reflectors:** **1.** All reflectors must be 'e' or 'E' marked and where applicable, bear the appropriate identity marking as listed in Table 1 (see **Note 2**). **2.** The correct number must be fitted to the trailer (Table 1). **3.** The correct colour must be fitted to the trailer (Table 1). **4.** They must be positioned to meet (see **Note 1**) **a.** the positional requirements of Table 1 **b.** the angles of visibility requirements of Table 1 **5.** They must be of the correct shape (Table 1). **6.** Rear reflectors must face predominately to the rear. **Conspicuity Markings; trailers above 3500kgs:** **7.** Full or partial conspicuity markings must be fitted (see **Note 3**). **8.** Conspicuity Markings must only be applied to the correct category of trailer (see application). **9.** All conspicuity marking material must be of an approved type (see **Note 4**).

Method of Inspection	Required Standard
Note 4: Example of an Approval Mark  Symbol "C" indicates the class of the retro-reflective material which is intended for contour/strip marking. **Note 5:** Markings are considered continuous if gaps are less than 50% of the length of adjacent elements, However, if the manufacturer can prove to the satisfaction of the authority responsible for type approval that it is impossible to respect the value of 50 per cent, the distance between adjacent elements may be larger than 50 per cent of the shortest adjacent element, and it shall be as small as possible and not exceed 1000 mm. **Note 6:** If 1500mm is not practicable this can be increased to 2500mm. **Note 7:** Rear marker plates (R70.01) count towards cumulative total width of conspicuity marking. **Note 8:** Overall trailer length excludes the drawbar. **Note 9:** Rear markers are not required to be fitted if the trailer has been fitted with Conspicuity Markings that comply to the required standards of this section. **Note 10:** Where it is impractical to meet the dimension stated in RS21, e.g., due to the position of load covers or similar equipment, full or partial upper markings (where fitted) should be located as close as is practical to the upper extremity.	**10.** There must be at least one visible approval mark on an element of a retro-reflective marking material fitted to each face of the vehicle (o/s, n/s & rear figure 7). **11.** The maximum gap between adjacent elements must be no greater than 50% of the smallest adjacent element (see **Note 5**). **12.** The lowest edge must be between 250mm and 1500mm from the ground. (See **Note 6**). **13.** The minimum width of the markings must be at least 50mm. **14.** The maximum width of the markings must be no greater than 60mm. **Rear Conspicuity Markings; trailers over 3500kg and over 2.1m wide:** **15.** must be coloured either red or yellow **16.** must cover at least 70% of the overall trailer width (see **Note 7** & figure 5) **17.** must be at least 200mm away from any mandatory brake light (see figure 4 A) **Side Conspicuity markings; trailers over 3500kg and over 6 metres in length:** **18.** must be coloured either white or yellow **19.** must extend within 600mm of either end of the trailer (see figure 2) **20.** must cover at least 70% of the overall trailer length (see **Note 8** & figure 5) **If Full or Partial Contour Markings are fitted:** **21.** The maximum height must be as close as is practical to the top of the body (see figure 2 & **Note 10**).

Method of Inspection	Required Standard
Note 11: The 250mm must be measurable on a flat plane. If the mark is fitted to a shaped surface (e.g., corrugations) the mark must be extended so that at least 250 mm is visible from the side.	**22.** The vertical aspect of marking must be as close to the edge as practicable. (See figure 4 B). **23.** Each side of a Tick Marking must be at least 250mm (see figure 3 & **Note 11**). **Rear Markers; (O1, O2 if over 8m in length and all O3 and O4):** **24.** All rear markers must bear the appropriate approval marks. **25.** A minimum of one set of obligatory markers must be fitted to the trailer (see note 9 & Table 2). **26.** They must be positioned correctly to meet the positional requirements of Table 2 (see **Note 1**). **27.** They must be of the correct type (Table 2).

Table 1

TYPE	NUMBER	APPLICATION	COLOUR	POSITION			ANGLES OF VISIBILITY (see figure 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 Triangular (Optional reflectors may be any shape)	Min 2 Max any number Includes optional	Mandatory	Red	400 (Min separation 600 unless trailer width less than 1300, where Min separation 400)	900 (1200 if built into a lamp cluster) or if impracticable due to body 1500	250	a. Horizontal i. 30^0 inwards and outwards. b. Vertical i. < 750mm above the ground 15^0 above and 5^0 below horizontal. ii. otherwise 15^0 above and below horizontal	IIIA or IIIB "E" or "e"
Front Retro Reflectors Non-triangular	Min 2 Max any number Includes optional	Mandatory	White	150	900 or if impracticable 1500	250	a. Horizontal i. 10^0 inwards and 30^0 outwards. b. Vertical i. < 750mm above the ground 15^0 above and 5^0 below horizontal. ii. otherwise 15^0 above and below horizontal	IA or IB "E" or "e"
Side Retro Reflectors Non-triangular	See below	Mandatory on all trailers	Amber The rearmost may be red if within 1m of the rear	N/A	900 (1200 if built into a lamp cluster) or if impracticable due to body 1500	250	a. Horizontal 45° to the front and to the rear b. Vertical i. < 750mm above the ground 15^0 above and 5^0 below horizontal. ii. otherwise 15^0 above and below horizontal	IA or IB "E" or "e"

- At least one side reflector fitted to the middle third of the trailer
- The foremost side- reflector being not further than 3 m from the front
- The distance between two adjacent side- reflectors shall not exceed 3m (if bodywork makes it impracticable this distance may be increased to 4m)
- The distance between the rearmost side- reflector and the rear of the trailer shall not exceed 1 m

Figure 1

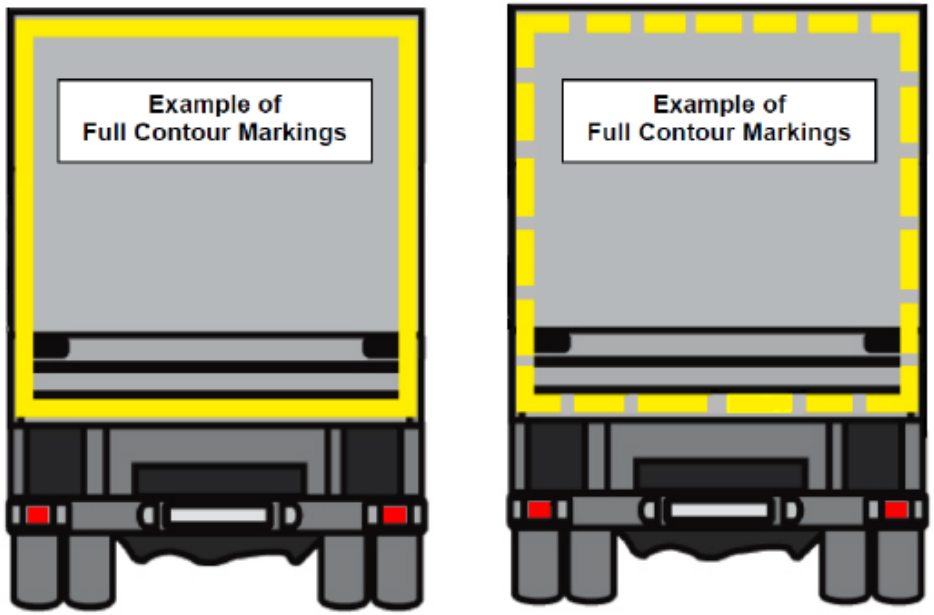


Figure 2

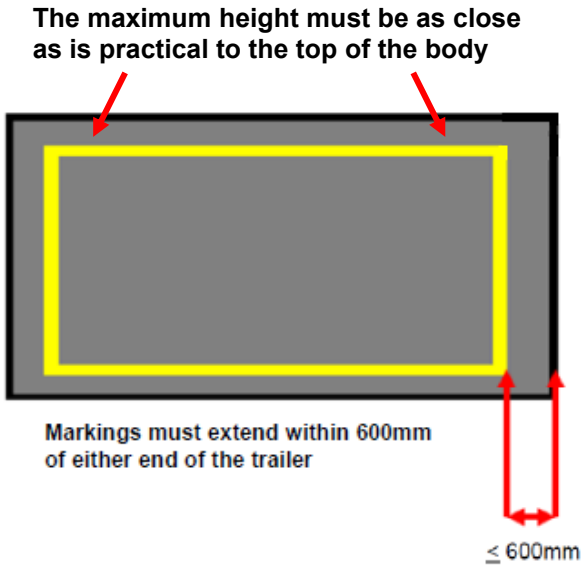
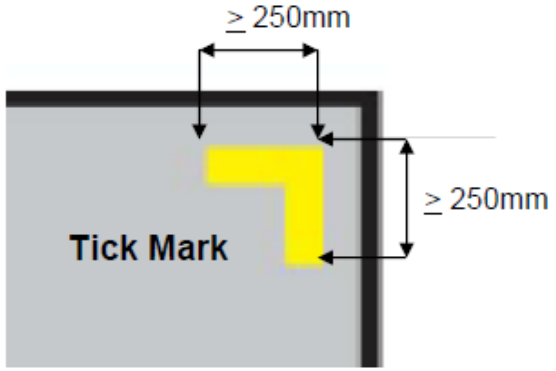


Figure 3



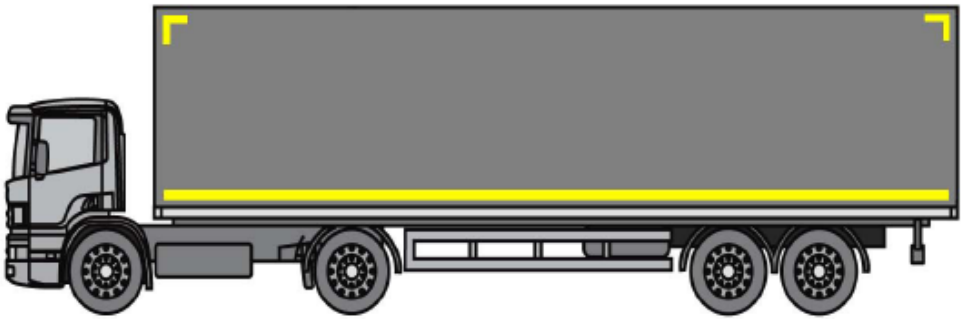


Figure 4

Rear marker plates are optional (A, B, C)

Where fitted rear marker plates may only be counted as contributing to the rear contour marking (C) provided they comply with UNECE Regulation 70.01

Marker plates approved to UNECE Regulation 70.00 do not count towards the conspicuity marking

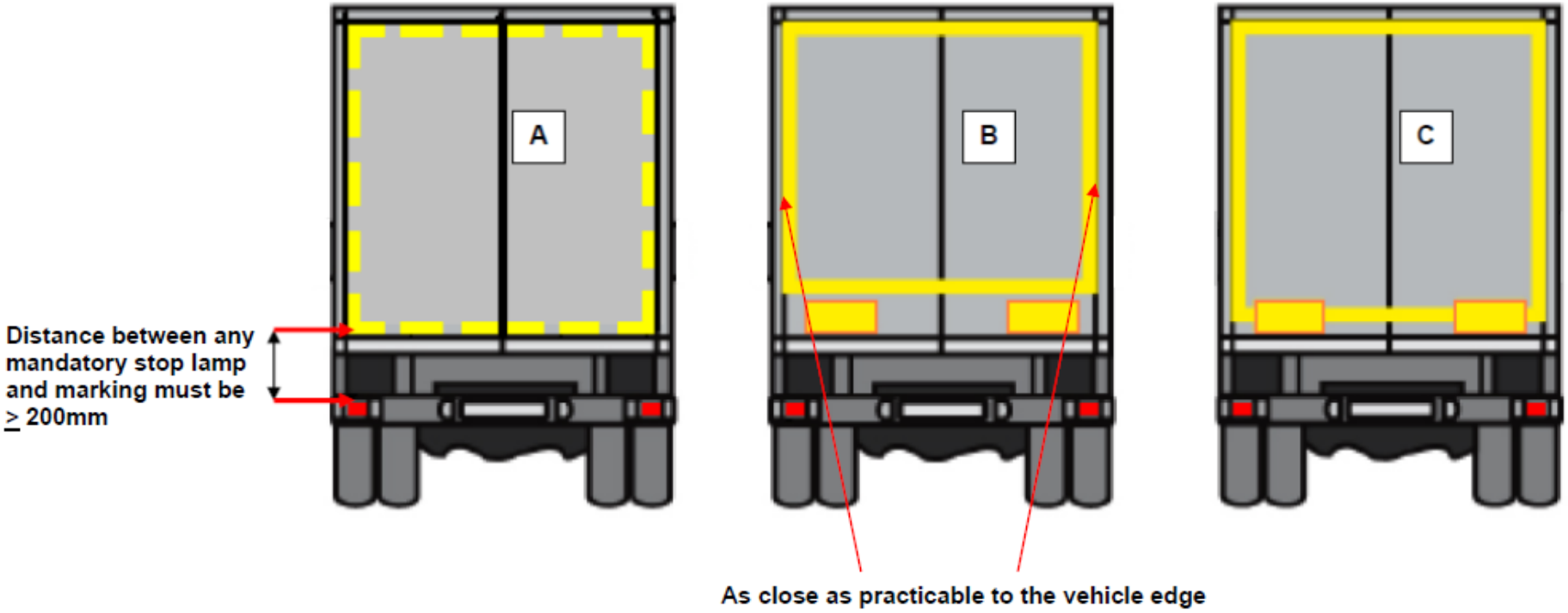


Figure 5

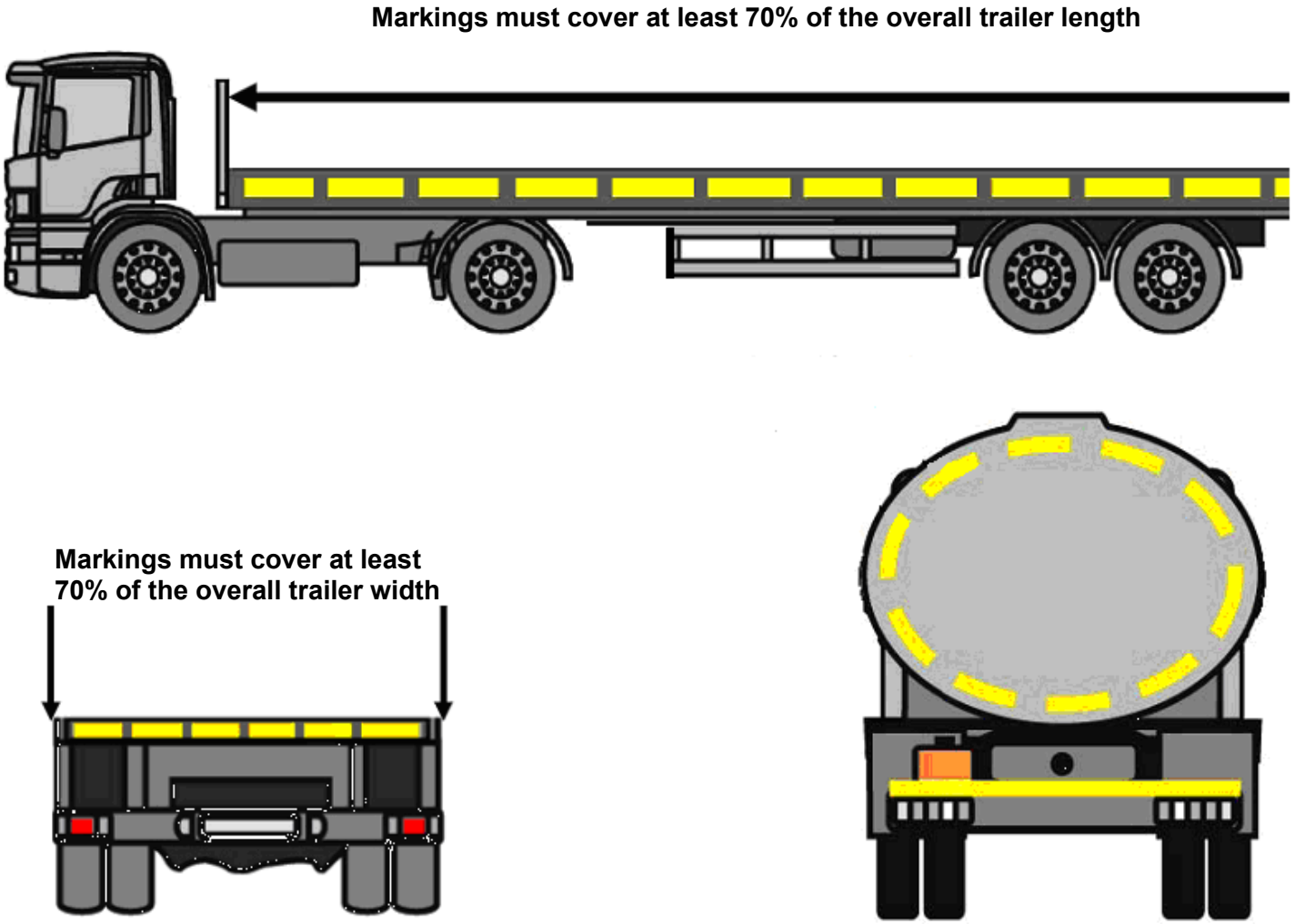
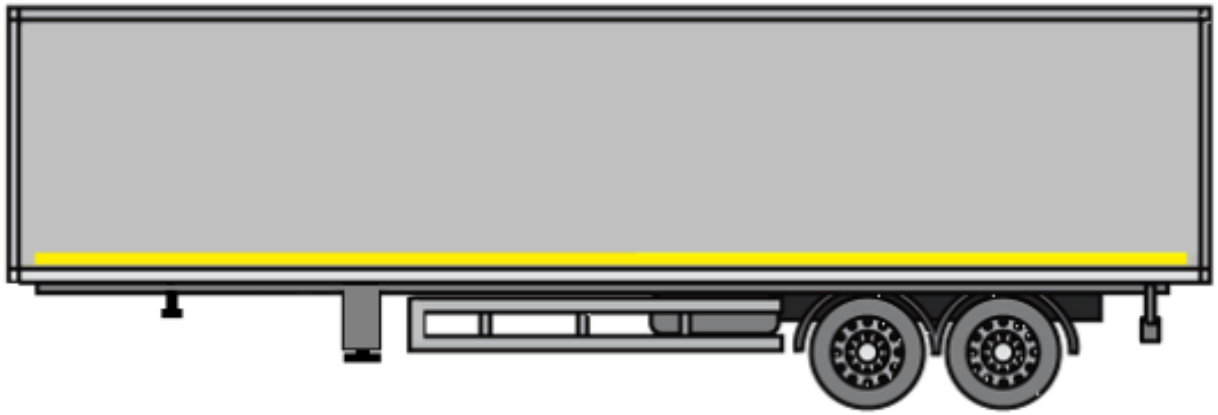
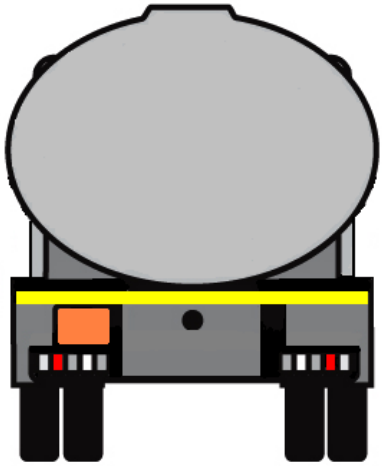


Figure 6

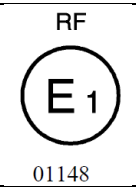
Typical examples of line markings





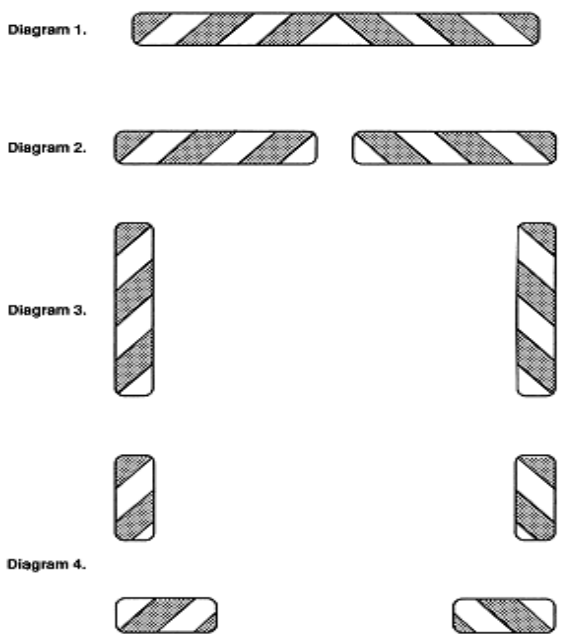
Retro Reflectors 21

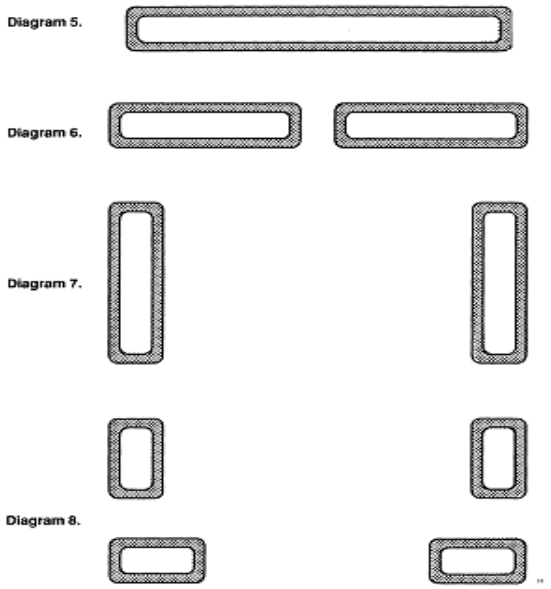
Table 2

1. Description	
A trailer if it forms part of a combination of vehicles the overall length of which does not exceed 11m:	A rear marking of a type shown in diagram 1, 2, 3 or 4 in Part III of this Section.
A trailer if it forms part of a combination of vehicles the overall length of which exceeds 11m but does not exceed 13m:	A rear marking of a type shown in Part III of this Section.
A trailer if it forms part of a combination of vehicles the overall length of which exceeds 13m:	A rear marking of a type shown in diagram 5, 6, 7 or 8 in Part III of this Section.
2. Position	
Longitudinal:	At or near the rear of the trailer.
A rear marking of a type shown in diagram 2, 3, 4, 6, 7 or 8 in Part III of this Section:	Each part shall be fitted as near as practicable to the outermost edge of the trailer so that no part of the marking projects beyond the outermost part of the trailer on either side.
A rear marking of a type shown in diagram 1 or 5 in Part III of this Section:	The marking shall be fitted so that the vertical centre-line of the marking lies on the vertical plane through the longitudinal axis of the trailer and no part of the marking projects beyond the outermost part of the trailer on either side.
Vertical:	The lower edge of every rear marking shall be at a height of not more than 1700mm nor less than 400mm above the ground whether the trailer is laden or unladen.
3. Visibility:	Plainly visible to the rear.
4. Alignment:	The lower edge of every rear marking shall be fitted horizontally. Every part of a rear marking shall lie within 20° of a transverse vertical plane at right angles to the longitudinal axis of the trailer and shall face to the rear.
5. Markings	An approval mark to ECE Regulation 70 or 70:01. Example Marking 
6. Colour:	Red fluorescent material in the stippled areas shown in any of the diagrams in Part III of this Section and yellow retro reflective material in any of the areas so shown, being areas not stippled and not constituting a letter.

Part III

Rear markings prescribed for Trailers (where required to be fitted)





Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Add Conspicuity Markings and more acceptable markings for reflectors
3	30/04/2012	Re-order Rs for conspicuity markings, amend text for marker boards
4	29/10/2012	Reword statements on Figure 4 & remove labelling from tanker on page 7
5	29/10/2013	Revise Application header, insert new note 2 & RS6, link RS24 to note 7 and revise requirement for side Retro-Reflectors in table 1.
6	29/10/2014	Add new note 2 and renumber remaining notes
7	10/04/2018	Added note 10 & 11 Add RS6
8	01/09/2022	Correction to Table 1 max. height for Rear and Side Retro Reflectors

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22 End-outline, Position (Side), Stop and Side Marker Lamps

Application: All Trailers

Method of Inspection	Required Standard
Carry out a visual check of all outline marker, position, stop, side marker and daytime running lamps fitted to the trailer for operation, colour, number, approval marks and correct positioning. This includes all optional lamps. With optional lamps check that fitment is permitted, and they do not exceed the maximum number of lamps of that type allowed to be fitted. In addition to the Required Standards, O3 & O4Trailers MAY have **EITHER** of (1) or (2) below: **(1) Direction indicator side repeater lamps:** Three category 5 side repeaters distributed as evenly as practicable along each side **OR** **(2) Flashing Side marker lamps** Mandatory amber side marker lamps may flash simultaneously with the direction-indicator lamps on the same side of the vehicle. **Only one of the above specific combinations is allowed, no other combination is acceptable.** Where (2) above is used, there is **NO** requirement for the side marker lamps to be marked in addition as side repeater lamps.	**1.** All lamps must be 'e' or 'E' marked and where applicable, bear the appropriate identity marking as listed in table 1 (see **Note 2**). **Front and Rear Position Lamps:** **2.** The correct number must be fitted to the trailer (Table 1). **3.** They must be operational. **4.** They must only emit white light to the front / red light to the rear. **5.** They must be positioned to meet (see **Note 1**) • the positional requirements of Table 1 • the angles of visibility requirements of Table 1 **Stop Lamps:** **6.** The correct number must be fitted to the trailer (Table 1). **7.** They must be operational. **8.** They must only emit red light. **9.** They must only illuminate when the service brake is applied and must extinguish when the service brake is released.

Method of Inspection	Required Standard
Note 1: Geometric angles of visibility and positional requirements are not required for all optional position lamps, stop lamps and end outline marker lamps. **Note 2:** RS 1 is not applicable to O1 – O2 trailers imported from outside the EU. **Note 3:** The inspection of the side marker lamps applies to the obligatory lamps fitted to all trailers exceeding 6m in length. **Note 4:** The inspection of end-outline marker lamps applies to the obligatory marker lamps fitted to trailers exceeding 2.10m in width. **Note 5:** Both front and rear end outline marker lamps can be combined in one device. **Note 6:** There is no requirement for special bracketry to be manufactured in order to accommodate these lamps.	**10.** They must be positioned to meet: (see **Note 1**) • the positional requirements of Table 1 • the angles of visibility requirements of Table 1 **Side Marker lamps: (see Note 3)** **11.** The correct number must be fitted to the trailer (in accordance with the positional requirements). **12.** They must be operational. **13.** They must emit an amber light (red is permitted if within 1 metre of the rear). **14.** They must be positioned to meet: the positional requirements of Table 1 the angles of visibility requirements of Table 1 **End Outline Marker Lamps: (**see **Notes 4, 5 & 6)** **15.** The correct number must be fitted to the trailer (Table 1). **16.** They must be operational. **17.** They must only emit red light to the rear / white light to the front. **18.** The lights must be a minimum of 200mm from a positional lamp. **19.** They must be positioned to meet: (see **Note 1**) the positional requirements of Table 1 the angles of visibility requirements of Table 1

Table 1

TYPE	NUMBER	APPLICATION	COLOUR	POSITION			ANGLES OF VISIBILITY (see figure 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	Not required on trailers for the carriage and launching of boats Mandatory on trailers over 1600mm wide Optional on other trailers	White	150	O1 / O2 2100 O3 / O4 1500 or if the structure makes this impossible / impractical 2100	350	a. Horizontal i. 5° 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	Mandatory	Red	400	1500 or if the structure makes this impossible / 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 600mm. 400mm if the overall width of vehicle is less than 1,300mm.	1500 or if the structure makes this impossible / impracticable 2100	350	a. Horizontal i. 45^0 inwards and outwards b. Vertical i. as rear position lamps.	S1 or S2 "E" or "e"
Stop Lamps (Optional)	Min 1 Max any number	Optional	Red	If 1 is fitted: as close to trailer 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 "E" or "e"

TYPE	NUMBER	APPLICATION	COLOUR	POSITION			ANGLES OF VISIBILITY (see figure 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	Mandatory on all trailers exceeding 2.10m wide	Front- White Rear - Red	As close as possible to the extreme edge and not more than 400mm from the edge		Front and Rear: as high as possible, where trailer structure exists to mount the lamps on (See note 5)	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	See below	All trailers where the length exceeds 6m (The length of trailers includes the drawbars) Not required on trailers for the carriage and launching of boats	Amber The rearmost marker may be red	N/A	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 (1) "E" or "e"

Side Marker Lamp Spacing

- at least one side-marker lamp must be fitted to the middle third of the trailer
- 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, if bodywork makes it impracticable this distance may be increased to 4 m
- the distance between the rearmost side-marker lamp and the rear of the trailer shall not exceed 1 m

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Add notes and link to standards
3	29/10/2013	Link RS1 to note 1, insert new note 5, revise front pos. lamps angles of viz. and min height of end outline marker lamps in Table 1
4	29/10/2014	Add new note 2 and renumber remaining notes
5	10/04/2018	New dimensions in table 1 stop lamps, MOI added regarding extra side repeaters/Flashing side marker lamps add RS 18

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23 Direction Indicators

Application: All Trailers

Method of Inspection	Required Standard
Carry out a visual check of all direction indicators fitted to the trailer for operation, colour, number, approval marks and correct positioning. With optional lamps check that fitment is permitted, and they do not exceed the maximum number of lamps allowed to be fitted. The inspection of hazard warning lamps applies to all the obligatory direction indicator and side repeater lamps fitted to the trailer. In addition to the Required Standards, O3 & O4Trailers MAY have **EITHER** of (1) or (2) below: **(1) Direction indicator side repeater lamps:** Three category 5 side repeaters distributed as evenly as practicable along each side **OR** **(2) Flashing Side marker lamps** Mandatory amber side marker lamps may flash simultaneously with the direction-indicator lamps on the same side of the vehicle. **Only one of the above specific combinations is allowed, no other combination is acceptable** Where (2) above is used, there is **NO** requirement for the side marker lamps to be marked in addition as side repeater lamps.	**Directional Indicators:** **1.** All lamps must be 'e' or 'E' marked and where applicable, bear the appropriate identity marking as listed in table 1 (see **Note 2**). **2.** They must be operational. **3.** The correct number must be fitted to the trailer (Table 1). **4.** They must flash at a rate of between 60 and 120 times a minute (with all mandatory indicators working, and with the engine running on the towing vehicle if initially below the requirement). **5.** All lamps must emit amber light. **6.** They must be positioned to meet (see **Note 1**) **a.** the positional requirements of Table 1 **b.** the angles of visibility requirements of Table 1 **Hazard Warning Lights:** **7.** The hazard warning device must operate all of the direction indicators simultaneously.

Method of Inspection	Required Standard
Note 1: Geometric angles of visibility and positional requirements are not required for all optional direction indicator lamps. **Note 2:** RS 1 is not applicable to O1 – O2 trailers imported from outside the EU.	

Table 1

TYPE	NUMBER	APPLICATION	COLOUR	POSITION			ANGLES OF VISIBILITY (see figure 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	Trailers On each side Rear – One O2,3 & 4 only - plus 2 optional all vehicles- Rear only Optional Up to 3 (category 5) or 1 (Category 6) if vehicle over 9m in length	Mandatory	Amber	400 (min separation 600 unless trailer width is less than 1300 where min separation is 400)	1500 or if impracticable 2100	350	a. Horizontal i. 80^0 outwards 45^0 inwards. b. Vertical i. < 750mm above the ground 15^0 above and 5^0 below horizontal. ii. Otherwise 15^0 above and below horizontal.	Rear 2a, 2b or 12 "E" or "e"

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Add text to MOI, link note to standards and amend maximum height figure
3	29/10/2014	Add new note 2
4	10/04/2018	MOI added regarding extra side repeaters/Flashing side marker lamps

24 Rear Registration Lamps

Application: All Trailers

Method of Inspection	Required Standard
Carry out a visual check of all rear registration plate lamps fitted to the trailer for operation, colour, and correct positioning. **Note 1:** RS 1 is not applicable to O1 – O2 trailers imported from outside the EU. **Note 2:** See section 4 Rear Registration Plate Space in conjunction with position of rear registration plate lamp.	**Rear registration plate lamps:** **1.** All lamps must be 'e' or 'E' marked (see **Note 1**). **2.** They must be operational. **3.** They must be able to be switched on and off with the front and rear position lights by operating one switch. **4.** They must only emit white light. **5.** They must be positioned sufficient to illuminate the rear registration plate.

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Remove the reference to optional lamps
3	29/10/2014	Add new note 1 and renumber remaining notes

28 Rear Fog Lamps

Application: All Trailers

Method of Inspection	Required Standard
Carry out a visual check of the rear fog lamps fitted to the trailer for operation, colour, number, approval marks and correct positioning. With optional lamps check that fitment is permitted, and they do not exceed the maximum number of lamps allowed to be fitted. **Rear Fog Lamp separation** distance must be measured between the “illuminating surface” of each lamp.	**Rear fog lamps:** **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 trailer (Table 1). **4.** They must only emit a red light. **5.** They must be positioned to meet **a.** the positional requirements of Table 1 **b.** the angles of visibility requirements of Table 1 **6.** Must not be operated by a brake control. **7.** Fitted so that the reflector is facing squarely to the rear. **8.** Where two rear fog lamps are fitted, they must form a matched pair. **9.** Where two rear fog lamps are fitted, they must operate as a matched pair.

Table 1

TYPE	NUMBER	APPLICATION	COLOUR	POSITION			ANGLES OF VISIBILITY (see figure 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 Trailers of 1300mm in width or greater	Red	At least one must be on centre line or to offside of trailer (Min separation distance from stop lamp 100) see MOI	1000 or for rear fog lamps grouped with any rear lamp, the maximum height may be increased to 1,200mm.	250	a. Horizontal i. 25^0 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. 5^0 above and below horizontal.	B or F "E" or "e"

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Remove the word “Optional” from application bar
3	29/10/2013	Amend RS8 & 9
4	10/04/2018	Amend maximum height requirements Table 1

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29 Reversing Lamps

Application: All Trailers of category O2, O3 & O4 (Optional O1)

Method of Inspection	Required Standard
Carry out a visual check of the reverse lamps fitted to the trailer for operation, colour, number, approval marks and correct positioning. A suitable towing vehicle **must** be used to check operation. With optional lamps check that fitment is permitted, and they do not exceed the maximum number of lamps allowed to be fitted. **Note 1:** RS 1 is not applicable to O1 – O2 trailers imported from outside the EU. **Note 2:** The geometric visibility is considered to be ensured if the reference axis of the respective device is directed outwards with an outward angle not exceeding 15° relative to the median longitudinal plane of the vehicle. The vertical aim of the two optional devices may be directed downwards.	**Reverse lamps:** **1.** All lamps must be 'e' or 'E' marked and where applicable, bear the appropriate identity marking as listed in Table 1 (see **Note 1**). **2.** They must be operational. **3.** The correct number must be fitted to the trailer (Table 1). **4.** All reverse lamps must emit white light. **5.** They must be positioned to face the rear and meet the positional requirements of Table 1. **If the optional reverse lamps are fitted to the side of the vehicle and used for slow manoeuvres in a forward motion (**see **Note 2).** **6.** The devices must be activated and deactivated manually by a separate switch. **7.** They must be automatically switched off if the forward speed of the vehicle exceeds 10 km/h, regardless of the position of the separate switch. In this case they shall remain switched off until deliberately being switched on again.

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	Optional on O1 Mandatory O2 – O4 Trailers up to 6000mm	White		1200	250	**Figure 3** **Section 20**	A or R "E" or "e"
	Min 2 mandatory Max 2 optional	Trailers with a length exceeding 6000mm					If optional lamps are fitted to the side of the vehicle Outwards Maximum 15° relative to the median longitudinal plane See Note 2	

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Reword RS 5
3	29/10/2013	Revise table 1 Max & Min number of lamps
4	29/10/2014	Add New Note 1
5	10/04/2018	Add MOI & Note 2 revise table 1
6	01/09/2018	MOI expanded to require suitable towing vehicle.

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36 Heating Systems

Application: All Trailers (if fitted)

Method of Inspection	Required Standard
Ensure that the trailer presented has satisfactory evidence of compliance to the required standard. Heating Systems must be fitted as to present no danger to passengers or other persons. **Note 1:** A combustion heater requires documentary evidence, or an 'E' marked component plus an Installation Check. **Note 2:** A permanent notice stating that the heating system must not be used, and the gas cylinder valve must be closed when the vehicle is in motion or words to that effect.	**Combustion Heater** **1.** The trailer must be accompanied by satisfactory evidence of compliance with the required standard for "Heating Systems" (see **Note 1**). **Combustion heater Installation Check** **2.** It must be positioned so that it is not likely to cause injury. **3.** Heater utilising a liquid or gaseous fuel must be fitted to the manufacturer's instructions. **4.** 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). **5.** It must be positioned so that it is not likely to cause injury. **6.** It must be positioned so exhaust gases are not likely to enter the accommodation / exhibition compartment.

Method of Inspection	Required Standard
	LPG heating systems for stationary use only (see **Note 2**) **7.** Permanent warning labels/pictograms must be attached: ○ on the compartment where portable LPG cylinders are stored **and** ○ in close proximity to the control device for the heating system,

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	29/10/2013	Insert new note 1 & RS7
3	10/04/2018	Reword Note, renumber RSs

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42 Lateral Protection System (Side Guards)

Application: All Trailers of category O3 and O4

Method of Inspection	Required Standard
A trailer of category O3 or O4 is not required to be fitted with a separate lateral protection device, providing the sides of the trailer are so designed and/or equipped that by their shape and characteristics their component parts together meet the requirements in standards 2 to 18. On a trailer fitted with extendible legs to provide additional stability during loading, unloading or other operations for which the trailer is designed, the side guard may be arranged with additional gaps where these are necessary to permit extension of the legs. On a trailer equipped with anchorage points for ro-ro transport, gaps shall be permitted within the side guard to accept the passage and tensioning of fixing lashings. An extendable trailer must comply with all the relevant requirements, when in its closed (non-extended) position. **Exempt Trailers (including STGO):** Semi-trailer where the distance from the king pin to the foremost axle centre is less than 4.5m. Vehicle transporters (trailers designed to carry other vehicles loaded onto it from the rear) exempt where the chassis rails are on the extremities of the vehicle.	**1.** Where the side of the body does not meet the requirements, a side guard device must be fitted. **Requirements for both body sides and separate devices**; **Required area to be protected:** **2.** The device or body side must have its rearward edge extended to within 300mm of the tyre on the first rear axle (see **Note 1** & figure 1). **3.** On a draw bar trailer the front edge of the guard must be no more than 500mm to the rear of the rearmost part of the tyre on the wheel immediately forward of the guard (see **Note 1**). **4.** On a centre axle trailer the front edge of the guard must extend no further than the front of the bodywork, (if any), or the chassis where the drawbar connects and must not affect normal manoeuvrability of the trailer. **5.** On a semi-trailer the front edge of the guard must be no more than 250mm to the rear of the centre line of the support legs, but in any case, never more than 2.7m behind the centre of the king pin. (See figure 1) **6.** The device or body side must be within 350 mm of the body line (see **Note 2**). **7.** The device or body side lower edge must be no higher than 550 mm from the ground.

Method of Inspection	Required Standard
Low Loader if the upper surface of load platform <750mm above the ground. Gulley emptiers, where fitting of a lateral protection device prevents the use of the suction tube (not merely hinders). Trailers specially designed and constructed for the carriage of very long loads of indivisible length, such as timber, steel bars, etc. Trailers specifically designed and constructed for a purpose where the fitment of a lateral protection device would prevent the use of that equipment fitted (not merely hinders). A tank-trailer designed solely for the carriage of fluid substance in a closed tank permanently fitted to the vehicle and provided with hose or pipe connections for loading or unloading, shall be fitted with side guards which comply so far as is practicable with all the requirements of this section; strict compliance may be waived only where operational requirements make this necessary. Road Recovery Trailer (O4 trailer used under STGO). Modular trailers as defined in the foreword of this manual. **Note 1:** The measurement is taken to a vertical plane extending from the surface of the tread closest to the guard or relevant body work. **Note 2:** The 'Body Line' is that part of the structure of the trailer, cut or contacted by a vertical plane tangential to the outer surface of the tyres, except in the following cases: Where the plane does not cut the structure of the trailer, the upper edge shall be level with the surface of the load-carrying platform,	**Within the defined area the following standards must be met:** **8.** The device or body sides must be constructed of a suitable material and must be of sufficient strength as to offer effective protection to unprotected road users (see **Note 3**). **9.** The device or body side must have a smooth or horizontally corrugated surface (see **Note 4**). **10.** Any external edges and corners must be rounded with a radius of at least 2.5mm. **11.** There must be no projecting brackets, bolt heads, or similar protrusions (see **Notes 5 and 6**). **12.** The device or body side must be continuous in length (see **Note 7**). **13.** The device or body side must not have the rearward end more than 30mm inboard from the outermost edge of the rear tyres over at least the last 250mm of the device / body. **Where equipment is incorporated into the side guard:** **14.** The equipment must have a smooth substantially flat or horizontally corrugated outer surface. (See **Note 4**). **15.** There must not be a gap of more than 25 mm between it and the guard or body side (see **Notes 7 & 8** and figures 2 & 4). **16.** Where necessary the equipment must meet any required dimensional requirement as if it was part of the device. **17.** There must be no projecting brackets or hinges unless suitably radiused from all aspects (see **Notes 5 and 6**).

Method of Inspection	Required Standard
or 950mm from the ground, whichever is the less. Where the plane cuts the structure of the trailer at a level more than 1.3m above the ground, then the upper edge of the side guard shall not be less than 950mm above the ground. **Note 3:** "Unprotected Road Users" means pedestrians, cyclists or motor cyclists using the road in such a way that they are liable to fall under the sides of the vehicle and be caught under the wheels. **Note 4:** Any adjacent parts may overlap providing that all overlapping edges face rearwards or downwards. **Note 5:** Dome shaped bolt heads and rivets, or other parts provided they are similarly rounded and smooth protruding to a maximum of 10mm in height are acceptable. **Note 6:** Where items protruding less than 5mm are added to the outer surface of Lateral Protection Devices, the edges only require blunting; corners will however require a radius of at least 2.5mm in two planes. **Note 7:** Combinations of surfaces and rails shall be considered as a continuous side guard as long as the gaps between them are no greater than 25mm. **Note 8:** A gap of 130mm either side of a crane / stabiliser leg is permitted (see figure 4). **Note 9:** “Open Space”, is defined as a gap of more than 25mm. **Note 10:** The inward measurement is taken at 90 degrees to the longitudinal plane of the trailer from the outer face of the guard; the	**18.** It must not have protruding bolt heads or similar protrusions (see **Notes 5 and 6**). **19.** Any external edges and corners must be rounded with a radius of at least 2.5mm. **Additional requirements for separate devices:** **20.** The device must be attached securely. **21.** The device must consist of at least one horizontal rail (see **Note 2**). **22.** Where more than one horizontal rail is used, the rails must be not more than 300mm apart. **23.** O3 trailers the horizontal rails must have a section height of at least 50 mm (figure 3A). **24.** O4 trailers the horizontal rails must have a section height of at least 100 mm (figure 3B). **25.** It must have a forward-facing edge of at least 100 mm. **26.** The side guard must be no more than 150mm inboard from the outermost plane of the trailer. **27.** It must not increase the overall width of the trailer.

Method of Inspection	Required Standard
actual face of the portion turned inwards may be between 90 and 45 degrees from the same plane towards the front of the trailer.	**28.** The device must not be used for the attachment of air or hydraulic brake pipes. **29.** Where the forward edge lies in open space (see **Note 9**) then the following requirements must be met: - a. There must be a continuous vertical member extending over the whole height of the device. b. For O3 trailers, the outer and forward faces must measure at least 50 mm rearward and be turned 100 mm inwards (see **Note 10** and figure 3). c. For O4 trailers, the outer and forward faces must measure at least 100 mm rearward and be turned 100 mm inwards (see **Note 10** and figure 3).

Figure 1

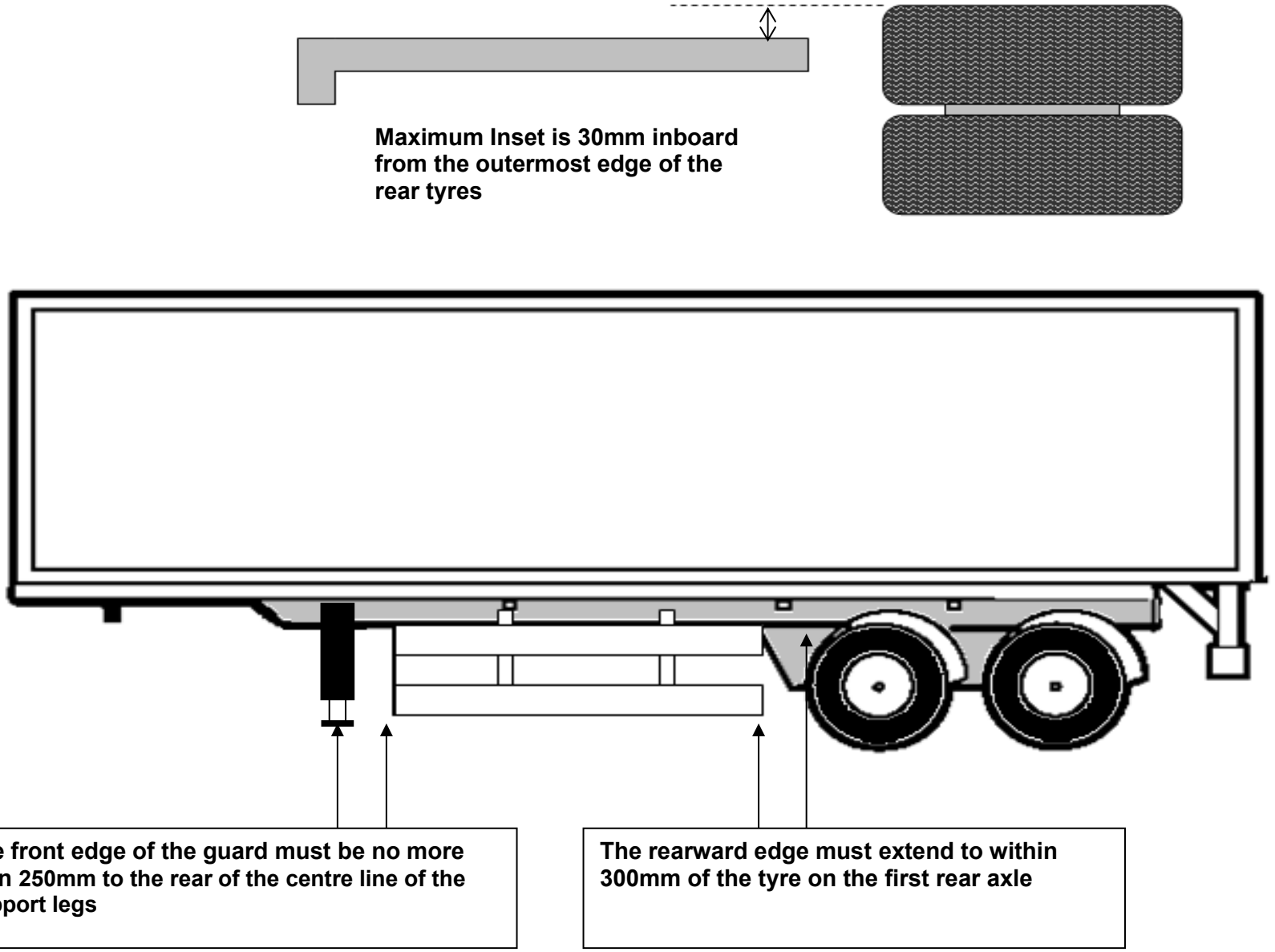

Maximum Inset is 30mm inboard from the outermost edge of the rear tyres
The front edge of the guard must be no more than 250mm to the rear of the centre line of the support legs
The rearward edge must extend to within 300mm of the tyre on the first rear axle

Figure 2

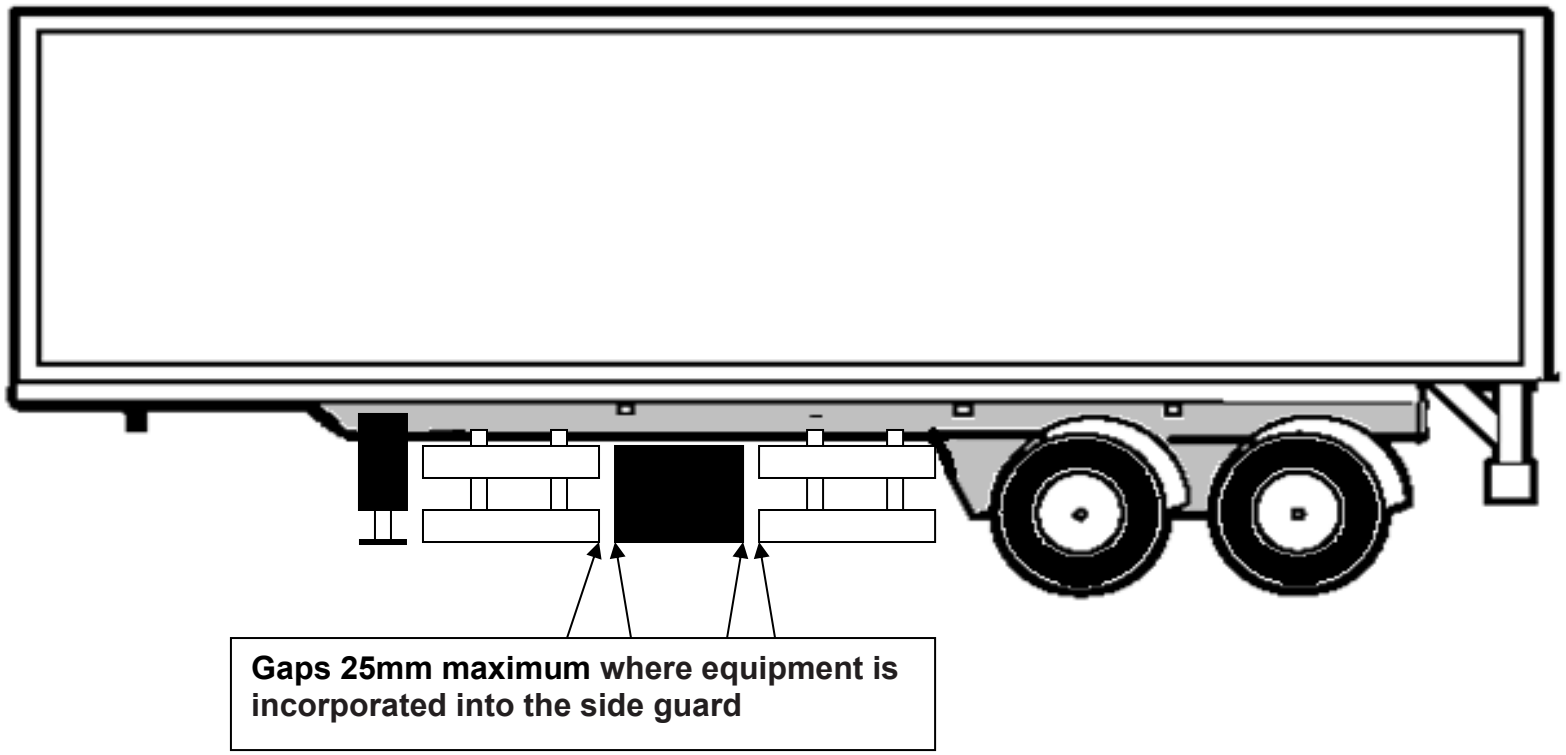

Gaps 25mm maximum where equipment is incorporated into the side guard

Figure 3A

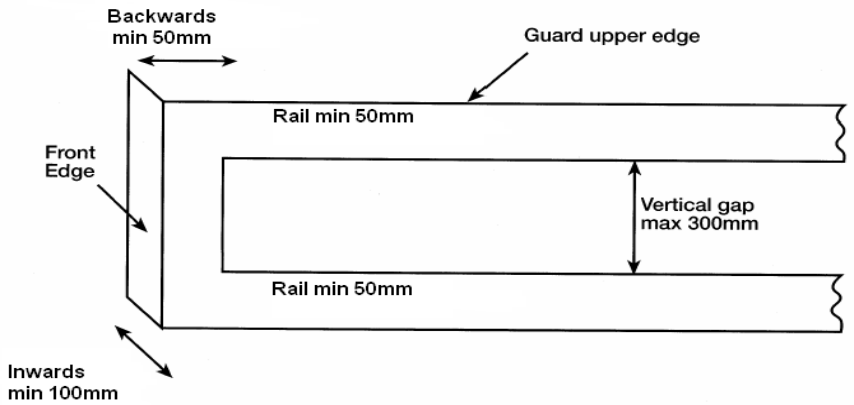


Figure 3B

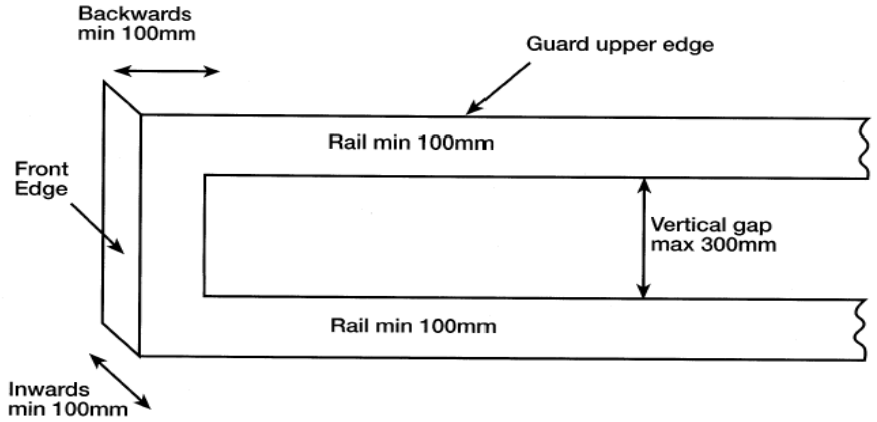
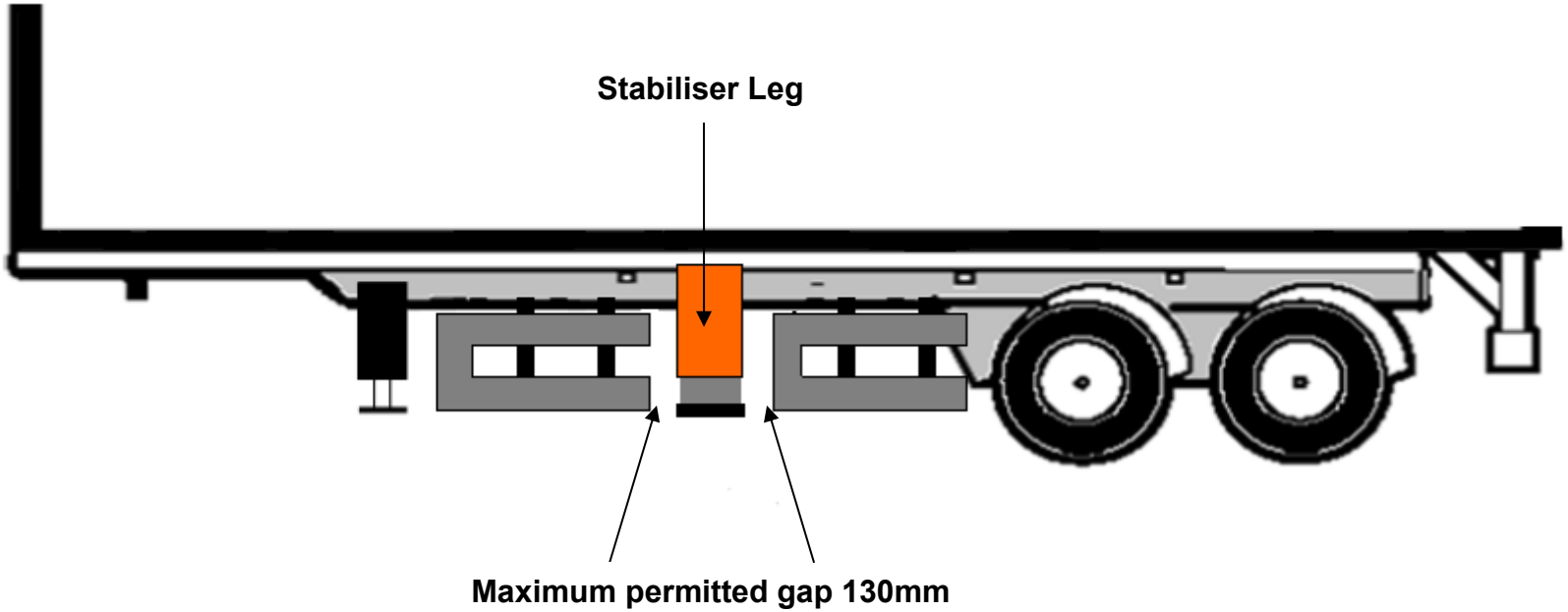


Figure 4



Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Add exemptions, add text to required standards and add figure 4
3	30/04/2012	Amend exemptions
4	29/10/2013	Amend RS1 & 2, insert new RS4
5	29/10/2014	Add STGO Exemption
6	10/04/2018	Modular trailers added to exemptions RS 7, 9 & 11 revised, Note 9 added, figure 1,& 3 revised & RS23 & 24 reversed .

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43 Spray Suppression

Application: All Trailers of category O3 and O4

Method of Inspection

All road wheels must be fitted with Spray Suppression devices.

Exempt Trailers :

Vehicle Type	Exemption Provided
Trailers with tipper bodies – side tipping or rear tipping	Tippers with open-backed bodies are exempt from spray suppression but require mud guards.
Trailers designed to carry timber, beams, or girders of exceptional length	Trailers specially designed and constructed for the carriage of very long loads of indivisible length, such as timber, steel bars, etc. are exempt from spray suppression but require mudguards.
Refuse trailers (including skip),	Exemption from spray suppression but will require mud guards.
STGO Modular Trailers	Exemption from BOTH spray suppression and mudguards.
Mudguards must comply with RS 4, 5, 6 & 7	

STGO Exempt Vehicles:

Abnormal Indivisible Load (AIL) Trailers that meet at least one of the following:
> 2.55m wide
> 12m long
Cat 2 <80T
Cat 3 <150T
>150T

Required Standard

Component Check

1. Every road wheel must be fitted with a Spray Suppression system.
2. All Spray Suppression material must be of an approved type (see **Notes 1 and 2**).
3. All components must be secured so that they perform their function.

Installation Check

Mudguards (fitted in combination with energy absorption materials).

4. must fully cover the zone immediately above, ahead and behind any part of the tyre or tyres.
5. in the case of non-steered wheels must have the lower front edge no more than 45 degrees above the horizontal line of the axle (**A** on figure 1).
6. in the case of steered wheels must have the lower front edge no more than 45 degrees above the horizontal line of the axle (**A** on figure 1).
7. must have the lower rear edge no more than 100mm above the horizontal line of the axle (**C** on figure 1).

Method of Inspection	Required Standard
Definitions **Mudguard** Is a device to prevent as far as practical mud or water being thrown from a tyre. They may be formed using parts of the body or they may be an entirely separate unit. **Outer Valances** Are usually strips of material that are fitted longitudinally across a wheel space attached at one end to a rain flap to form an outer wheel arch lip, a vertical downward face that closes off what would be an open area. **Rain flaps** Can be a flexible extension to a mudguard or it may form the rear most vertical face of a mudguard in conjunction with the body, in this latter case it must be treated as a mudguard and be securely fixed to prevent excessive movement. **Lifting axles** Where a trailer is fitted with one or more lifting axles, the spray-suppression system must cover all the wheels when the axle is lowered and the remaining wheels which are in contact with the ground when the axle is raised. **Self-tracking axles** Where a trailer is fitted with a self-tracking axle, the spray-suppression system must satisfy the conditions applicable to non-steered wheels if mounted on the pivoting part. If not mounted on that part, it must satisfy the conditions that are applicable to steered wheels. **Note 1:** All spray suppression materials must be either e marked or be accompanied by an e marked sample of the material to permit the examiner to make a comparison.	**8.** must have Spray Suppression material fitted to the front face of the rear of the guard facing the tyre tread, complying with the dimensional requirements of figure 1. and 3. **9.** that consist of several components must have no gaps between or within individual parts when assembled that will permit the exit of spray when the trailer is in motion. **Additional standard where Separate Mudguards are fitted (in combination with air/water separation to multiple axle configurations).** **10.** where the distance between the tyres on adjacent axles does not exceed 300 mm the mudguards must also conform to the model shown in Figure 7. **Alternative Standards from standards 4-10 where the body forms the mudguards (and energy absorption systems are fitted).** **11.** must cover the zone above the tyre or tyres from the front edge of the tyre to the rain flap located behind the wheel (see Figure 5). **12.** must have their inner faces made from or be fitted with a spray suppression material. **Outer Valances (with energy absorption Spray Suppression systems installed).** **13.** fitted to steered and self-steered wheels must have its vertical face within 100mm of the tyre wall (**D** on figure 2) (see **Note 3**). **14.** fitted to non -steered wheels must have its vertical face within 75 mm of the tyre wall (**D** on figure 2) (see **Note 3**). **15.** must have a depth of at least 45mm, at all points behind a vertical line passing through the centre of the wheel (see Figure 2).

Spray Suppression 43

Method of Inspection	Required Standard
Note 2: 'Spray-suppression device' means part of the spray-suppression system, which may comprise: **Air/water separator:** This is a component forming part of the valance and/or of the rain flap through which air can pass whilst reducing pulverized water emissions. **Or** **Energy absorber:** This is a component forming part of the mudguard and/or valance and/ or rain flap which absorbs the energy of water spray, thus reducing pulverized water spray. **Note 3:** Where rope hooks are fitted the outer valance may meet the requirements of figure 6 as an alternative. **Note 4:** The maximum height of the bottom edge of the rain flap in relation to the ground, may be raised to 300 mm if the manufacturer deems it technically appropriate with regard to the suspension characteristics e.g., 'road friendly' suspension.	**16.** fitted to steered wheels must have the lower edge within1.8 x tyre radius at points A, B and C as shown in Figure 4. **17.** fitted to non - steered wheels must have the lower edge within1.5 x tyre radius at points A, B and C as in Figure 4. **18.** must have no openings in them or between them and other parts of the mudguard enabling spray to emerge. **Alternative standards (to 13 -18) for Outer Valances (where the body forms the mudguard over non steered or self-steering wheels and an energy absorption spray suppression system is installed).** **19.** must be located above each wheel of multiple axles where a rain flap is fitted between each wheel. See figure 5. . **20.** must have the entire inner surface fitted with an energy-absorption spray-suppression material. **21.** must be a minimum of 100mm high. **22.** must have no openings in them or between the outer valance and the inner part of the mud guard enabling spray to emerge. . **23.** must be continuous where rain flaps are not fitted behind each wheel, they must extend between the outer edge of the rain flap and a vertical plane passing through the front edge of the tyre. See figure 5. **Outer Valances (with air/water separation Spray Suppression systems installed).** **24.** must have air/water separator spray-suppression devices fitted to the lower edges.

Method of Inspection	Required Standard
	25. must have a depth of at least 45mm, at all points behind a vertical line passing through the centre of the wheel **26.** fitted to steered wheels must have its lowest edge within 1.05 x tyre radius see figure 7 **27.** fitted to non-steered wheels must have its lowest edge within 1 x tyre radius see figure 7 **28.** must have no openings in them or between them and the mudguard enabling spray to emerge **29.** in the case of non-steered wheels must have the lower front edge no more than 20 degrees above the horizontal line of the axle (**A** on figure 1) **30.** in the case of steered wheels must have the lower front edge no more than 30 degrees above the horizontal line of the axle (**A** on figure 1) **Rain Flaps: (where energy absorption Spray Suppression systems are installed)** **31.** must be at least equal to the full width of the tyre(s) **32.** must be vertical **33.** must have the lower edge no more than 200 mm above the ground (see **Note 4**) **34.** must be no more than 300 mm from a vertical plane passing through the rearmost edge of the tyre

Method of Inspection	Required Standard
	35. must have no openings between the rain flap and the lower edge of the wheel guard enabling spray to emerge **36.** must have the whole face made of spray suppression material **37.** must be fitted to the rearmost axle of multiple axles where distance between the tyres on adjacent axles is less than 250 mm **38.** must be fitted behind each wheel of multiple axles when the distance between the tyres on adjacent axles is 250 mm or greater **Rain Flaps: (where the body forms the mudguard and energy absorption Spray Suppression systems are installed)** **39.** must extend to the lower part of the mud guard and comply with standards 29 to 36 **Rain Flaps (where air/water Separation Systems are installed)** **40.** must be at least equal to the full width of the tyre(s) **41.** must be vertical **42.** must have no openings between the rain flap and the lower edge of the wheel guard enabling spray to emerge **43.** must be fitted to the rearmost axle of multiple axles where distance between the tyres on adjacent axles is less than 250 mm **44.** must be fitted behind each wheel of multiple axles when the distance between the tyres on adjacent axles is 250 mm or greater **45.** must not be more than 200 mm from the rearmost edge of the tyre, measured horizontally **46.** must be at least 100 mm deep

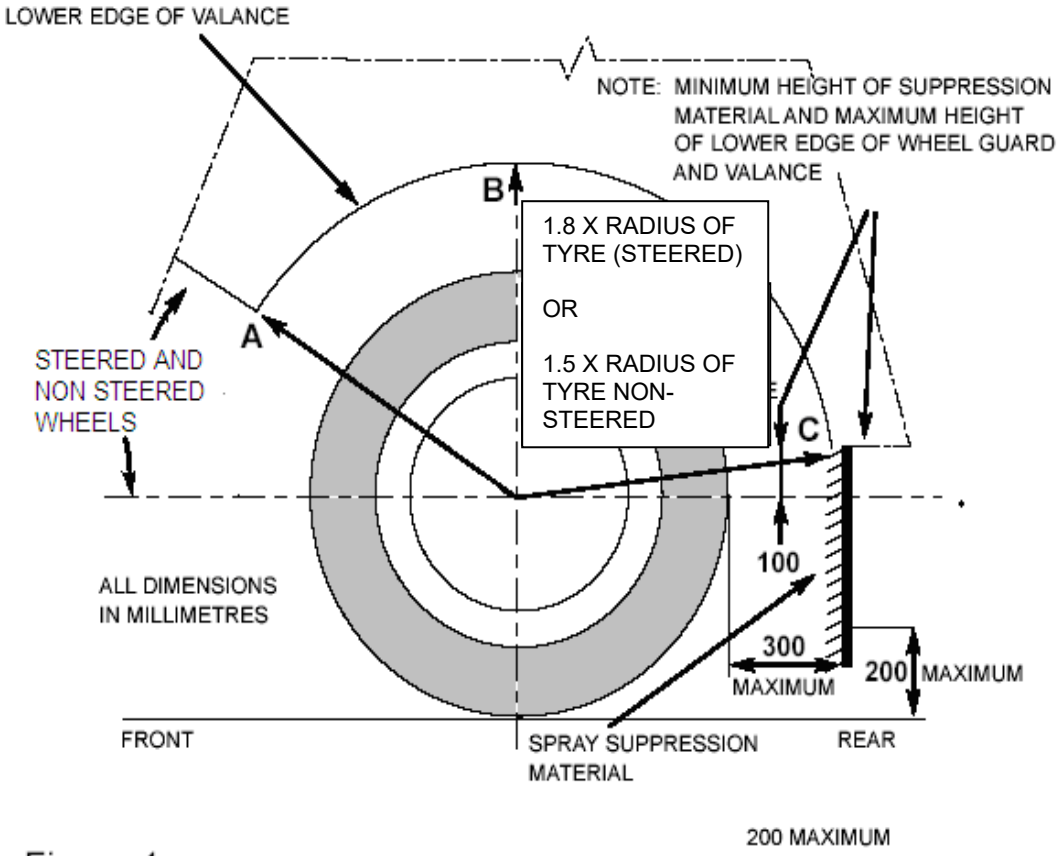


Figure 1

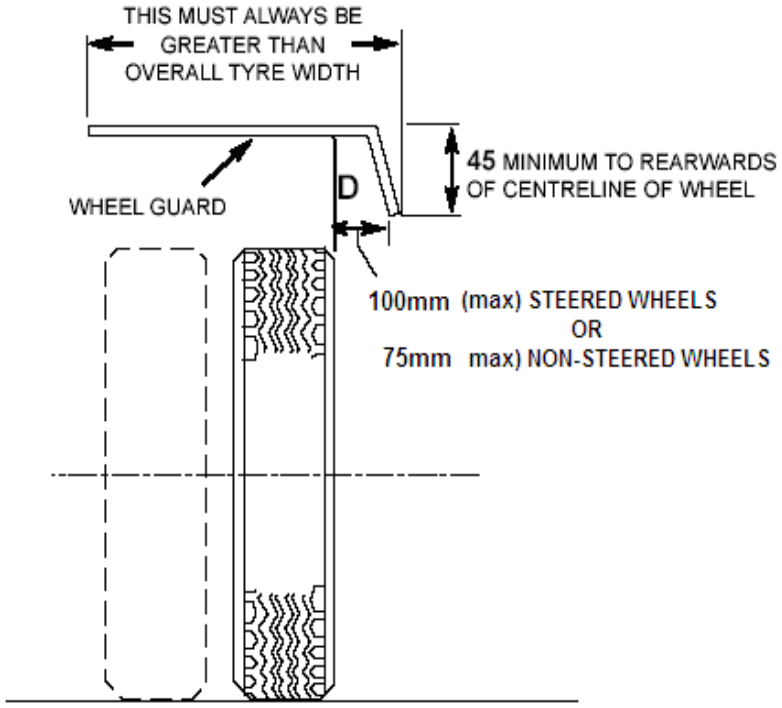


Figure 2

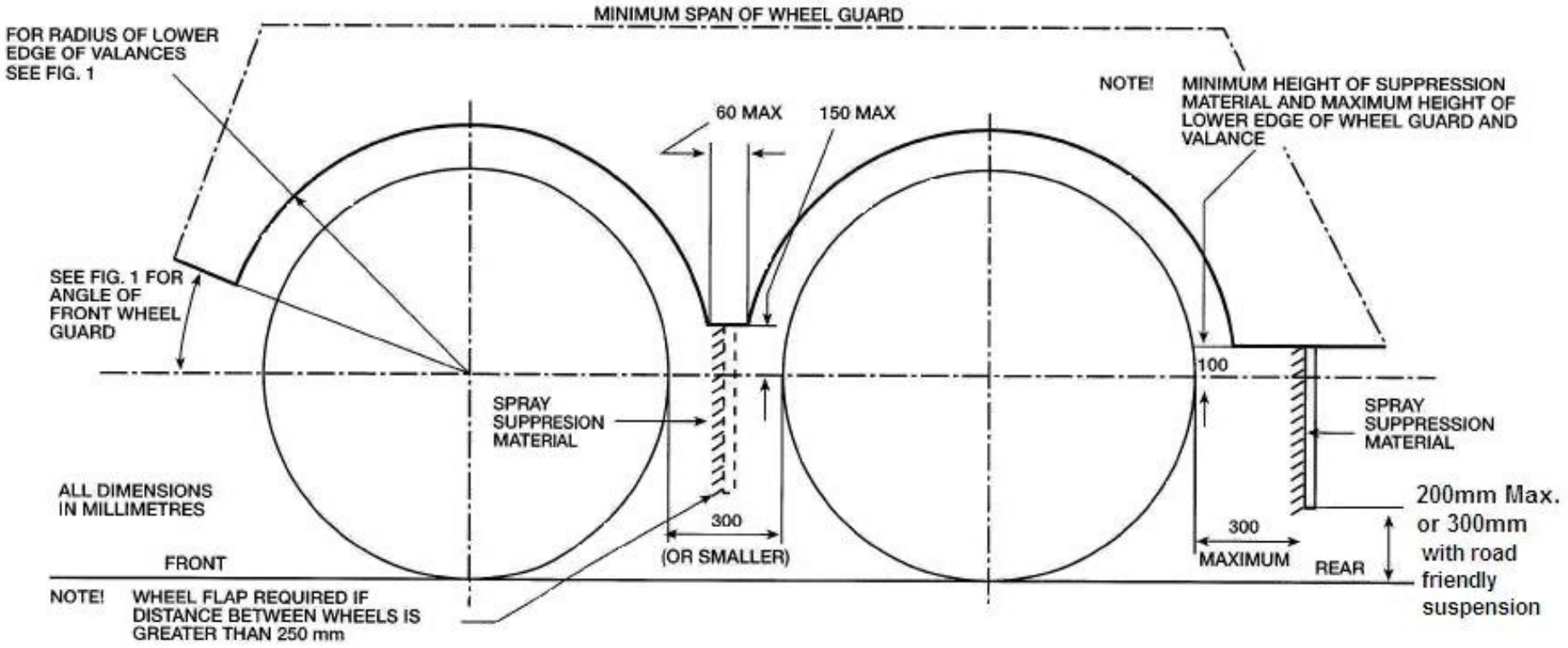

MINIMUM SPAN OF WHEEL GUARD
FOR RADIUS OF LOWER EDGE OF VALANCES SEE FIG. 1
NOTE! MINIMUM HEIGHT OF SUPPRESSION MATERIAL AND MAXIMUM HEIGHT OF LOWER EDGE OF WHEEL GUARD AND VALANCE
60 MAX
150 MAX
SEE FIG. 1 FOR ANGLE OF FRONT WHEEL GUARD
100
SPRAY SUPPRESION MATERIAL
SPRAY SUPPRESSION MATERIAL
ALL DIMENSIONS IN MILLIMETRES
300
(OR SMALLER)
300
MAXIMUM
200mm Max. or 300mm with road friendly suspension
FRONT
REAR
NOTE! WHEEL FLAP REQUIRED IF DISTANCE BETWEEN WHEELS IS GREATER THAN 250 mm

Fig. 3

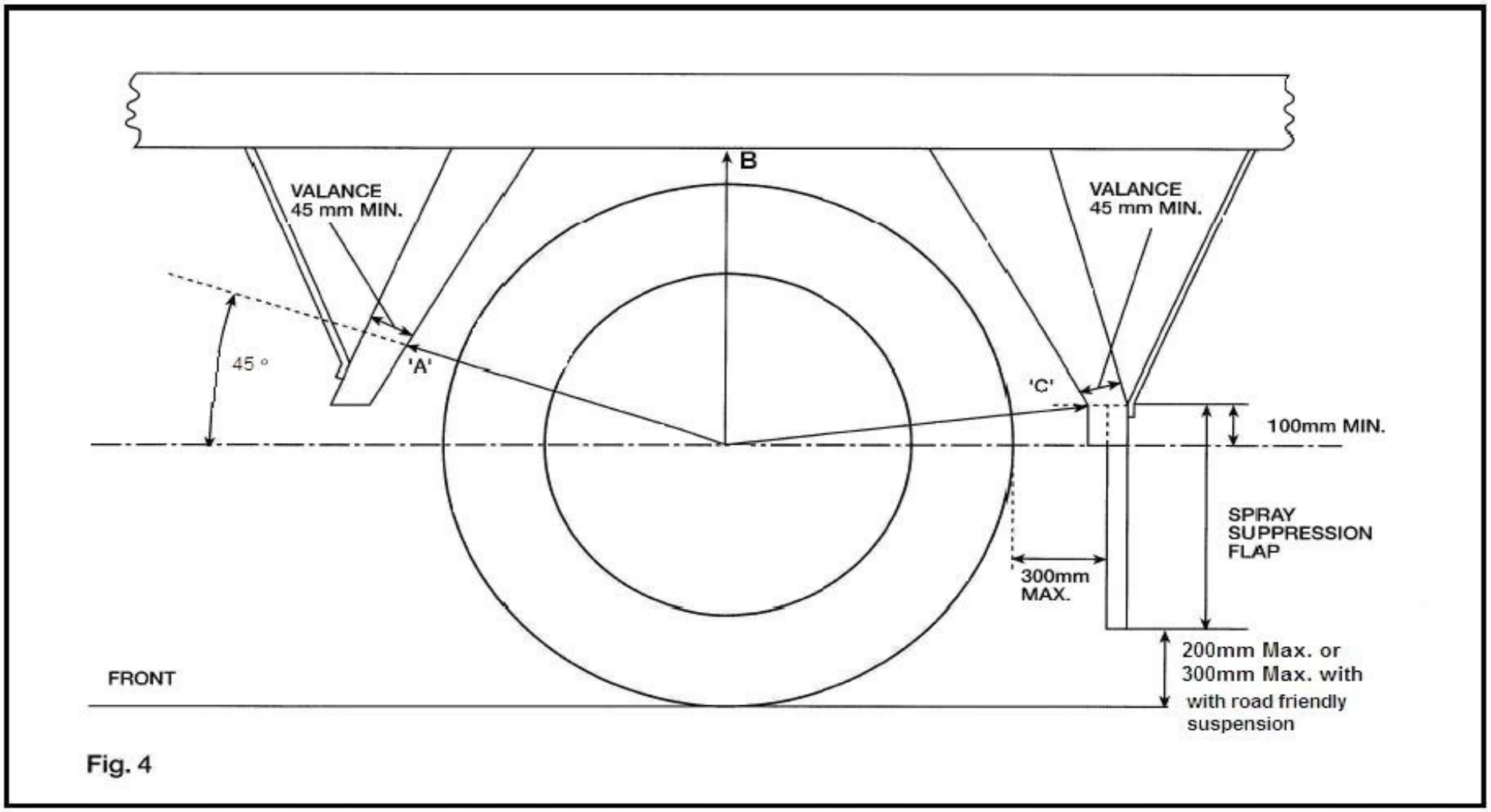


Fig. 4

The lower edge of the outer valance shall not exceed 1.8 X tyre radius on steerable wheels, or 1.5 X tyre radius on non-steerable wheels at points A, B & C

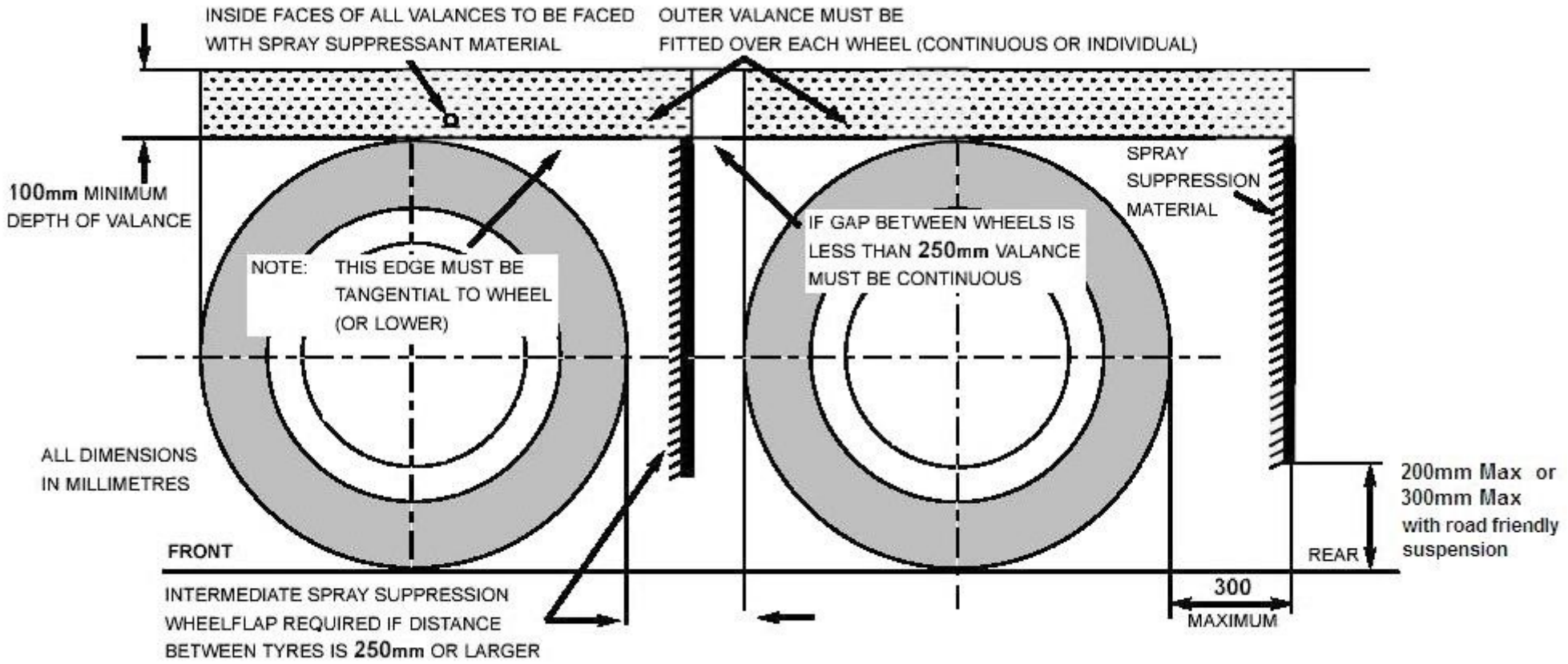
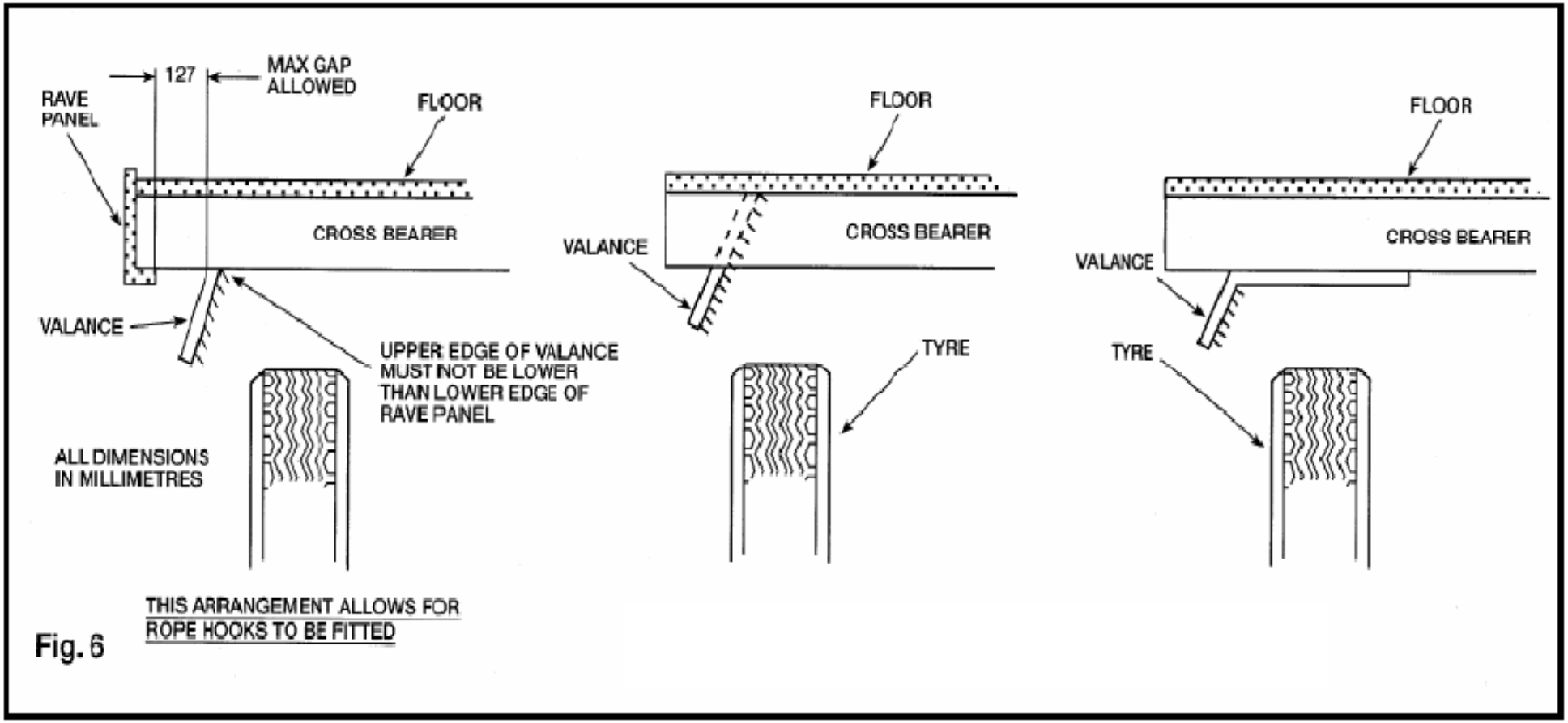

INSIDE FACES OF ALL VALANCES TO BE FACED WITH SPRAY SUPPRESSANT MATERIAL
OUTER VALANCE MUST BE FITTED OVER EACH WHEEL (CONTINUOUS OR INDIVIDUAL)
100mm MINIMUM DEPTH OF VALANCE
NOTE: THIS EDGE MUST BE TANGENTIAL TO WHEEL (OR LOWER)
IF GAP BETWEEN WHEELS IS LESS THAN 250mm VALANCE MUST BE CONTINUOUS
SPRAY SUPPRESSION MATERIAL
ALL DIMENSIONS IN MILLIMETRES
FRONT
REAR
200mm Max or 300mm Max with road friendly suspension
300 MAXIMUM
INTERMEDIATE SPRAY SUPPRESSION WHEELFLAP REQUIRED IF DISTANCE BETWEEN TYRES IS 250mm OR LARGER

Figure 5



THIS ARRANGEMENT ALLOWS FOR ROPE HOOKS TO BE FITTED

Fig. 6

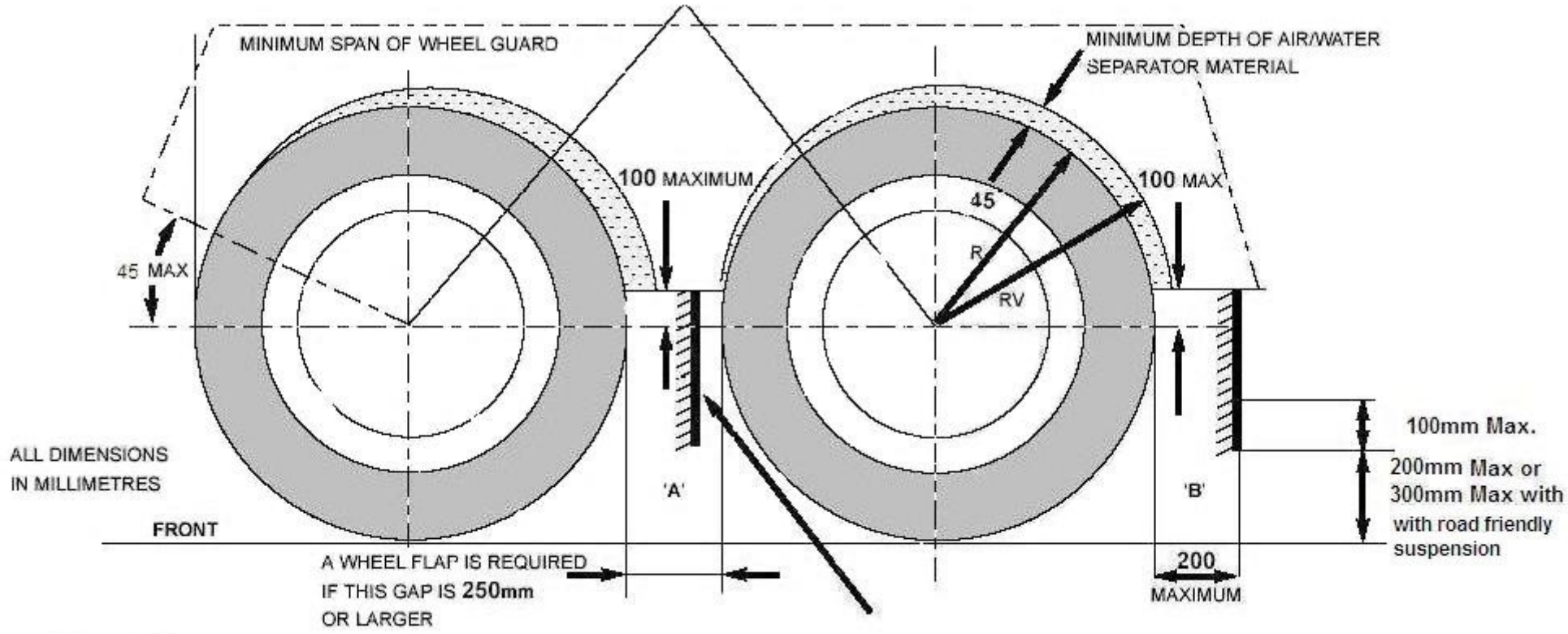


Figure 7

where R = is the radius of tyre fitted to the trailer;
RV = the radial distance from the lowest edge of the outer valance to the centre of the wheel.

RV $\leq$ 1.05 on steered wheels
RV $\leq$ 1.00 on non-steered wheels

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Add exemptions
3	29/10/2013	Amend angle of mudguard front edge in RS5 & 6 and in Figures 1, 4 & 7 insert new RS24 & 25
4	29/10/2014	Add STGO Exemption, add Note 4 and change figures 3, 4, 5 and 7
5	10/04/2018	STGO added to trailer exemptions, reword rain flaps, align RS 23 with Figure 5, amend RS 16,17,22 & 23 revise text figures 1 & 4
6	01/09/2020	STGO AIL Trailer exemption clarified

45 Safety Glass

Application: All Trailers

Method of Inspection	Required Standard
Check that all windows / partitions are securely attached to the trailer and are constructed from approved materials. The inspection of internally glazed panels applies to a partition or screen divider used in the accommodation / exhibition compartment. 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. **Note 1:** "Safety Glazing" made from glass or plastic must be so constructed or treated that if fractured it does not fly into fragments likely to cause severe cuts. Each piece of "Glazing" must display the relevant permanent marking applied by the glass manufacturer. Example of marking  **Note 2:** Exhibition windows and internally glazed panels not exposed when the trailer is in motion are not subject to the automotive marking listed in Note 1, a declaration of the safety standard will be required. **Note 3:** Double glazed windows for exhibition / mobile broadcast units where the glazing is exposed while the vehicle is in motion need only to have automotive markings on the outer pane of the glazed panel. **Note 4:** Exterior glazing, even when covered by shutters while the trailer is in motion, will need approval to automotive standards.	**1.** All windows / partitions where fitted must be securely attached to the trailer. **2.** All windows / partitions must be made of safety glazing to a recognised standard (not applicable to armoured trailers) (see **Notes 1, 2, 3 & 4**). **3.** All windows made of safety glass / safety glazing must bear the relevant approval marking applied by the glazing manufacturer (not applicable to armoured trailers) (see **Note 1**).

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Add statement for partitions, delete note 2 and link note 1 to standards
3	30/04/2012	Add note 2 & 3, link to RS 2
4	29/10/2013	Insert new paragraph 3, shutters on windows.
5	10/04/2018	Reword RS & MOI

46 Tyres

Application: All Trailers

Method of Inspection	Required Standard
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. **Note 1:** See comparable standards for O1/2 trailer tyres. **Note 2:** Tyres with no category of use designation (special, snow tyre etc), will be deemed to be Normal Use Tyres. **Note 3:** Structure means the technical characteristics of the tyres carcass, such as diagonal or bias ply, bias belted, Radial, reinforced. **Note 4:** Type of tyre means tyres which do not differ in such essential respects as Manufacturer's name or trademark, tyre size designation, category of use (special, snow tyre etc.), speed category, load capacity index and tyre cross section. **Annex 1** EC Type Approval Mark Box should be a minimum of 12mm x 8mm e 24 00479 Letters and numbers, minimum of 4mm high UNECE Type Approval Mark Circle with a minimum diameter of 12mm E4 00479 Number 4mm high and serial number alongside	**1.** Each tyre fitted to the trailer, including any spare or temporary use spare, must have the correct approval marks 'E' or 'e', DOT or JIS (see **Note 1** & Annex 1). **2.** The tyre must also be marked with the following information: - Manufacturer's name or trademark, tyre size designation, category of use (as appropriate), speed category, load capacity index and tyre cross section (see **Note 2**). **3.** Each of the tyres fitted to a trailer, must have the same structure (see **Note 3**). **4.** Each of the tyres fitted to any one axle must be of the same type (see **Note 4**). **5.** Each tyre must have the correct load indices, speed ratings and use markings, taking into account the vehicle to which it is fitted, and the type of use i.e., load and speeds the vehicle will be subject to (see **Notes 2,3 & 4** also tables 1,2 & 4). **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.

Method of Inspection	Required Standard
	8. O1 and O2 trailers; the grooves of the tread pattern must be at least 1.6mm in depth throughout a continuous band comprising of the centre ¾ of the original breadth of the tread pattern (excluding wear indicators). **9.** O3 and O4 trailers; the grooves of the tread pattern must be at least 1mm in depth throughout a continuous band comprising of at least ¾ of the original breadth of the tread pattern (excluding wear indicators). **10.** O1 and O2 trailers fitted with passenger car tyres in single formation, the maximum load rating of every tyre must be at least equal to 0.45 times the maximum mass for the most heavily loaded axle, as declared by the manufacturer of the trailer. For tyres in dual (twin) formation this factor is 0.24 (see table 3 for individual tyre load ratings).

The Minimum required speed ratings are:

Table 1

Class of Trailer	PERMITTED SPEED (MPH)	MINIMUM SPEED SYMBOL
Trailers	60	J
Trailers operating under 2J or 2M tyre use conditions	40	D

Table 2

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

Table 3

Load Index	Max KG	Load Index	Max KG	Load Index	Max KG	Load Index	Max KG	Load Index	Max KG	Load Index	Max KG
0	45	35	121	70	335	105	925	140	2 500	168	5 600
1	46,2	36	125	71	345	106	950	141	2 575	169	5 800
2	47,5	37	128	72	355	107	975	142	2 650	170	6 000
3	48,7	38	132	73	365	108	1 000	143	2 725	171	6 150
4	50	39	136	74	375	109	1 030	144	2 800	172	6 300
5	51,5	40	140	75	387	110	1 060	145	2 900	173	6 500
6	53	41	145	76	400	111	1 090	146	3 000	174	6 700
7	54,5	42	150	77	412	112	1 120	147	3 075	175	6 900
8	56	43	155	78	425	113	1 150	148	3 150	176	7 100
9	58	44	160	79	437	114	1 180	149	3 250	177	7 300
10	60	45	165	80	450	115	1 215	150	3 350	178	7 500
11	61,5	46	170	81	462	116	1 250	151	3 450	179	7 750
12	63	47	175	82	475	117	1 285	152	3 550	180	8 000
13	65	48	180	83	487	118	1 320	153	3 650	181	8 250
14	67	49	185	84	500	119	1 360	154	3 750	182	8 500
15	69	50	190	85	515	120	1 400	155	3 875	183	8 750
16	71	51	195	86	530	121	1 450	156	4 000	184	9 000
17	73	52	200	87	545	122	1 500	157	4 125	185	9 250
18	75	53	206	88	560	123	1 550	158	4 250	186	9 500
19	77,5	54	212	89	580	124	1 600	159	4 375	187	9 750
20	80	55	218	90	600	125	1 650	160	4 500	188	10 000
21	82,5	56	224	91	615	126	1 700	161	4 625	189	10 300
22	85	57	230	92	630	127	1 750	162	4 750	190	10 600
23	87,5	58	236	93	650	128	1 800	163	4 875	191	10 900
24	90	59	240	94	670	129	1 850	164	5 000	192	11 200
25	92,5	60	250	95	690	130	1 900	165	5 150	193	11 500
26	95	61	257	96	710	131	1 950	160	4 500	194	11 800
27	97,5	62	265	97	730	132	2 000	161	4 625	195	12 150
28	100	63	272	98	750	133	2 060	162	4 750	196	12 500
29	103	64	280	99	775	134	2 120	163	4 875	197	12 850
30	106	65	290	100	800	135	2 180	164	5 000	198	13 200
31	109	66	300	101	825	136	2 240	165	5 150	199	13 600
32	112	67	307	102	850	137	2 300	160	4 500	200	14 000
33	115	68	315	103	875	138	2 360	166	5 300		
34	118	69	325	104	900	139	2 430	167	5 450		

Note: This indicates the maximum load each tyre can carry.

Table 4 (for variation of load capacity for STGO)

Speed (km/h)	Variation of load capacity (%)				
	All load indices			Load indices ≥ 122	Load indices ≤ 121
	Speed category symbol			Speed category symbol	Speed category symbol
	F	G	J, K	L, M	L, M, N, P
0	+ 150	+ 150	+ 150	+ 150	+ 110
5	+ 110	+ 110	+ 110	+ 110	+ 90
10	+ 80	+ 80	+ 80	+ 80	+ 75
15	+ 65	+ 65	+ 65	+ 65	+ 60
20	+ 50	+ 50	+ 50	+ 50	+ 50
25	+ 35	+ 35	+ 35	+ 35	+ 42
30	+ 25	+ 25	+ 25	+ 25	+ 35
35	+ 19	+ 19	+ 19	+ 19	+ 29
40	+ 15	+ 15	+ 15	+ 15	+ 25
45	+ 13	+ 13	+ 13	+ 13	+ 22
50	+ 12	+ 12	+ 12	+ 12	+ 20
55	+ 11	+ 11	+ 11	+ 11	+ 17,5
60	+ 10	+ 10	+ 10	+ 10	+ 15
65	+ 7,5	+ 8,5	+ 8,5	+ 8,5	+ 13,5
70	+ 5	+ 7	+ 7	+ 7	+ 12,5
75	+ 2,5	+ 5,5	+ 5,5	+ 5,5	+ 11
80	0	+ 4	+ 4	+ 4	+ 10
85	− 3	+2	+ 3	+ 3	+ 8,5

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Re word RS 08 and 09, link Table 3 to RS 10
3	29/10/2014	Add new tyre tables 1,2 and 4
4	10/04/2018	Reword section

48A Masses and Dimensions

Application: All Trailers

Method of Inspection	Required Standard
This inspection is to ensure that the trailer as presented has satisfactory evidence of compliance to the required standard and has not been subject to modifications that may invalidate any approval held. In most cases a trailer submitted for test will be unladen and will be obviously well within the permissible weights set out in Annex 1 to section 18. However, if it seems likely that the trailer or an axle (as presented) exceeds any of these weights, the trailer should be weighed, or a weight ticket requested. Trailers complying with the Road Vehicles (Authorisation of Special Types) (General) Order 2003 or the Motor Vehicles (Authorisation of Special Types) Order (Northern Ireland) 1997 are exempt from any of the standards which they are unable to comply with due to their special purpose. **Plating:** A Plating examination under the Goods Vehicle (Plating and Testing) Regulations 1988 must be carried out during the IVA examination, and a Plating certificate issued after the IVA certificate is issued. This does not apply in the case of trailers exempted from Plating, and trailers intended to be based in Northern Ireland. In these cases, the Statutory Plate prescribed in Section 18 of this manual must have 2 columns, one for	**Dimensions**: **1.** The trailer must not exceed the maximum authorised dimensions shown in the table below (see **Note 6** and Annex1).

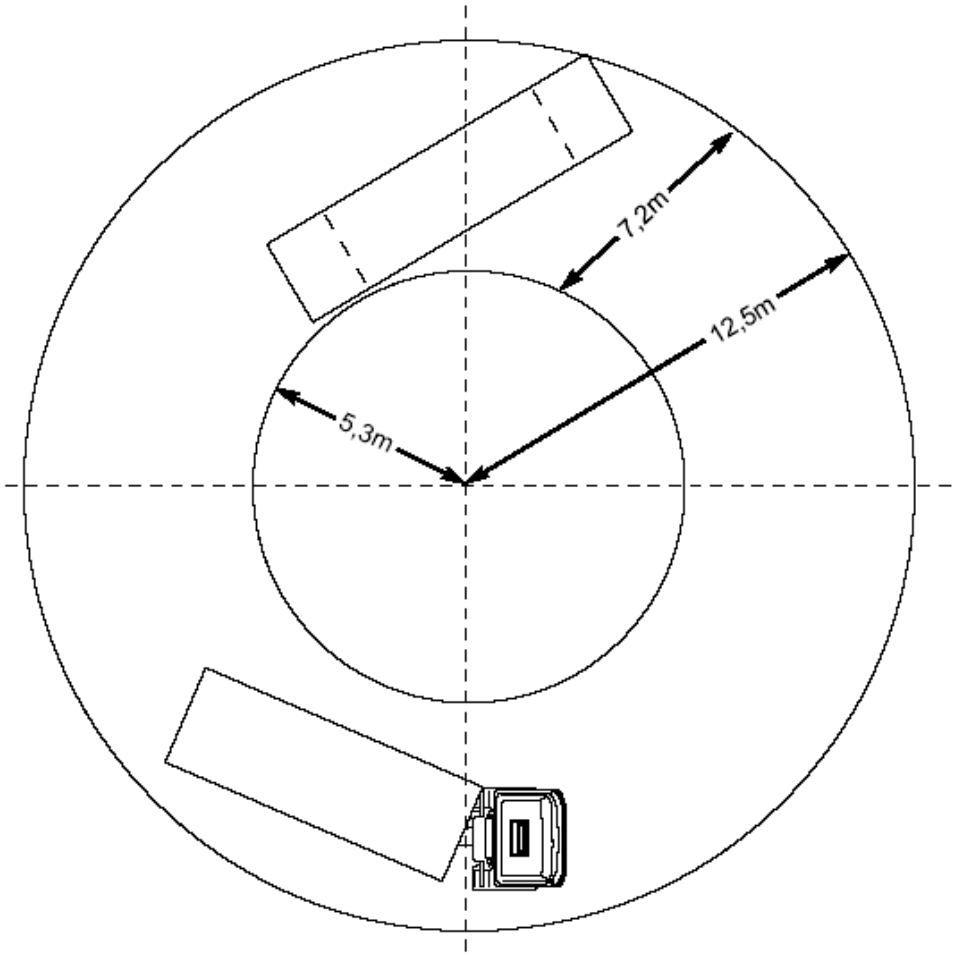
Category	WIDTH See Annex 1	LENGTH See Annex 1	LENGTH FROM KINGPIN
O1	2550mm	12000mm (A)	N/A
O2	2550mm (B)	12000mm(A)	N/A
O1/2 Semi-Trailer	2550mm (B)	12200mm	2040mm
O3/O4 Rigid Trailer	2550mm (B)	12000mm	N/A
O3/O4 Low Loader Semi-Trailer	2550mm (B)	13500mm (C)	2040mm
O3/O4 Motor Vehicle Transporter Semi-Trailer	2550mm	12500mm (C)	4190mm
Any other O3/O4 Semi-Trailer	2550mm (B)	12000mm (C)	2040mm

(A) Trailers with four wheels and towed to the examination by vehicles exceeding 3,500 kg GVW may be up to this length. Trailers specially designed to carry abnormal indivisible loads (gliders, boats etc.) may also be up to this length

Method of Inspection	Required Standard
maximum GB/NI weights and one for maximum technically permissible weights (if different). **Note 1:** Satisfactory documentary evidence or a declaration from the trailer assembler should be provided, stating that the trailer complies with this standard. **Note 2:** Check that the trailer combination 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 circumferences of the circles (See figure 1). This must be completed on both steering locks. The outer circle having a radius of 12.50 metres. The inner circle having a radius of 5.30 metres. **Note 3:** A semi-trailer is deemed to comply with the requirements if its wheelbase is not greater than the sum below $$\sqrt{(12.50-2.04)^2-(5.30+L/2)^2}$$ The wheelbase being measured for the purpose of this section is the distance of the axis of the fifth-wheel king-pin to the centre line of the non-steering axles bogie L being the trailer width in metres **Note 4:** The following trailers are exempt from standard 7 A semi-trailer low loader. A semi-trailer step-frame low loader.	without restriction on wheel plan and towing vehicle. Other trailers towed by cars and goods vehicles less than 3500 kg GVW are limited to **7000mm** in line with Regulation 7 of the Road Vehicles (Construction and Use) Regulations 1986 (as amended). (B) 2600mm for the superstructure of trailers designed for transport of goods under controlled temperatures and trailer caravans. (C) measured from the fifth-wheel king pin to the rear of the semi-trailer **2.** The displayed dimensions as shown on the Dimensions plate (or manufacturer's plate, see section 18) must be within 5% of the trailer dimensions as presented. **Masses:** **3.** In the case of a trailer subject to Plating, the trailer or axle weights as presented must not exceed the maximums authorised to be issued on the Plating certificate (see **Note 1**). **4.** In the case of a trailer not subject to Plating, the trailer or axle weights as presented must not exceed the maximums marked on the Statutory Plate prescribed in section 18 of this manual (see **Note 1**). **5.** In the case of a centre axle trailer, where the category is clearly defined, the difference between the technically permissible maximum laden mass of the vehicle and the declared maximum mass on the axle(s) must not exceed 10% or 1,019 kg if lower. **6.** For a trailer exceeding 3500kg gross weight, or a semi-trailer, it must be verified that the trailer has a facility such that its power brakes can be operated by the towing vehicle.

Method of Inspection	Required Standard
Note 5: A Motor Vehicle transporter must comply with standard 7, except that any part of the semi-trailer forward of the transverse plane passing through the king pin may be ignored. **Note 6:** Devices for securing the tarpaulin and their projection not projecting by more than 20mm where they are no more than 2.0m from the ground level and no more than 50mm where they are more than 2.0m from the ground level. The edges shall be rounded to a radius of not less than 2.5mm.	**Installation of retractable or loadable axles:** **7.** If a trailer is fitted with one or more loadable axles, satisfactory evidence must be provided stating that under all driving conditions, the axle will lower to the ground automatically when the front axle or the nearest axle of a group of axles is loaded (see **Note 4**). **Turning Circle Requirements: (O3 & O4 semi-trailers only)** **8.** The trailer combination must be able to manoeuvre for a complete circular trajectory of 360 degrees within the defined area (with the exception of the protruding parts prescribed for the trailer width shown in Annex 1) (see **Notes 2, 3, 4 & 5** and figure 1).

Figure 1



Annex 1

Items to be excluded from measurement of length and width subject to the following:

(a) Where several devices are fitted to the front, the total protrusion of those devices shall not exceed 250mm.
(b) The total protrusion of devices and equipment added to the length of the vehicle shall not exceed 750mm.
(c) With the exception of rear-view mirrors, the total protrusion of devices and equipment added to the width of the vehicle shall not exceed 100mm.

A - Items to be excluded when measuring Length	B - Items to be excluded when measuring Width
—rear registration plates, — lighting equipment, (extendable light bars will be allowed and they are to be excluded from the overall length measurement (in their extended position) as long as these bars do not increase the load carrying capacity of the vehicle. DVSA will not accept them if they are fitted with any device that allows the attachment of a load i.e., twist locks) — access steps and hand-holds, — lifting platforms, access ramps and similar equipment in *running order* (i.e., in the position they would be on a moving trailer), not exceeding 300 mm, provided that the loading capacity of the trailer is not increased, see note below **Note:** Loading ramps of more than 300mm are permitted as long as the length of the trailer is reduced to accommodate this extra depth, (under no circumstances can these larger ramps be fitted to a trailer constructed to the maximum length as shown in table 1) i.e., An O4 semi-trailer requiring ramps of 450mm will need to reduce the maximum length from 12000mm to 11850mm. — coupling devices, - the drawbar or drawbeam can be classed as the coupling device and thus excluded when the measurement takes place (unless it has a function beyond being a coupling device - e.g., it has a box on it which carries a load). — wheel chocks on car transporters	— tyre-pressure or tyre failure indicators, — protruding flexible parts of wheel guards — lighting equipment, —access ramps in *running order* (i.e., in the position they would be on a moving trailer), provided that they do not exceed 10 mm from the side of the trailer, — safety railings mounted on a vehicle designed to carry at least two other wheeled vehicles, provided that the safety railings are more than 2m above the ground and the overall width including safety railings does not exceed 2.70m. — 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, — Devices for securing a tarpaulin/load cover and their protection. The edges shall be rounded to a radius of not less than 2,5 mm. — on trailer caravans: "slide-out" sections, — on trailer caravans: awnings (including their support arms), provided that any part more than 1m from the ground does not exceed 50mm, and any part more than 2m from the ground does not exceed 100mm, from the side of the vehicle. — Antennas used for vehicle-to-vehicle or vehicle-to-infrastructure communication

—Antennas used for radio, navigation, vehicle-to-vehicle, or vehicle-to-infrastructure communication —Aerodynamic devices (applicable to O3 and O4 only). **Note:** Devices fitted must be type approved to (EU) 1230/2012 and must not extend the loading area. The device, when stowed, must not project beyond the rearmost point of the vehicle, except above a height from the ground of 1050mm, where a rearward projection of up to 200mm is permitted.	—Watching and detection aids including radars —Aerodynamic devices (applicable to O3 and O4 only). **Note:** Devices fitted must be type approved to (EU) 1230/2012. The vehicle width, including trailers designed for transport of goods under controlled temperatures, shall not exceed 2600 mm including the measured projections, with the devices and equipment fixed in the retracted or folded positions.

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Added more items to width exemptions in Annex 1, link notes to standards and add new text to MOI
3	30/04/2012	Amend dimensions of trailer in table of RS 1
4	29/10/2012	Amend RS1 and add items to Annex 1B
5	29/10/2013	Insert new paragraph in MoI, amend notes 1, 2 & 8, update table in RS1 and Annexes 1A & B
6	29/10/2014	Rename section 48A, Amend MOI and Table 1 to accommodate the new sections 48B and 48C. Add new statement to Annex 1
7	10/04/2018	Notes 1, 2 & 7 amended, lighting equipment redefined in Annex 1, Table and notes revised
8	09/12/2019	Annex 1 column B updated (TSE O3O4 48A 005)
9	01/09/2020	New Note 7 referenced from RS1, update Annex 1.
10	01/09/2022	RS1 dimensions table and (A) updated. Note 1 removed, other notes renumbered. New RS 5 added, subsequent RS renumbered (TSE O3O4 48A 006). Added more items to length and width exemptions in Annex 1.

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48B Masses and Dimensions: Over-length AIL Trailers

Application: C&U trailers (P&T) of exceptional length which could also be dual plated for STGO usage as well.

Method of Inspection

This inspection is to ensure that the trailer as presented has satisfactory evidence of compliance to the required standard and has not been subject to modifications that may invalidate any approval held.

A Plating examination under the Goods Vehicle (Plating and Testing) Regulations 1988 may be carried out during the IVA examination, and a Plating certificate issued after the IVA certificate is issued. This does not apply in the case of trailers exempted from Plating, and trailers intended to be based in Northern Ireland. In these cases, the Statutory Plate prescribed in Section 18 of this manual must have 2 columns, one for maximum GB/NI weights and one for maximum technically permissible weights (if different).

Note 1: There is no length limit for a trailer constructed to carry indivisible loads of exceptional length, although the combination (trailer plus towing vehicle) cannot exceed 27.4m under C&U regulations.

Note 2: An ***indivisible load*** is a load that cannot without undue expense or risk of damage be divided into two or more loads for the purpose of being carried on a road and cannot on account of its length be safely carried on a trailer which is 12m long.

Note 3: The Statutory Plate should contain the text at RS 9 of section 18.

Required Standard

Dimensions:

1. The trailer must not exceed the maximum authorised dimensions shown in the table below (see **Notes 1 & 2**).

Category	WIDTH See 48A Annex 1	LENGTH See 48A Annex 1
Standard	2550mm	27400mm See Note 1

2. The displayed dimensions as shown on the Dimensions plate (or manufacturer's plate, see section 18) must be within 5% of the trailer dimensions as presented, and width must not exceed 2550mm (see **Note 3**).

Masses:

3. In the case of a trailer subject to Plating, the trailer or axle weights as presented must not exceed the maximums authorised to be issued on the Plating certificate (see **Note 4**).

4. In the case of a trailer not subject to Plating, the trailer or axle weights as presented must not exceed the maximums marked on the Statutory Plate prescribed in section 18 of this manual (see **Note 4**).

5. For a trailer exceeding 3500kg gross weight, or a semi-trailer, it must be verified that the trailer has a facility such that its power brakes can be operated by the towing vehicle.

Method of Inspection	Required Standard
Note 4: In most cases a trailer submitted for test will be unladen and will be obviously well within the permissible weights set out in Annex 1 to section 18. However, if it seems likely that the trailer or an axle (as presented) exceeds any of these weights, the trailer should be weighed, or a weight ticket requested. . **Note 5:** Satisfactory documentary evidence or a declaration from the trailer assembler should be provided, stating that the trailer complies with this standard.	**Installation of retractable or loadable axles:** **6.** If a trailer is fitted with one or more loadable axles, satisfactory evidence must be provided stating that under all driving conditions, the axle will lower to the ground automatically when the front axle or the nearest axle of a group of axles is loaded (see **Note 5**).

Record of Revision

Revision	Date	Description of Change
1	29/10/2014	New Section
2	09/12/2019	RS1 Table reference to 48A Annex 1

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48C Masses and Dimensions: STGO over-width or over-width *and* over-length

Application: Wide or wide and long trailers, capable of STGO Cat 1, Cat 2 and/or Cat 3 operation. Not plated

Method of Inspection	Required Standard
This inspection is to ensure that the trailer as presented has satisfactory evidence of compliance to the required standard and has not been subject to modifications that may invalidate any approval held. **Note 1:** For a 'wide' trailer the width must be 2551mm or greater. The Statutory Plate should contain the text at RS 10 of section 18. **Note 2:** In most cases a trailer submitted for test will be unladen and will be obviously well within the permissible weights set out in Annex 1 to section 18. However, if it seems likely that the trailer or an axle (as presented) exceeds any of these weights, the trailer should be weighed, or a weight ticket requested. . **Note 3:** Satisfactory documentary evidence or a declaration from the trailer assembler should be provided, stating that the trailer complies with this standard.	**Dimensions**: **1.** The trailer must not exceed the maximum authorised dimensions shown in the table below.

Category	WIDTH See 48A Annex 1	LENGTH See 48A Annex 1
Large	6100mm	30000mm
Extreme O4	(A)	(A)
(A)These vehicles will be assessed on a case-by-case basis and can be outside of the maximum dimensions requirements of 'Large'		

2. The displayed dimensions as shown on the Dimensions plate (or manufacturer's plate, see section 18) must be within 5% of the trailer dimensions as presented, and must not be below the regulated legal limits (see **Note 1**).

Masses:

3. The trailer or axle weights as presented must not exceed the maximums marked on the Statutory Plate prescribed in section 18 of this manual (see **Note 2**).

Installation of retractable or loadable axles:

4. If a trailer is fitted with one or more loadable axles, satisfactory evidence must be provided stating that under all driving conditions, the axle will lower to the ground automatically when the front axle or the nearest axle of a group of axles is loaded (see **Note 3**).

Record of Revision

Revision	Date	Description of Change
1	29/10/2014	New Section
2	09/12/2019	RS1 Table reference to 48A Annex 1
3	01/09/2022	Note 1 reference to Section 18 corrected.

48D Masses and Dimensions: Engineering Plant

Application: All Engineering Plant Trailers

Method of Inspection	Required Standard
This inspection is to ensure that the trailer as presented has satisfactory evidence of compliance to the required standard and has not been subject to modifications that may invalidate any approval held. **Note 1:** For a 'wide' trailer the width must be 2551mm or greater. The Statutory Plate should contain the text at RS 8 of section18. **Note 2:** In most cases a trailer submitted for test will be unladen and will be obviously well within the permissible weights set out in Annex 1 to section 18. However, if it seems likely that the trailer or an axle (as presented) exceeds any of these weights, the trailer should be weighed, or a weight ticket requested. . **Note 3:** Satisfactory documentary evidence or a declaration from the trailer assembler should be provided, stating that the trailer complies with this standard.	**Dimensions**: **1.** The trailer must not exceed the maximum authorised dimensions shown in the table below. **2.** The displayed dimensions as shown on the Dimensions plate (or manufacturer's plate, see section 18) must be within 5% of the trailer dimensions as presented, and must not be below the regulated legal limits (see **Note 1**). **Masses:** **3.** The trailer or axle weights as presented must not exceed the maximums marked on the Statutory Plate prescribed in section 18 of this manual (see **Note 2**). **Installation of retractable or loadable axles:** **4.** If a trailer is fitted with one or more loadable axles, satisfactory evidence must be provided stating that under all driving conditions, the axle will lower to the ground automatically when the front axle or the nearest axle of a group of axles is loaded (see **Note 3**)**.**

Category	WIDTH See 48A Annex 1	LENGTH See 48A Annex 1
Large	6100mm	30000mm
Extreme O4	(A)	(A)
(A)These vehicles will be assessed on a case-by-case basis and can be outside of the maximum dimensions requirements of 'Large'		

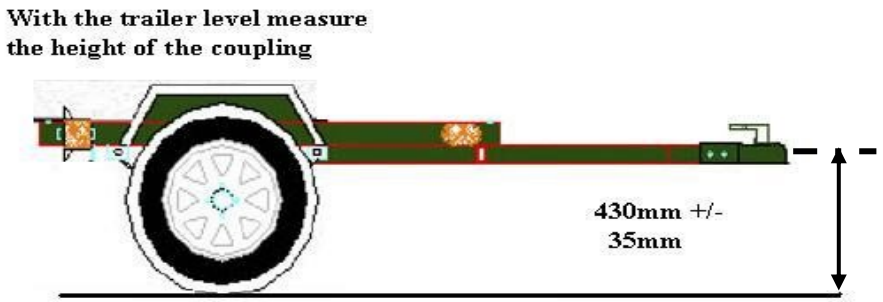
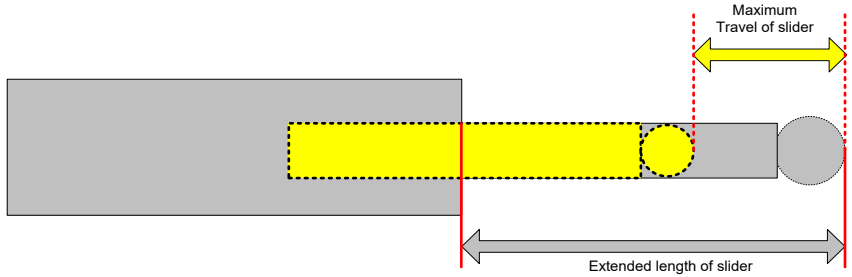
Record of Revision

Revision	Date	Description of Change
1	01/09/18	New Section
2	09/12/2019	RS1 Table reference to 48A Annex 1

50A Couplings

Application: All O1 & O2 Trailers

Method of Inspection	Required Standard
Every coupling device must be accompanied by installation and operating instructions to ensure it is correctly installed and can be operated safely. This inspection process checks for the correct 'e' or "E" markings. An assessment must be made of the coupling load bearing structure to which the device is attached to ensure it and any fixings are of sufficient strength. This may be by either: • approval relevant to the trailer, or • visual examination and assessment of the surrounding area and fixings When checking the security of the coupling pay attention to: - • The number and grade of securing bolts required • Whether appropriate reinforcement or load spreader plates are fitted. It may be necessary to have both the trailer and the coupling manufacturer's instructions available to ensure assessment of correct installation. Check the height of the coupling head above the ground. Check that a secondary retaining device is fitted to all trailers and is fitted with an attachment device such as a snap clip, carabena or shackle.	**1.** The coupling device and mounting bracket (if applicable) must be of an approved class and type suitable for the trailer (see **Note 1**). **2.** The coupling load bearing structure, to which the coupling is attached, and/or any fixings used, must be of sufficient strength and in accordance with the relevant approval. **3.** A secondary coupling must be fitted to all unbraked trailers (see **Note 2**). **4.** The secondary retaining device must be fitted with an attachment device that enables the cable to be fitted to any suitable drawing vehicle. **5.** The secondary coupling must prevent the main coupling from engaging the road surface in the case of detachment from the drawing vehicle. **6.** The coupling device must bear an 'e' or 'E' mark to ensure the construction of the coupling device meets the appropriate approval criteria. **7.** The coupling device must be securely mounted to the trailer in accordance with the manufacturer's instructions. **8.** With the trailer horizontal and resting on a level surface, Class B coupling heads must be attached so that the coupling point of the trailer is 430+/-35mm above the ground (see **Notes 3 & 4** and figure 1). **9.** The coupling head must be capable of safe operation in accordance with the operating instructions and within the dimensions as shown in the diagram below.

Method of Inspection	Required Standard
Check that the coupling head can be operated safely within the free space of the coupling ball shown in diagram in standards. **Note 1:** Check that the correct type of coupling head is fitted to the trailer, normally this will be Class B (50mm ball), Class D (eye) but Class S (non-standard) is also acceptable. **Note 2:** A secondary coupling can only be used on braked trailers not fitted with a breakaway cable with a maximum mass not exceeding 1.5 tonnes. 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. **Note 3:** In the case of caravans and goods trailers, the horizontal position is regarded as when the floor or loading surface is horizontal. In the case of trailers without such a reference surface, the trailer manufacturer must give an appropriate reference line defining the horizontal position. **Note 4:** In the case of trailers designed and constructed for use with 'off road' vehicles this measurement does not apply (evidence will be requested). **Semi-Trailers** **Note 5:** The coupling device must be accompanied by installation instructions from the trailer manufacturer and / or manufacturer of the fifth wheel pin, to ensure it is correctly installed.	**10.** Any over-run coupling must be positioned correctly on the drawbar to allow the maximum travel to be achievable without obstruction. (See example in Figure 2). **Figure 1**  **Figure 2**  **Semi-Trailers** **11.** The fixing of the fifth wheel coupling pin in the mounting plate on the semi – trailer must be as instructed by the trailer manufacturer and / or manufacturer of the fifth wheel pin (see **Notes 5 & 6**).

Couplings 50A

Method of Inspection	Required Standard
Note 6: It may not be possible to fully examine the installation of a fifth wheel coupling pin. In these cases, documentary evidence of compliance will be required	**12.** Semi-trailers must be equipped with secure landing gear or other equipment to allow safe uncoupling and parking.

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	30/04/2012	Add Note 5, add new acceptable category of coupling head in MoI
3	29/10/2012	Amend paragraphs 2 & 3 in the MoI, revise note numbering, amend tolerance in RS7 & Figure 1 and Add Semi trailer details
4	29/10/2013	Amend RS7, insert new RS9 and Figure 2
5	10/04/2018	Insert new MOI & RS regarding structure assessment

50B Couplings

Application: All O3 & O4 Trailers

Method of Inspection	Required Standard
This inspection is to ensure that the coupling device is of an approved type, has the correct markings, and is accompanied by manufacturer's installation instructions. Semi-trailer support gear (i.e., landing legs) and draw bar adjusting devices should be checked for compliance with RS 4 for semi-trailers and RS 6 for drawbar. An assessment must be made of the coupling load bearing structure to which the device is attached to ensure it and any fixings are of sufficient strength. This may be by either: • approval relevant to the trailer, or • visual examination and assessment of the surrounding area and fixings **Note 1:** The coupling device must be accompanied by installation instructions from the trailer manufacturer and / or manufacturer of the fifth wheel pin, to ensure it is correctly installed. **Note 2:** It may not be possible to fully examine the installation of a fifth wheel coupling pin. In these cases, documentary evidence of compliance will be required. **Note 3:** STGO - Abnormal Indivisible Load Vehicles (GTW of at least 120,000kg), the couplings are not required to be 'e' or 'E' marked. **Note 4:** For STGO Modular trailers only, the coupling device may be a device at either or both ends of trailer intended to attach towing/bridging devices on modular type trailers or to link modular type trailers together	**1.** The coupling device must bear an 'e' or 'E' mark and be accompanied by relevant installation instructions (see **Notes 1, 2, 3 & 4**). **2.** The coupling device must be designed to work safely at the Max GB gross weight of the trailer, as identified in section 18 of this manual. **3.** The coupling load bearing structure, to which the coupling is attached, and/or any fixings used, must be of sufficient strength and in accordance with the relevant approval. **Semi-Trailers** **4.** The fixing of the fifth wheel coupling pin in the mounting plate on the semi –trailer must be as instructed by the trailer manufacturer and / or manufacturer of the fifth wheel pin (see **Notes 1 & 2**). **5.** Semi-trailers must be equipped with secure landing gear or other equipment to allow safe uncoupling and parking. **Drawbar Trailers** **6.** The fixing of the drawbar eye onto the drawbar frame must be as instructed by the trailer manufacturer and / or manufacturer of the draw bar eye.

Method of Inspection	Required Standard
	7. The drawbar eye or coupling head on hinged drawbars must rest at least 200mm from the ground when released from the horizontal position. **8.** If a hinged drawbar is equipped with a device for adjusting the drawbar to the height of the coupling. The device must be able to be operated by one person without any tools or other aids. **9.** For height adjusting devices that provide adjustment for at least 300mm upwards and downwards from the horizontal then the drawbar must be adjustable in steps no greater than 50mm at the coupling or eye. **10.** The height adjusting device must not interfere with easy movement of the drawbar after coupling.

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Reword note 2 and link standards to notes
3	10/04/2018	Notes 3 & 4 added & addition of coupling strength assessment

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General Construction

Application: All Trailers subject to IVA requirements

Method of Inspection	Required Standard
The following section assesses the trailers 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 trailer at all times must present no danger to other road users. All components and attachment methods will be compared to those employed on ECWVTA trailers. This does not prevent a manufacturer utilising other construction methods or materials providing they offer at least the equivalent performance of those employed on an approved trailer. **Note 1** This assessment includes any form of attachments of any component or the assembly of a structure itself, the strength and suitability of materials used including pipes, etc. and any fastening, welds, bonding, rivets, nuts and bolts, etc. are to be assessed for their ability to perform their function as intended and must be suitable, complete and fully secured as intended. **Note 2** When assessing a component for leaks the original design of the component will be taken into consideration. **Note 3:** This does not apply to control leads (fly leads) used on specialised equipment i.e., power ramps and lifts.	**1.** **All** aspects of the design and construction of the trailer must be such that no Immediate danger is caused or likely to be caused to any person in the trailer or to other road users. **2.** When towed, the safe control of the trailer or its towing vehicle must not be impaired or likely to be impaired, due to a design or construction feature of characteristic. **3.** The trailer structure and all components including their attachment must be suitable and of adequate strength (see **Note 1**). **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, braking and fuel system components must not be leaking (see **Note 2**). **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 3**). **8.** All electrical components must be of adequate capacity and insulated as required as to prevent short circuiting during operation.

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Add new RS1 and add note 3
3	29/10/2012	Amend RS6
4	10/04/2018	Amend MOI align with N2/3

Glossary of Terms

Abnormal Indivisible Load Trailer
A trailer specially designed and constructed, and used only for, or empty in connection with, the conveyance of abnormal indivisible loads.

Approval Authority
The Vehicle Certification Agency are the UK Approval Authority.

Auxiliary engine
An engine not used to propel the vehicle but to drive engineering plant equipment on 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).

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

CNG
Compressed Natural Gas.

Centre Axle Trailer
A trailer having only a single axle or group of axles which is positioned at or close to the centre of gravity so that, when the trailer is uniformly loaded, the static vertical load transmitted to the towing vehicle does not exceed 10 per cent of the maximum authorised weight for the axle or group of axles or 1,000kg, whichever is the less.

Coupling Class
Class A = Coupling balls and towing brackets Class B = Coupling heads Class C = Automatic drawbar couplings
Class D = Drawbar eyes Class G = Fifth wheel Couplings Class H = Fifth wheel pin
Class S = Devices and components which do not conform to any of the Classes A to H above and which are used, for example, for special heavy transport or are devices unique to some countries and covered by existing national standards.

Date of Manufacture
In the case of an Amateur Built Trailer is, unless otherwise stated in the regulations or Inspection Manual:

- the date on which the trailer is presented for examination

or

- a date prior to the date the trailer is presented for examination if there is conclusive evidence the trailer 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.

Draw Bar Trailer
Trailer with an inbuilt steering mechanism on the front axle.

Double Glazing
An assembly of two glazing panes permanently assembled in manufacture and separated by a uniform gap.

Double Windows
Two separate units installed in a vehicle as separate inner and outer panes.

Engineering Plant
Movable plant or equipment being a motor vehicle or trailer specially designed and constructed for the special purposes of engineering operations, and which cannot, owing to the requirements of those purposes comply with all the requirements.

Extreme Outer Edge
In relation to the side of a trailer, the vertical plane parallel with the longitudinal axis of the trailer and coinciding with its lateral outer edge, disregard the projection of

- distortion of any tyre due to the weight of the trailer
- connections for tyre pressure gauges
- anti-skid devices mounted on the wheels
- lamps and reflectors

- custom seals and devices for securing and protecting such seals
- special equipment **(as listed in Annex 1 section 48)**

Foundation Brake
The foundation brake is the basic drum or disc brake assembly fitted to each axle or wheel which produces the braking force necessary to bring the trailer to a stop.

Indivisible load
Shall mean a load that cannot, for the purpose of carriage by road, be divided into two or more loads without undue expense or risk of damage.

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 trailer structure or to another associated component as intended.

Lifting Axle
‘Lifting axle’ means an axle which can be lifted from the road during normal trailer use.

Longitudinal Plane
A vertical plane parallel to the longitudinal axis of the trailer.

Low Loader Trailer
A semi-trailer which is constructed and normally used for the carriage of engineering equipment so constructed that a major part of the load platform does not extend over or between the wheels and the upper surface of which is below the height of the top most point of the tyres of those wheels.

LPG
Liquid Petroleum Gas

Major Manufacturer
A vehicle manufacturer that produces vehicles approved to EC Whole Vehicle Type Approval standards.

Manufacturer's Plate
A piece of durable material e.g., metal or plastic that is likely to last the life of the trailer and which is permanently marked with the required markings.

Matched Pair
For the purpose of this manual only:
Lamps fitted to the vehicle must be of the same brightness, intensity, colour, shape, height and position.

Obvious modification
Where evidence suggests that the vehicle / component has been modified which invalidates the approval, evidence must be easily recognisable without the need of a detailed inspection.

Overrun Braking
The motion of the trailer with respect to the towing vehicle is used to actuate the brake.

Passenger Car tyre
A tyre designed primarily, but not only, for passenger cars (motor vehicles in Category M1) and their trailers (01 and 02).

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

Rain flap
'Rain flap' means a flexible component mounted vertically behind the wheel, on the lower part of the chassis or the loading surface, or on the mudguard.

Rigid Draw Bar Trailer
See centre axle trailer

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 un-braked trailers and braked trailers not exceeding 1500kgs.

Self-tracking Axle
An axle pivoted about a central point in such a way that it can describe a horizontal arc. A self-tracking axle of the ‘pivot steering’ type is considered to be, and treated as, an axle fitted with steered wheels. (Directive 91/226/EC)

Semi-trailer
A trailer which is designed and constructed to be coupled to a tractor unit or to a converter dolly and to impose a substantial vertical load on the towing vehicle or on the converter dolly.

Step Frame Trailer
A semi-trailer (not being a low loader) which is constructed and normally used for the carriage of engineering equipment and is so constructed that the upper surface of the major part of the load platform is at a height of less than 1m above the ground when measured on level ground.

Teardrop Trailer or Caravan
A compact lightweight travel trailer which gets its name from its teardrop profile. To be considered a caravan (SPV) it must genuinely provide 'mobile living accommodation'.

Unladen weight
The unladen weight of any trailer is the weight of the trailer excluding, goods or other items. It includes the body and all parts normally used with the vehicle or trailer when in use on the road.

Record of Revision

Revision	Date	Description of Change
1	16/04/2009	
2	28/02/2011	Add definitions
3	30/04/2012	Add definition for Class S coupling
4	29/10/2013	Insert new definitions identified by vertical line in the left-hand column
5	29/10/2014	Insert new definitions for Low Loader and Step Frame Low Loader
6	10/04/2018	Amend/add definitions.
7	01/09/2018	Definition of Engineering Plant added.
8	09/12/2019	Semi-trailer definition added.
9	01/09/2022	Self-tracking Axle definition added (TSE 43 002).

Glossary of Terms