



Driver & Vehicle  
Standards  
Agency

# Motorcycle Single Vehicle Approval (MSVA) Inspection Manual



5 September 2022

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



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# Foreword

## 1. Preface

The purpose of this Manual is to set out the examination procedures and standards for those Driver and Vehicle Standards Agency (DVSA) Examiners that carry out the examination on vehicles submitted for Motorcycle Single Vehicle Approval (MSVA).

Owners should also find the Manual useful as it details the examination to which vehicles are subjected and the reason a Ministers Approval Certificate (MAC) may be refused.

This Manual is based on the Regulations in force at the time of issue, but changes in legislation may result in variations to the examination requirements.

## 2. Application

The Motorcycle Single Vehicle Approval Scheme applies to:

### Mopeds

#### Low powered moped (L1e)

- a 2, 3 or 4 wheeled mopeds with pedals
- with auxiliary propulsion not exceeding 1kW
- with a maximum design speed not exceeding 25km/h (16mph)
- includes sub-category **250W LPM** (see Glossary for definition)

#### 2 wheeled vehicles (L1e)

- with a maximum design speed of 45km/h (28mph)
- fitted with an internal combustion engine having a cylinder capacity not exceeding 50cc, or
- fitted with an electric motor with a maximum continuous power not exceeding 4kW

#### 3 wheeled vehicles (L2e)

- with a maximum design speed of 45km/h (28mph)
- fitted with a spark ignition internal combustion engine having a cylinder capacity not exceeding 50cc, or
- fitted with any other internal combustion engine which has a maximum net power output not exceeding 4kW, or
- fitted with an electrical motor with a maximum continuous power not exceeding 4kW

## Motorcycle Single Vehicle Approval Manual

- not exceeding 270kg unladen (not including the mass of traction batteries in the case of electric vehicles)
- if designed to carry goods a payload not exceeding 300kg

### **4 wheeled vehicles** (light quadricycle) (L6e)

- with a maximum design speed of 45km/h (28mph)
- fitted with a spark ignition internal combustion engine having a cylinder capacity not exceeding 50cc, or
- fitted with any other internal combustion engine which has a maximum net power output of 4kW, or
- fitted with an electric motor with a maximum continuous power not exceeding 4kW
- not exceeding 425kg unladen (not including the mass of traction batteries in the case of electric vehicles)
- if designed to carry goods a payload not exceeding 200kg

## **Motorcycles**

### **2 wheeled vehicles** (L3e & L4e)

- with (L4e) or without (L3e) sidecar
- fitted with an engine having a cylinder capacity of more than 50cc if of the internal combustion type and/or a maximum design speed of more than 45km/h (28mph)
- two wheeled vehicles, powered by an electric motor, which can exceed 45km/h will be classed as motorcycles

## **Motor Tricycles**

### **3 wheeled vehicles** (with 3 symmetrically arranged wheels) (L5e)

- fitted with an engine having a cylinder capacity of more than 50cc if of the internal combustion type and/or a maximum design speed of more than 45km/h (28mph)
- not exceeding 1000kg unladen
- if designed to carry goods a payload not exceeding 1500kg
- three wheeled vehicles, powered by an electric motor, which can exceed 45km/h will be classed as motor tricycles
- the mass of the traction batteries not being included in the unladen weight



## **4 wheeled vehicles** (heavy quadricycle) (L7e)

- fitted with an engine having a cylinder capacity of more than 50cc if of the internal combustion type and/or a maximum design speed of more than 45 km/h (28mph)
- the maximum net engine power not exceeding 15kW
- not exceeding 450kg unladen (600kg for goods vehicles)
- if designed to carry goods a payload not exceeding 1000kg
- the mass of the traction batteries not being included in the unladen weight

## **3. Obligatory Ministers Approval Certificate**

In order to obtain a licence and be registered for the first time in the UK all the classes of vehicle in section 2 above (unless meeting European Community Whole Vehicle Type Approval) will need to obtain a Ministers Approval Certificate (MAC) except the following

- Vehicles with a maximum design speed not exceeding 6km/h
- Vehicles intended for pedestrian control
- Vehicles intended for use by the physically handicapped
- Motorcycles intended for use in competitions (enduro and trials)
- Tractors and machines used for agricultural or similar purposes
- Vehicles designed primarily for off road leisure use having wheels arranged symmetrically with one wheel at the front of the vehicle and two at the rear
- Cycles with pedal assistance which are equipped with an auxiliary electric motor having a maximum continuous rated power of 0.25kW, of which the output is progressively reduced and finally cut off as the vehicle reaches a speed of 25km/h, or sooner, if the cyclist stops pedalling
- Vehicles more than 10 years old
- Any GB registered vehicle which has not been substantially modified

## **4. Scope of the Inspection**

The design and construction requirements applicable to any particular vehicle are contained in the Motorcycles Etc (Single Vehicle Approval) Regulations 2003 (SI 2003 No. 1959) (the Approval Regulations). The inspection procedures within this manual have been developed to assess as far as practicable the ability of the vehicle to comply with the requirements. This manual is not a legal interpretation of the Regulations.

The issue of a Ministers Approval Certificate should not be taken as absolute evidence that the vehicle complies with the Approval Regulations or that the vehicle can legally be used on the road because, for example, the requirements only relate to construction not condition.

### **5. Method of Inspection**

The examination will be limited to parts of the vehicle which can be readily seen without dismantling; however, the presenter may be required to open lockable compartments and remove engine panels, inspection/access panels, trims or carpeting etc. in order to gain access to items subject to examination. Tools/equipment to achieve this cannot be provided by DVSA Examiners.

In some areas of the examination, evidence that the vehicle complies with the relevant criteria may be submitted in the form of documentation. This can, for example, be satisfactory evidence that the vehicle or component (e.g., tyre) meets the requirements of a European Directive, Regulation, or equivalent UN ECE Regulation.

### **6. Refusal to Test**

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

- the vehicle is not submitted for examination at the time and place appointed
- the fee has not been paid
- the vehicle cannot be driven or has insufficient fuel or oil to enable the test to be completed
- the vehicle is presented in a dirty or dangerous condition such as to make it unreasonable for the examination to be carried out
- a load or items on the vehicle are not secured or removed as requested
- a proper examination cannot be carried out because any door, tailgate, boot lid, engine cover, fuel cap or other device designed to be readily opened, cannot be opened
- the condition of the vehicle (in the opinion of the examiner) is such that a proper examination of the vehicle would involve a danger of injury to any person or damage to property
- the vehicle does not display permanently, in an accessible position and readily legible, the required vehicle identification number by a method such as hammering or stamping, in such a way that it cannot be obliterated or deteriorate
- the driver does not accompany the machine and operate controls when requested to do so

## 7. Seriously Defective Vehicles

There may be instances where a vehicle is presented for an MSVA examination with a serious defect(s), i.e., where driving or riding the vehicle would involve the risk of injury to any person. If a defect of this nature is found, prohibition action should be taken following the guidance given in part 2 or 3 of the latest edition of the Categorisation of Defects.

## 8. Layout

Each section is laid out with 3 headings.

### Application

This describes which vehicle type the examination applies to. There may be more than one vehicle style, for example bodied and unbodied vehicles, in the same type. In this case the Manual will have a separate section for each style.

### Requirements and Procedures

This describes the requirements the vehicle has to meet to pass the examination, and where necessary the methodology (procedure) for carrying out the examination. This procedural description will only be used where the method is not clear from the requirement description, or specialist equipment is needed to carry out the examination. If there are comparable standards that can be accepted as an alternative to the standards required in the Manual, they will be listed in this section. Documentary evidence will need to be provided by the presenter for these standards to be accepted. The examiner retains the right to examine the vehicle against the MSVA requirements if they have any reason to doubt compliance with the indicated standard.

### Reasons for Failure (RfF)

This describes the reasons when the vehicle does not meet the requirements.

## 9. Definitions

In these Manual references are made to various vehicle **categories**, these are:

**Category A** - Mopeds

**Category B** - Motorcycles with a cylinder capacity not exceeding 125cc and a maximum power output not exceeding 11kW (15bhp)

**Category C** - Motorcycles with a maximum power output not exceeding 25kW (33.5bhp) and a power/mass ratio not exceeding 0.16kW/kg

**Category D** - Motorcycles other than those in categories B and C

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References are also made to vehicle **classes** which are covered by Schedule 1 of the Regulations. These are:

### **Amateur built vehicles**

A vehicle constructed or assembled for the use of a relevant individual; and

- the construction or assembly or a substantial part of the construction or assembly was carried out by the individual and/or persons acting on his behalf, and
- the individual/other persons acting on his behalf during the period of construction did not carry on a business in which motor vehicles are normally constructed or assembled

### **Rebuilt vehicles**

A vehicle that

- is a vehicle to which the Secretary of State is required by regulation to assign a vehicle identification number,
- does not fall within the definition of “amateur built” or “vehicle manufactured using the parts of a registered vehicle,” and
- has been rebuilt using a chassis or integral chassis/body which is of the same design and construction as that of the original vehicle which
  - was supplied for the purpose without having been previously used, or
  - previously formed part of a registered vehicle

### **Vehicles manufactured using the parts of a registered vehicle**

A vehicle that

- is constructed or assembled by a person carrying on a business in the course of which motor vehicles are normally constructed or assembled
- is equipped with an engine which has previously been used as the engine of another vehicle which has been registered under the Vehicle Excise and Registration Act 1994 or any earlier Act relating to the registration of mechanically propelled vehicles, and
- is equipped with one or more of the following components taken from the same vehicle as the engine
  - chassis
  - body
  - suspension
  - a braked axle with more than one wheel
  - transmission
  - steering assembly

**Note.** Precise legal definitions can be obtained from the Motor Cycles Etc. (Single Vehicle Approval) Regulations 2003.

## Record of Revision

Revision	Date	Change
1	Jun 2005	Light Quad definition updated.
2	Jun 2010	Application definitions updated, stamped in VIN added, grammar revisions.
3	Aug 2014	Removal of time constrained elements, minor text changes.
4	Jan 2019	Include 250W LPM in vehicle types, add Cat L designations, align Refusal to test with MSVA 12.
5	Sept 2022	L7e application definition updated

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# 01 Stands

## Application

This examination applies to all 2 wheeled vehicles.

Requirements 2b, 2c and 3b do not apply to any vehicle which is designed in such a way that it cannot be propelled by its engine when the stand is extended i.e., an inhibitor (interlock) is fitted.

Requirements 2b, 2c and 4a and 4b do not apply to a 250W LPM with a mass in running order of less than 35 kg.

## Requirements and Procedures

A stand is a device that is firmly attached to the machine and is able to maintain the vehicle in its vertical or near vertical parking position when unattended by its rider.

All machines must be fitted with at least one stand of either a prop or centre type or both. If both types are fitted each must be tested.

**Note:** It may be necessary to assist some stands in returning to the retracted or travelling position.

1. Check that the machine has at least a prop or centre stand;
  - a) fitted
  - b) which is secure
  - c) which has a system that retains the stand in the travelling position
2. Check that the prop stand;
  - a) is able to support the vehicle in such a way as to maintain stability in all steering positions
  - b) is able to swing back automatically into the retracted or travelling position when the vehicle returns to its normal (vertical) position, or
  - c) is able to swing back automatically into the retracted or travelling position following the first contact with the ground when the vehicle moves forward as a deliberate action of the rider
3. Check that the centre stand;
  - a) is able to support the vehicle with either one, or both, or without any wheels in contact with the ground in such a way as to confer stability on the machine when in use
  - b) is able to fold backwards automatically to its retracted or travelling position when the vehicle moves forward in such a way as to raise the centre stand from the supporting surface

4. Where required, check an inhibitor is;

- a) fitted
- b) effective

## Reasons for Failure

1. Any machine;

- a) not fitted with either a prop or centre stand
- b) with an insecure stand
- c) not fitted with a system that retains the stand in the travelling position

2. A prop stand that;

- a) does not support the machine in a stable manner in all steering positions
- b) does not retract automatically to its retracted/travelling position when the machine returns to its normal position, or
- c) does not retract automatically to its retracted/travelling position when the vehicle moves forward, and on the first contact of the prop stand with the ground

3. A centre stand that;

- a) does not support the machine in a stable manner
- b) does not fold backwards automatically to its retracted/travelling position when the vehicle moves forward

4. An inhibitor (where required) is;

- a) not fitted
- b) ineffective



## Record of Revision

Revision	Date	Change
1	Jun 2005	Note added to R&P
2	Jun 2010	Clarification added to Application
3	Jan 2019	Concession for 250W LPM added

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## 02 Mirrors – Unbodied vehicles

### Application

This examination applies to all unbodied vehicles except 250W LPM. Any mirror(s) fitted to a 250W LPM can be ignored.

Requirement 4f does not apply to mirrors incorporated in bodywork, (not to be confused with a body) such as fairings, which are inclined 45° or less from the centre line of the vehicle.

### Requirements and Procedures

The required number of mirrors is:

**Mopeds including Light Quadricycles** - 1 fitted to the right-hand side of the vehicle. It is permissible for an additional mirror to be fitted to the left-hand side of the vehicle, but if fitted the mirror must meet the requirements of this inspection.

**Motorcycles, Tricycles and Heavy Quadricycles** – 1 offside & 1 nearside

**Note.** If a mirror has an acceptable “E” or “e” approval mark it can be deemed to have met the requirements of 2 or 3 and 4 (h) and (i) below unless the mirror appears to have been modified. If a mirror is not marked with an acceptable approval mark it may still be acceptable if it meets **all** the requirements below.

1. Check that;
  - a) the required number of rear-view mirrors are fitted
  - b) in the case of a moped the mirror is fitted to the offside
  - c) there are no additional mirrors fitted
2. Check that the diameter of the reflecting surface of a circular mirror is;
  - a) not less than 94mm
  - b) not more than 150mm
3. Where mirrors are not circular check that their reflecting surface is;
  - a) able to contain a 78mm diameter circle
  - b) no larger than 120mm x 200mm.
4. Check that all mirrors;
  - a) are securely mounted so they remain in a stable position under normal driving conditions, giving a stable view. (Mirrors are allowed to move with the steering.)
  - b) are so placed that the driver has a clear view of the road to the rear and side(s) of the vehicle

- c) have a convex reflecting surface
- d) are fitted or set in such a way that the centre of the reflective surface is at least 280mm from the centre line of the vehicle with the handlebars in the “straight ahead” position
- e) are able to be adjusted from the driving position
- f) that protrude more than 100mm beyond the vehicle’s extreme outer edge are capable of being “knocked back” under impact
- g) knock back pivot is no more than 50mm from where fixed to the bodywork
- h) outer edges of the mirror reflecting surface are encased in a protective housing and
- i) if the edges of the protective housing are contactable by a 100mm sphere, check the edges have a radius of at least 2.5mm

## Reasons for Failure

1. The minimum number of mirrors;
  - a) are not fitted
  - b) (in the case of a moped) are not fitted to the offside
  - c) are exceeded
2. The diameter of the reflecting surface of a circular mirror is;
  - a) less than 94mm
  - b) more than 150mm
3. The reflecting surface of a noncircular mirror is;
  - a) not able to contain a 78mm diameter circle
  - b) greater than 120mm x 200mm
4. A mirror;
  - a) that is insecure
  - b) so placed that the driver does not have a clear view of the road to the rear and side(s) of the vehicle
  - c) that does not have a convex reflecting surface
  - d) is fitted or set so the centre of the reflecting surface is less than 280mm from the centre line of the vehicle

- e) that cannot be adjusted from the driving position
- f) and stem (where applicable) protruding more than 100mm from the extreme outer edge that does not knock back under impact
- g) knock back pivot is more than 50mm from fixing to the bodywork
- h) reflecting surface not encased in a protective housing
- i) protective housing where contactable by a 100mm sphere that does not have a radius of at least 2.5mm

## Record of Revision

Revision	Date	Change
1	Aug 2007	R&P quantities clarified
2	Jun 2010	R&P note added, R&P/RfF re-numbered
3	Aug 2014	Time constrained element removed from R&P/RfF 3
4	Jan 2019	Application expanded and corrected.

## 03 Mirrors – Bodied vehicles

### Application

This examination applies to all 3 and 4 wheeled bodied vehicles.

Requirement 2c does not apply to mirrors incorporated in bodywork, which are inclined 45° or less from the centre line of the vehicle.

### Requirements and Procedures

1. Check that the vehicle is fitted with the correct number of obligatory mirrors. Obligatory mirrors required are;

- one interior mirror and one offside mirror

If the interior mirror cannot meet the field of view requirements (see note below) then the obligatory mirrors required are;

- one nearside mirror and one offside mirror

**Note.** An interior mirror **must** be fitted unless:

- It would provide no rearward vision (e.g., obscured by a solid bulkhead)
- The vehicle has a central driving position where there is no practical position for the mounting of an interior mirror
- The mounting would be in such a position that a normal interior mirror cannot be fitted
- If a mirror were fitted it would clearly not meet the field of view requirements.

2. Check that exterior mirror(s);

a) reflecting surface is enclosed in a protective housing

b) if contactable by a 100mm sphere, have a radius of curvature of not less than 2.5mm

c) that protrude more than 100mm from the vehicle's extreme outer edge are capable of being "knocked back" under impact

d) knock back pivot is no more than 50mm from where it is fixed to the bodywork

e) fitted to the driver's side is capable of being adjusted from the driving position, unless it can "spring back" into its normal position

3. Check that the interior mirror;

a) reflecting surface is a minimum of 40mm x 80mm

- b) is capable of being adjusted from the driving position
  - c) is fitted with a protective housing so no exposed glass edges are contactable
4. Check that any mirror is not mounted in such a manner that it is likely to vibrate and give a distorted view.
  5. When the vehicle is in the appropriate position on the test area check each obligatory mirror in turn for field of view requirements. See Annex 1.

For **exterior mirrors** it is permitted for the required field of view to be obstructed by bodywork, door handles, wheel arches or similar items up to 10%

### Reasons for Failure

1. Any obligatory mirror missing.
2. An exterior mirror;
  - a) which does not have the reflecting surface contained in a protective housing
  - b) with any contactable edge which does not have a radius of at least 2.5mm
  - c) that protrudes more than 100mm from the extreme outer edge that is not capable of being “knocked back” under impact
  - d) knock back pivot is more than 50mm from where it is fixed to the bodywork
  - e) which is fitted to the driver’s side of the vehicle which cannot be adjusted from the driving position, unless it can “spring back” into its normal position
3. An interior mirror;
  - a) which does not have a reflecting surface of a minimum of 40mm x 80mm
  - b) is not capable of being adjusted from the driving position
  - c) with exposed contactable glass edges 4
4. A mirror mounted in such a manner that it is likely to vibrate and give a distorted view.
5. Any obligatory mirror that does not meet the field of view requirements.



## Record of Revision

Revision	Date	Change
1	Jun 2005	Interior mirror note amended
2	Jun 2010	Minor grammatical changes
3	Jan 2019	RfF 1. e) corrected to align with R&P.

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### 03 Annex 1 – Mirror Field of View (Compact Layout)

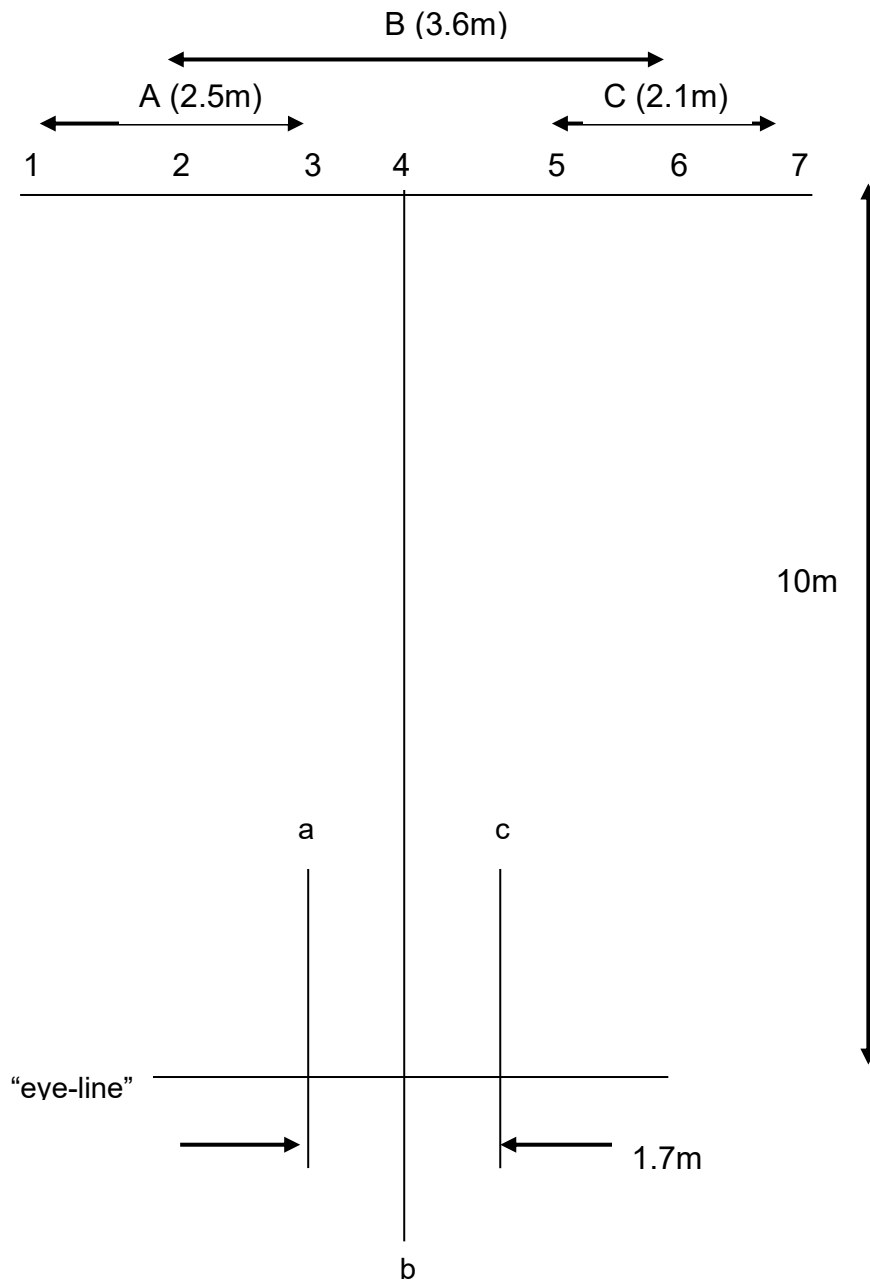


Figure 1: Floor Markings

### Annex 1 – Mirror Field of View 03 (Compact Layout)

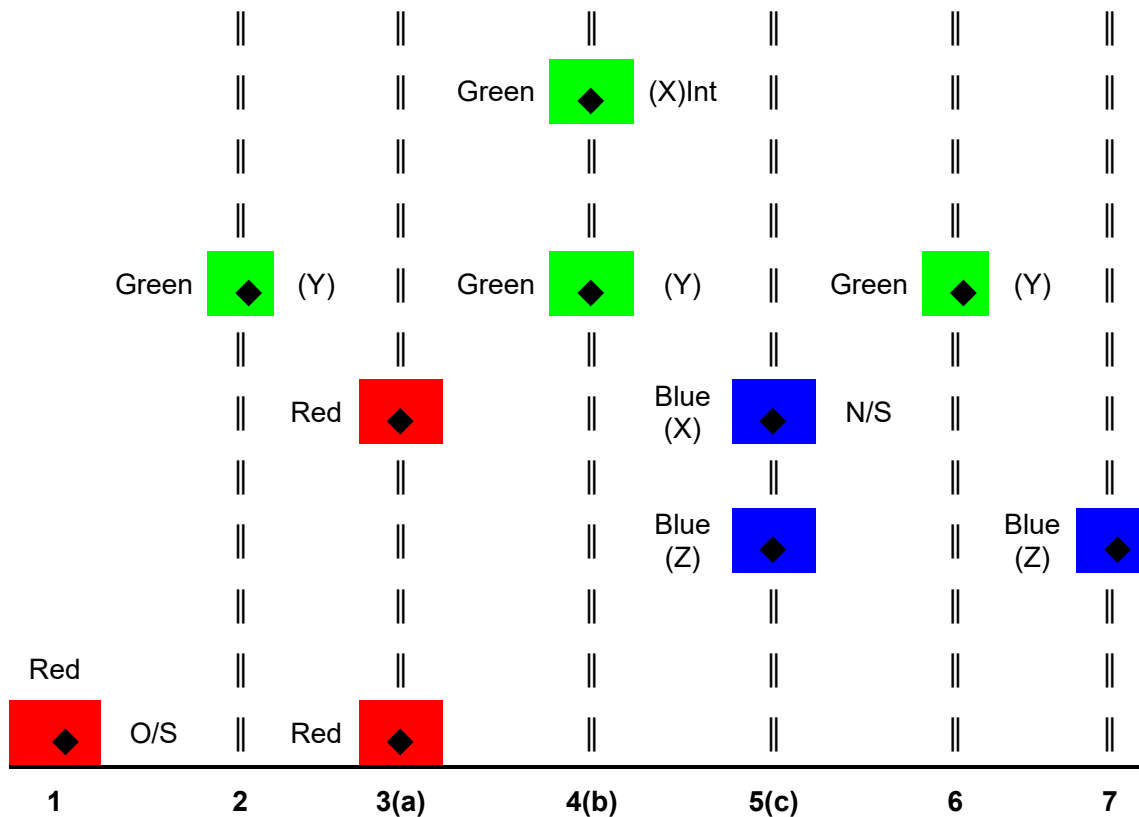


Figure 2: Pole (or wall) Markers

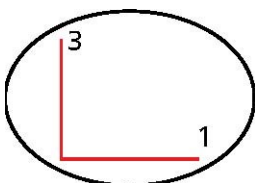
### Offside (O/S) Mirror

The field of view check for the obligatory offside mirror utilises markers at positions 1 and 3. The lower markers are positioned at floor level.

Position the offside extreme edge of the vehicle along line “a” (Fig. 1) If the driver’s seat is adjustable, move it to its rearmost position. When seated in the driver’s seat looking ahead and in a comfortable upright driving position, position the vehicle such that your eye position is aligned with the transverse “eye-line” (Fig. 1)

Measure the height of the top of the O/S mirror lens and position the upper marker on pole 3 at this height.

Check that from the driving position all three red markers at positions 1 and 3 are visible in the O/S mirror, i.e., the pole at position 3 from floor to the upper marker and the floor level markers from positions 1 to 3.



Acceptable view in O/S mirror

## Annex 1 – Mirror Field of View 03 (Compact Layout)

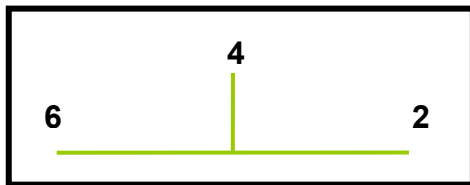
## Interior Mirror

The field of view check for the obligatory interior mirror utilises markers at positions 2, 4 and 6. The positions of all markers are variable.

Position the longitudinal centre line of the vehicle along line “b” (Fig. 1) and as with the O/S mirror align your eye position with the transverse “eyeline”.

Measure the height of the top of the interior mirror lens (a spirit level can be used to transfer the height position outside the vehicle) and position the upper marker on pole 4 at this height (X). Using the table at Annex 1 locate the measured mirror height in the centre (X) column and note the corresponding measurement in the left hand (Y) column. Position the markers on poles 2 and 6 and the lower marker on pole 4 at this height. If the height of the lens falls between the increments in column X use the next highest figure. If the height of the lens is outside the scope of the table, i.e., <500mm or >1500mm take the Y figure to be  $X \times 0.82$ , e.g.,  $X = 1600$ ,  $Y = 1600 \times 0.82 = 1312\text{mm}$ .

Check that from the driving position pole 4 between the upper and lower markings and the horizontal line formed by the lower markers on poles 2, 4 and 6 are visible.



Acceptable view in interior mirror

If an interior mirror does not provide the required field of view, a nearside exterior mirror meeting the appropriate field of view requirement must be fitted.

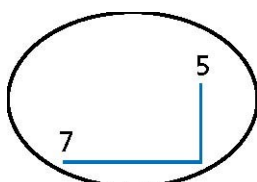
## Nearside (N/S) Mirror

If required, the field of view check for the N/S mirror utilises markers at positions 5 and 7. The positions of all markers are variable.

Position the nearside extreme edge of the vehicle along line “c” (Fig. 1) and as with the O/S mirror align your eye position with the transverse “eye-line”.

Measure the height of the top of the N/S mirror lens and position the upper marker on pole 5 at this height (X). Using the table at Annex 1 locate the measured mirror height in the centre (X) column and note the corresponding measurement in the right hand (Z) column. Position the marker on pole 7 and the lower marker on pole 5 at this height. If the height of the lens falls between the increments in column X use the next highest figure. If the height of the lens is outside the scope of the table, i.e., <500mm or >1500mm take the Z figure to be  $X \times 0.475$ , e.g.,  $X = 400$ ,  $Z = 400 \times 0.475 = 190\text{mm}$ .

Check that from the driving position pole 5 between the upper and lower markings and the horizontal line formed by the lower markers on poles 5 and 7 are visible.



Acceptable view in N/S mirror

## Annex 1 – Mirror Field of View 03 (Compact Layout)

## Motorcycle Single Vehicle Approval Manual

**NOTE 1:** While sitting in the driving position, facing forward, the respective field of view in each mirror should be obtainable by pivoting the eyes/head, without bodily movement.

**NOTE 2:** Obstruction by “sundry” items of up to 10% in the case of an exterior mirror is permitted. (Interior “sundry” items are head restraints, sun visors, rear window wipers and other similar items. Exterior “sundry” items are bodywork, door handles, direction indicators, bumpers, or similar items.)

## Annex 1 – Mirror Field of View 03 (Compact Layout)

Motorcycle Single Vehicle Approval Manual

(Y) Interior Mirror Marker Lower Height (mm)	(X) Height To Top of Lens (mm)	(Z) Nearside Mirror Marker Lower Height (mm)
1230	1500	713
1222	1490	708
1214	1480	703
1205	1470	698
1197	1460	694
1189	1450	689
1181	1440	684
1173	1430	679
1164	1420	675
1156	1410	670
1148	1400	665
1140	1390	660
1132	1380	656
1123	1370	651
1115	1360	646
1107	1350	641
1099	1340	637
1091	1330	632
1082	1320	627
1074	1310	622
1066	1300	618
1058	1290	613
1050	1280	608
1041	1270	603
1033	1260	599
1025	1250	594
1017	1240	589
1009	1230	584
1000	1220	580
992	1210	575
984	1200	570
976	1190	565
968	1180	561
951	1160	551
943	1150	546
935	1140	542
927	1130	537
918	1120	532
910	1110	527
902	1100	523
894	1090	518
886	1080	513
877	1070	508
869	1060	504
861	1050	499
853	1040	494
845	1030	489
836	1020	485
828	1010	480
820	1000	475
812	990	470
804	980	466
795	970	461
787	960	456
779	950	451

**Annex 1 – Mirror Field of View 03  
(Compact Layout)**

(Y) Interior Mirror Marker Lower Height (mm)	(X) Height To Top of Lens (mm)	(Z) Nearside Mirror Marker Lower Height (mm)
771	940	447
763	930	442
754	920	437
746	910	432
738	900	428
730	890	423
722	880	418
713	870	413
705	860	409
697	850	404
689	840	399
681	830	394
672	820	390
664	810	385
656	800	380
648	790	375
640	780	371
631	770	366
623	760	361
615	750	356
607	740	352
599	730	347
590	720	342
582	710	337
574	700	333
566	690	328
558	680	323
549	670	318
541	660	314
533	650	309
525	640	304
517	630	299
508	620	295
500	610	290
492	600	285
484	590	280
476	580	276
467	570	271
459	560	266
451	550	261
443	540	257
435	530	252
426	520	247
418	510	242
410	500	238

**Annex 1 – Mirror Field of View 03  
(Compact Layout)**



## Record of Revision

Revision	Date	Change
1	Jun 2010	Interior mirror view amended
2	Jan 2019	Figure 1 dimension B and pole position 7 added.

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## 04 Speedometer

### Application

This examination applies to all vehicles except Low Powered Mopeds.

**Note:** A global positioning system (GPS) such as a Sat Nav device is **not** an acceptable alternative to a speedometer

### Requirements and Procedures

A vehicle can be fitted with either a dial or a digital speedometer or both.

1. Check that a speedometer;
  - a) is fitted
  - b) is capable of indicating the vehicle speed in miles per hour
  - c) indicates speed up to the design speed of the vehicle
  - d) is within the direct field of view of the driver
  - e) is complete (including operating means)
  - f) is secure
2. (Dial speedometer only.) Check that the speedometer;
  - a) is graduated at uniform intervals not exceeding 20mph
  - b) graduations begin at either 10mph or 20mph
  - c) graduations are permanently marked on the dial face
3. Check that the speedometer can be illuminated in such a way that the indicated speed can be read at all times of the day and night.
4. Check that the speedometer mph (or m/h) indication is permanently marked.

**Note:** It is permitted for the marking (either mph or m/h) to be **permanently** marked on the dial glass and any reference to kph (km/h) removed (unless it is dual marked).

### Reasons for Failure

1. A speedometer;
  - a) not fitted
  - b) does not indicate the speed in mph
  - c) does not indicate speed up to the design speed of the vehicle

- d) not within the direct field of view of the driver
  - e) incomplete
  - f) insecure
2. A dial speedometer;
    - a) indicates speed at intervals exceeding 20mph (10mph in the case of low power mopeds)
    - b) with graduations that do not begin at either 10mph or 20mph
    - c) with graduations not permanently marked on the dial face
  3. The indicated speed of a speedometer not capable of being read at all times of day or night
  4. A speedometer with miles per hour marking not permanently marked.

## Record of Revision

Revision	Date	Change
1	Jun 2005	All R&P amended with clarifications
2	Aug 2007	R&P 3 amended for indicated speed
3	Jun 2014	Note added to clarify non acceptability of GPS
4	Jan 2019	Application updated.

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## 05 Audible Warning

### Application

This examination applies to all vehicles. Low Powered Mopeds may be fitted with a mechanical audible warning device.

### Requirements and Procedures

An audible warning device is usually a horn. A horn is defined as an instrument, not being a bell, gong, or siren, capable of giving a continuous, uniform sound, which does not vary perceptibly during operation, intended to give warning of the presence of, or a manoeuvre by, a vehicle in a dangerous road traffic situation. Mechanical audible warning devices shall be equipped with a thumb-operated lever, either of the puller bell type geared to rapidly rotate two loosely slung metal discs inside the bell housing, or of the single stroke bell type. R&P 1. e) shall not apply to a mechanical device.

1. Check that a horn, or a mechanical device capable of giving an audible warning;
  - a) is fitted
  - b) is secure
  - c) functions
  - d) is loud enough (compared to a comparable machine) to be heard by another road user
  - e) emits a sound which is continuous or uniform
  - f) is capable of being operated with both hands on the steering control

### Reasons for Failure

1. A horn or mechanical device;
  - a) missing
  - b) insecure
  - c) inoperative
  - d) which operates but is not loud enough to be heard by another road user
  - e) which emits a sound that is not continuous or uniform
  - f) cannot be operated with both hands on the steering control

## Record of Revision

Revision	Date	Change
1	Jun 2010	R&P 1. e) amended, R&P/RfR 1. f) added
2	Jan 2019	Application expanded; mechanical device added to R&P.



## 06 Lighting

### Application

This examination applies to all obligatory and optional lamps (where fitted).

### Notes for Positional Requirements

Positional requirements for obligatory lamps can be found at Annexes 1 to 7. The vehicle must be assessed with the steering in the “straight ahead” position.

Single lamps must be fitted on the centre line of the vehicle

Multiple lamps must be fitted symmetrically to the centre line of the vehicle.

Twin headlamps may be fitted one above the other.

A single front position lamp may be fitted to one side of another lamp, e.g., headlamp. If this is the case the lamps must be fitted symmetrically to the centre line of the vehicle.

Positional requirements for headlamps located “at front of the vehicle” can be considered met if the light emitted does not disturb the driver directly or indirectly.

Positional requirements for lamps located “at rear of the vehicle,” should be judged as the practicable rearmost point.

Pedals are defined as devices that may function as a means of propulsion instead of the engine.

“From the outermost part of the vehicle” means the extreme outer edge of the bodywork disregarding tyres, mirrors, lamps, etc. (but including the mudguard of a wheel fitted outside sidecar bodywork).

Where any distance between lamps or between lamps and the outermost part of the vehicle is specified, the measurement is the distance measured from the closest edge of the illuminating surface(s).

Minimum height is measured to the lower edge of the illuminated area, and maximum to the highest, other than in the case of a dipped beam lamp where the minimum height is measured to the apparent trace of the beam cut off (i.e., lamp centre).

### General Notes

Lamp/Reflector positional requirements achieved by the external masking of part, or the entire illuminated surface are acceptable as long as it is of a permanent nature.

Front directional indicator intensity must be assessed with the headlamp dipped beam switched on.

Headlamps should not be compared for brightness but must emit sufficient light to illuminate the road in front of the vehicle on dipped and main (where applicable) beams.

## Motorcycle Single Vehicle Approval Manual

On twin headlamp systems fitted to two wheeled vehicles one or both headlamps can be illuminated for dipped or main beam.

On some mopeds it is permissible for directional indicators to flash at between 45 to 120 times per minute. This check must be conducted with the engine running and the throttle **up to** 50% open. Care must be taken when assessing a moped with automatic clutch (twist and go).

It is permissible that all front lamps move with the steering angle on vehicles where they are designed to do so.

Lighting switches must operate positively, i.e., they must not have to be held in the on position to operate any lamps except for a headlamp flash switch.

When assessing white LED lamps for colour; an E/e marked assembly will be deemed to have met the colour requirements.

When assessing lamps for visibility from the front and rear the Examiner should satisfy themselves that the relevant lamps can be seen from a position on the vehicles longitudinal centre line, 2 metres in front of and behind the vehicle (when checking forward facing and rearward facing lamps respectively) and 1.5 metres above the ground.

### Requirements and Procedures

1. Check that the vehicle is not fitted with a lamp or retro reflective material capable of showing;
  - a) a light other than white to the front (other than in the case of an indicator or fog light)(see **Note 1**)
  - b) a light other than red to the rear except
    - amber light from a directional indicator
    - white light from a reversing lamp, interior lamp (bodied vehicles only) or a registration plate lamp
    - yellow reflected light from a registration plate

**Note 1:** Category L3e vehicles may be fitted with Two (one per side) amber front position lamps. Where the front position lamp is reciprocally incorporated in the front direction indicator lamp, the position lamp on the same side as the direction indicator lamp must switch off when that direction indicator lamp is flashing.

2. Check all obligatory (and optional where fitted) lamps and reflectors for;
  - a) correct number fitted
  - b) operation/completeness/security/condition
  - c) position
  - d) colour

- e) intensity
  - f) visibility from the front or rear as required
3. Check all light switches for;
- a) presence
  - b) operation
  - c) security
  - d) safe positioning with regard to operation - switches for headlamp dip/main and direction indicators must be fitted in such a way that they can be operated with the hands remaining on the steering control
4. Check that a front positional lamp;
- a) closed-circuit tell-tale is fitted. (A separate tell-tale is not required if the instrument panel lighting can only be switched on or off with the positional lamp.)
  - b) rear positional lamp and registration plate lamps fitted can be switched on and off by one operating switch
5. Check that the main (where applicable)/dipped headlamp switch operates simultaneously all main beam headlamps when switched from dipped to main beam and main to dipped beam. It is permissible for the dipped beam to remain lit at the same time as the main beam.
6. Check that the stop lamp (where applicable);
- a) emits a steady red light when any service brake is applied
  - b) goes out when the brake is released
7. Check that the directional indicators (where fitted) are capable of flashing constantly at a rate of between 60 to 120 times per minute. It is permissible to run the engine during this check.
8. Check that the hazard warning device;
- a) is fitted where required, and where fitted
  - b) operates with the ignition switched both on and off **Note:** in this instance off means the switch in a position where the engine cannot operate
  - c) operates all the indicators either simultaneously or alternately front then rear
  - d) has a closed-circuit tell-tale fitted that is either optical or auditory or both. If optical it may be incorporated with the indicator tell-tale lamp. If entirely auditory it must be clearly audible to the driver.

**Note:** If a vehicle is fitted with separate indicator switches (usually one on each handlebar) both should be operated simultaneously to check for hazard warning operation.

9. Check that the rear fog lamp (where fitted);
  - a) is fitted with a closed-circuit tell-tale lamp visible to the driver
  - b) cannot be illuminated unless one or more of the main beam, dipped beam headlights or the front fog lamps are lit
  - c) can be switched off independently of any front fog lamps
  - d) has a minimum distance of 100mm from any stop lamp
  - e) is positioned squarely to the rear
10. Check that the front fog lamp (where fitted) can be switched on or off independently from the main or dipped beam lamps.
11. Check that the headlamp(s);
  - a) is not of the “gas discharge” type
  - b) emits sufficient light on either dipped or main beam to illuminate the road in front of the vehicle
12. Check that reversing lamp(s) (where applicable);
  - a) only illuminates with the vehicle in reverse gear, and with the ignition switched on
  - b) does not illuminate in any circumstances other than the above
13. Check that all rear and side retro-reflectors are of the non-triangular type.

### Reasons for Failure

1. A lamp or retro reflective material capable of showing;
  - a) a light other than white to the front (other than in the case of an indicator or a fog light),(see **Note 1**).
  - b) a light other than red to the rear unless it is a listed exception
2. An obligatory (or optional) lamp or reflector;
  - a) incorrect number fitted
  - b) missing/insecure/inoperative/incomplete
  - c) incorrectly positioned
  - d) not of the correct colour

- e) except in the case of a headlamp, not of a similar brightness when compared to a lamp from a vehicle meeting ECWVTA
  - f) not visible
3. Any light switch;
- a) missing
  - b) inoperative
  - c) insecure
  - d) not in a safe operating position
4. A front positional lamp;
- a) does not operate a tell-tale (where applicable)
  - b) rear positional lamp and registration plate lamps are not controlled by the same switch
5. A main (where applicable)/dipped headlamp switch does not operate simultaneously all main beam headlamps when switched from dipped to main beam and main to dipped beam.
6. A stop lamp (where applicable);
- a) does not emit a steady red light when any service brake is applied
  - b) remains on when the brake is released
7. A directional indicator (where fitted) not capable of flashing constantly at a rate of between 60 to 120 times per minute. (See General Notes under R & P)
8. A hazard warning device;
- a) not fitted when required
  - b) that does not operate with the ignition switched both on and off
  - c) that does not operate all the indicators either simultaneously or alternately front then rear
  - d) tell-tale missing or inoperative
9. A rear fog lamp (where fitted);
- a) tell-tale lamp missing, inoperative or not visible to the driver (visual only)
  - b) that can be switched on independently from the main beam, dipped beam headlights or the front fog lamp

- c) that cannot be switched off independently from the front fog lamps
  - d) which is positioned within 100mm of a stop lamp
  - e) does not face squarely to the rear
10. A front fog lamp (where fitted) that cannot be switched on or off independently from the main or dipped beam lamps.
11. Any headlamp;
- a) is of the “gas discharge” type
  - b) that does not emit sufficient light on either dipped or main beam to illuminate the road in front of the vehicle
12. A reversing lamp (where fitted) that;
- a) does not illuminate with the vehicle in reverse gear, with the ignition switched on
  - b) that illuminates in any other circumstances
13. A triangular reflector fitted.

## Record of Revision

Revision	Date	Change
1	Jun 2010	Additional notes, R&P/RfF 3. D) added, R&P 8. B) note added minor text changes
2	Jan 2019	Add note to R&P 8
3	Sept 2022	Note 1 added. R&P & RfF 1. (a) amended to reference Note 1.

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## 06 Annex 1- Lighting requirements for 2 Wheel Mopeds & Low Powered Mopeds

### Obligatory

Lamps	Colour	Number	Position
Dipped beam	White	1 or 2 max	At front of vehicle Min height 500mm Max height 1200mm Max 200mm between any dipped and/or main beam lamps
Rear position	Red	1 min	At rear of vehicle Min height 250mm Max height 1500mm
Stop	Red	1 min	Min height 250mm Max height 1500mm <b>Note:</b> There is no requirement for a stop lamp to be fitted to a low powered moped.
Registration	White	1 min	Must illuminate rear registration plate area. <b>Note:</b> There is no requirement for a registration plate lamp on a 250W LPM which will not be registered.
Non-triangular rear reflector	Red	1 min	At the rear facing to the rear Min height 250mm Max height 900mm
Pedal reflectors	Amber	2 per pedal min, 1 each facing front and rear	Only required when non-retractable pedals are fitted and clearly visible both to the front and rear of the vehicle

## Annex 1 – Lighting requirements for 2 Wheel Mopeds & Low Powered Mopeds 06

**Optional**

Lamps	Colour	Number	Position
Main beam	White	1 min	Max 200mm between illuminating surfaces of twin dipped and/or main beam lamps. The distance between the edge of the illuminating surface of any independent main beam and the edge of that dipped beam headlamp must not exceed 200mm
Front position	White	1 min	At the front Min height 350mm Max height 1200mm
Front indicator	Amber	2 max	Min height 350mm Max height 1200mm Min distance apart 240mm
Rear indicator	Amber	2 or 4 max	Height as front Min distance apart 180mm Max 300mm from rear
Non-triangular front reflector	White	1 min	Min height 400mm Max height 1200mm
Non-triangular side reflector	Amber or red at rear	1 min	Min height 300mm Max height 900mm Must not be obscured by driver or passenger

**Annex 1 – Lighting requirements for 2 Wheel Mopeds & Low Powered Mopeds 06**

## Record of Revision

Revision	Date	Change
1	Jun 2005	Red side reflector added
2	Jun 2010	Title amended, reference to non- registered vehicles removed, rear indicator number clarified
3	Jan 2019	Title amended, stop, registration plate lamp and pedal reflector requirement clarified.

## Annex 1 – Lighting requirements for 2 Wheel Mopeds & Low Powered Mopeds 06

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## 06 Annex 2- Lighting requirements for 3 Wheel Mopeds & Light Quadricycles

### Obligatory

Lamps	Colour	Number	Position
Dipped beam	White	1 or 2	At front of vehicle Min Height 500mm Max height 1200mm Max 200mm between any dipped and/or main beam lamps <b>If 2 dipped beam lamps are fitted, they must also meet the following:</b> Max 400mm from outermost edge of vehicle Min 500mm distance between illuminating surfaces of twin lamps. Can be reduced to 400mm if vehicle is <1300mm wide
Front position	White	1 min	At front of vehicle. If the widest point of the vehicle is not at the front it is permissible for 2 additional lamps to be fitted. Min height 350mm Max height 1200mm Vehicles >1300mm wide must be fitted with 2 position lamps, which must be: Max 400mm from outermost edge of vehicle. Min 500mm distance between illuminating surfaces
Rear position	Red	1 min	At the rear of vehicle Min height 300mm Max height 1500mm Vehicles >1300mm wide must be fitted with 2 position lamps. Vehicles >1300mm wide with 2 rear wheels must have min 600mm distance between illuminating surfaces. Vehicles <1300mm with 2 rear wheels may have 400mm between illuminating surfaces

## Annex 2 – Lighting requirements for 3 Wheel Mopeds & Light Quadricycles 06

## Obligatory

Lamps	Colour	Number	Position
Front indicator	Amber	2 max	<b>Bodied 3-wheel mopeds only</b> Min height 350mm Max height 1500mm Max 400mm from outermost edge of vehicle. Min 500mm distance between illuminating surfaces
Rear indicator	Amber	2 or 4 max	As front
Stop	Red	1 min	Min height 250mm Max height 1500mm <b>Vehicles &gt;1300mm wide must be fitted with 2 stop lamps.</b> <b>Vehicles &gt;1300mm wide with 2 rear wheels</b> must have min 600mm distance between illuminating surfaces. <b>Vehicles &lt;1300mm with 2 rear wheels</b> may have 400mm between illuminating surfaces
Registration	White	1 min	Must illuminate rear registration plate area.
Non-triangular rear reflector	Red	1 min	At the rear facing to the rear Min height 250mm Max height 900mm <b>Vehicles &gt;1000mm wide must be fitted with 2 rear reflectors</b> which must have a maximum distance of 400mm from the outermost edge of the vehicle and a minimum distance of 400mm between internal edges or 500mm for vehicles >1300mm
Pedal reflectors	Amber	2 per pedal min	Only required when non-retractable pedals are fitted and clearly visible both to the front and rear of the vehicle

## Annex 2 – Lighting requirements for 3 Wheel Mopeds & Light Quadricycles 06

## Optional

Lamps	Colour	Number	Position
Main beam	White	1 min	Max 200mm between illuminating surfaces of dipped beam headlamp for any pair of lamps. <b>Vehicles &gt;1300mm wide must be fitted with 2 lamps</b>
Non-triangular side reflector	Amber or red at rear	1 min	Min height 300mm Max height 900mm Must not be obscured by driver or passenger

## Annex 2 – Lighting requirements for 3 Wheel Mopeds & Light Quadricycles 06

## Record of Revision

Revision	Date	Change
1	Jun 2005	Red side reflector added
2	Aug 2014	Dipped beam wording corrected; rear position lamp max height corrected

## Annex 2 – Lighting requirements for 3 Wheel Mopeds & Light Quadricycles 06



## 06 Annex 3 – Lighting requirements for Solo Motorcycles

### Obligatory

Lamps	Colour	Number	Position
Main beam	White	1 min	At the front of vehicle Max 200mm between any dipped and/or main beam lamps.
Dipped beam	White	1 or 2 max	At the front of vehicle Min height 500mm Max height 1200mm Distance apart as above
Front position	White or Amber	1 min (2 min if Amber)	At the front of vehicle Min height 350mm Max height 1200mm Tell-tale compulsory
Rear position	Red	1 min	At the rear of vehicle Min height 250mm Max height 1500mm
Front indicator	Amber	2 max	Min height 350mm Max height 1200mm Min distance apart 240mm
Rear indicator	Amber	2 or 4 max	Height as front Min distance apart 180mm Max 300mm from rear
Stop	Red	1 min	Min height 250mm Max height 1500mm
Registration	White	1 min	Must illuminate registration plate area
Non-triangular rear reflector	Red	1 min	At the rear facing to the rear Min height 250mm Max height 900mm

## Annex 3 – Lighting requirements for Solo Motorcycles 06

## Optional

Lamps	Colour	Number	Position
Non-triangular side reflector	Amber or red at rear	1 or 2 per side	Min height 300mm Max height 900mm Must not be obscured by rider/passenger
Front fog	White/yellow	No specification	Min height 250mm Max not above highest point of dipped beam headlamp
Rear fog	Red	1 or 2 max	Min height 250mm Max height 900mm Min 100mm from stop lamp Tell-tale compulsory
Hazard	Amber	As indicators	As indicator lamps Tell-tale compulsory

## Annex 3 – Lighting requirements for Solo Motorcycles 06

## Record of Revision

Revision	Date	Change
1	Jun 2005	Red side reflector added
2	Jun 2010	Title updated; rear reflector number updated
3	Sept 2022	Updated front position lamp colour requirements

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## 06 Annex 4 – Lighting requirements for Motorcycles with Sidecar

### Obligatory

Lamps	Colour	Number	Position
Main beam	White	1 min	At the front of vehicle Max 200mm between any dipped and/or main beam lamps.
Dipped beam	White	1 or 2 max	At the front of vehicle Min height 500mm Max height 1200mm Distance apart as above
Front position	White or Amber	2 or 3 1 only on sidecar	Min height 350mm Max height 1200mm Max 400mm from the outermost edge of vehicle. 3 <sup>rd</sup> lamp (where fitted) must be symmetrical to the lamp fitted to the motorcycle. Tell-tale compulsory
Rear position	Red	2 or 3 1 only on sidecar	Min height 250mm Max height 1500mm Max 400mm from the outermost edge of vehicle. 3 <sup>rd</sup> lamp (where fitted) must be symmetrical to lamp fitted to the motorcycle
Front indicator	Amber	2 max	Max 400mm from the outermost edge of vehicle. Min distance apart 600mm Sidecar indicator must sit forward of the midway point of the car.
Rear indicator	Amber	2 or 4 max	Max 400mm from the outermost edge of vehicle. Min distance apart 600mm Sidecar indicator must sit behind of the midway point of the car. Motorcycle indicator must be within 300mm of the rearmost point.

## Annex 4 – Lighting requirements for Motorcycles with Sidecar 06

## Obligatory

Lamps	Colour	Number	Position
Stop	Red	1 min 1 only fitted to sidecar	At the rear of the vehicle Min height 250mm Max height 1500mm Max 400mm from the outermost edge of the vehicle
Registration	White	1 min	Must illuminate rear registration plate area.
Non-triangular rear reflector	Red	2 min	At the rear facing to the rear Min height 250mm Max height 900mm Max 400mm from the outermost edge of the vehicle. Min distance between internal edges: Vehicle width >1300mm = 500mm <1300mm = 400mm

## Annex 4 – Lighting requirements for Motorcycles with Sidecar 06

**Optional**

<b>Lamps</b>	<b>Colour</b>	<b>Number</b>	<b>Position</b>
Non-triangular side reflector	Amber or red at rear	1 or 2 per side	Min height 300mm Max height 900mm Must not be obscured by rider/passenger
Front fog	White/yellow	1 or 2	Min height 250mm Max not above highest point of dipped beam headlamp Max 400mm from outermost edge of vehicle.
Rear fog	Red	1 or 2 max	On the centreline or to the offside of the vehicle Min height 250mm Max height 900mm Min 100mm separation from stop lamp Tell-tale compulsory
Hazard	Amber	As indicators	As indicator lamps Tell-tale compulsory

**Annex 4 – Lighting requirements for Motorcycles with Sidecar 06**

## Record of Revision

Revision	Date	Change
1	Jun 2005	Red side reflector added, stop lamp position corrected
2	Jun 2010	Front and rear position lamp numbers clarified



## 06 Annex 5 – Lighting requirements for Motorcycle Tricycles

### Obligatory

Lamps	Colour	Number	Position
Main beam	White	1 min	At the front of the vehicle Max 200mm between single dipped and main beam lamps <b>Vehicles &gt;1700mm wide must be fitted with 2 lamps</b>
Dipped beam	White	1 or 2	At the front of the vehicle Min height 500mm Max height 1200mm Max 200mm from a single main beam headlamp <b>Vehicles &gt;1700mm wide must be fitted with 2 lamps</b> <b>If 2 dipped beam headlamps are fitted side by side;</b> Max 400mm from outermost edge of vehicle. Min 500mm distance between illuminating surfaces of twin lamps. Can be reduced to 400mm if vehicle is <1300mm wide
Front position	White	1 min	At front of vehicle and/or on rear mudguards Min height 350mm Max height 1200mm <b>Vehicles &gt;1300mm wide must be fitted with 2 position lamps,</b> which must be: Max 400mm from outermost part of vehicle. Min 500mm distance between illuminating surfaces. Tell-tale compulsory

If the vehicle width is less than that required for two obligatory headlamps to be fitted (1700mm) headlamps fitted one above the other, where both are on the centre line of the vehicle, will be acceptable. If the lamps are side by side, they must meet the spacing requirements for two obligatory headlamps OR be set up as one dipped beam headlamp and one main beam. Examples of acceptable multi lamp layouts are shown at Annex 7.

## Annex 5 – Lighting requirements for Motorcycle Tricycles 06

## Obligatory

Lamps	Colour	Number	Position
Rear position	Red	1 min	At rear of vehicle Min height 250mm Max height 1500mm <b>Vehicles &gt;1300mm wide must be fitted with 2 position lamps</b> <b>Vehicles &gt;1300mm</b> , the lamps must have min 600mm between illuminating surfaces <b>Vehicles &lt;1300mm wide</b> , may reduce the min separation to 400mm
Front indicator	Amber	2 max	Min height 350mm Max height 1500mm Min 240mm distance between illuminating surfaces
Rear indicator	Amber	2 or 4 max	Min height 350mm Max height 1500mm Max 400mm from outermost edge of vehicle Min 500mm distance between illuminating surfaces
Stop	Red	1 min	Min height 250mm Max height 1500mm <b>Vehicles &gt;1300mm wide must be fitted with 2 stop lamps.</b> <b>Vehicles &gt;1300mm wide with 2 rear wheels</b> must have min 600mm distance between illuminating surfaces. <b>Vehicles &lt;1300mm with 2 rear wheels</b> may have min 400mm between illuminating surfaces
Registration	White	1 min	Must illuminate rear registration plate area.

## Annex 5 – Lighting requirements for Motorcycle Tricycles 06

## Obligatory

Lamps	Colour	Number	Position
Non-triangular rear reflector	Red	1 min	At the rear facing to the rear Min height 250mm Max height 900mm Vehicles >1000mm wide must be fitted with 2 rear reflectors which must be not more than 400mm from the outermost edge of the vehicle. Min distance between internal edges: Vehicle width >1000mm = 400mm >1300mm = 500mm
Hazard warning	Amber	As indicators	As indicators Tell-tale compulsory

## Optional

Lamps	Colour	Number	Position
Non-triangular side reflector	Amber or red at rear	1 or 2 per side	Min height 300mm Max height 900mm Must not be obscured by rider/passenger
Front fog	White/yellow	1 or 2 max	Min height 250mm Max not above highest point of dipped beam headlamp Max 400mm from outside edge of vehicle
Rear fog	Red	1 or 2 max	Min height 250mm Max height 900mm Min 100mm from stop lamp Tell-tale compulsory
Reversing	White	1 or 2 max	Min height 250mm Max height 1200mm

# Annex 5 – Lighting requirements for Motorcycle Tricycles 06

## Record of Revision

Revision	Date	Change
1	Jun 2005	Main and dipped beam position clarified; red side reflectors added
2	Aug 2007	Note on headlamp positioning added
3	Jun 2010	Title amended

## 06 Annex 6 – Lighting requirements for Tricycles (other than Motorcycle) and Heavy Quadricycles

### Obligatory

Lamps	Colour	Number	Position
Main beam	White	1 min	At the front of the vehicle Max 200mm between single dipped and main beam lamps <b>Vehicles &gt;1300mm wide must be fitted with 2 lamps</b>
Dipped beam	White	1 or 2	At the front of the vehicle Min height 500mm Max height 1200mm Max 200mm from a single main beam headlamp <b>Vehicles &gt;1300mm wide must be fitted with 2 lamps</b> <b>If 2 dipped beam headlamps are fitted side by side;</b> Max 400mm from outermost edge of vehicle. Min 500mm distance between illuminating surfaces of twin lamps. Can be reduced to 400mm if vehicle is <1300mm wide
Front position	White	1 min	At front of vehicle Min height 350mm Max height 1200mm <b>Vehicles &gt;1300mm wide must be fitted with 2 position lamps,</b> which must be: Max 400mm from outermost part of vehicle. Min 500mm distance between illuminating surfaces. Tell-tale compulsory

If the vehicle width is less than that required for two obligatory headlamps to be fitted (1300mm) headlamps fitted one above the other, where both are on the centre line of the vehicle, will be acceptable. If the lamps are side by side, they must meet the spacing requirements for two obligatory headlamps OR be set up as one dipped beam headlamp and one main beam. Examples of acceptable multi lamp layouts are shown at Annex 7.

## Annex 6 – Lighting requirements for Tricycles (other than Motorcycle) and Heavy Quadricycles

## Obligatory

Lamps	Colour	Number	Position
Rear position	Red	1 min	<p>At rear of vehicle                      Min height 250mm                      Max height 1500mm  <b>Vehicles &gt;1300mm wide must be fitted with 2 position lamps</b>  <b>Vehicles &gt;1300mm with 2 rear wheels</b>, the lamps must have min 600mm between illuminating surfaces  <b>Vehicles &lt;1300mm wide with 2 rear wheels</b>, the lamps may have a min 400mm between illuminating surfaces  <b>Vehicles with a single rear wheel</b>, the lamps can be fitted within the rear half of the vehicle</p>
Front indicator	Amber	2 max	<p>Min height 350mm                      Max height 1500mm                      Max 400mm from the outermost edge of the vehicle                      Min 500mm between illuminating surfaces</p>
Rear indicator	Amber	2 or 4 max	<p>Min height 350mm                      Max height 1500mm                      Min 500mm distance between illuminating surfaces  <b>Vehicles with a single rear wheel</b>, the lamps can be fitted within the rear half of the vehicle</p>
Stop	Red	1 min	<p>Min height 250mm                      Max height 1500mm  <b>Vehicles &gt;1300mm wide must be fitted with 2 stop lamps.</b>  <b>Vehicles &gt;1300mm wide with 2 rear wheels</b> must have min 600mm distance between illuminating surfaces.  <b>Vehicles &lt;1300mm with 2 rear wheels</b> may have min 400mm between illuminating surfaces</p>

## Annex 6 – Lighting requirements for Tricycles (other than Motorcycle) and Heavy Quadricycles

## Obligatory

Lamps	Colour	Number	Position
Stop			<b>Vehicles with a single rear wheel</b> the lamps can be fitted within the rear half of the vehicle
Registration	White	1 min	Must illuminate rear registration plate area
Non-triangular rear reflector	Red	1 min	At rear of vehicle, or on the rear of the front mudguard for <b>vehicles with a single rear wheel</b> , facing to the rear Min height 250mm Max height 900mm <b>Vehicles &gt;1000mm wide must be fitted with 2 rear reflectors</b> which must be not more than 400mm from the outermost edge of the vehicle. <b>Vehicles &gt;1300mm wide</b> must have a min 500mm between reflecting surfaces
Hazard warning	Amber	As indicators	As indicators Tell-tale compulsory

## Annex 6 – Lighting requirements for Tricycles (other than Motorcycle) and Heavy Quadricycles

**Optional**

<b>Lamps</b>	<b>Colour</b>	<b>Number</b>	<b>Position</b>
Non-triangular side reflector	Amber or red at rear	1 or 2 per side	Min height 300mm Max height 900mm Must not be obscured by rider/passenger
Front fog	White/yellow	1 or 2 max	Min height 250mm Max not above highest point of dipped beam headlamp Max 400mm from outside edge of vehicle
Rear fog	Red	1 or 2 max	Min height 250mm Max height 900mm Min 100mm from stop lamp Tell-tale compulsory
Reversing	White	1 or 2 max	Min height 250mm Max height 1200mm

**Annex 6 – Lighting requirements for Tricycles (other than Motorcycle) and Heavy Quadricycles**



## Record of Revision

Revision	Date	Change
1	Jun 2005	Optional table title corrected; red side reflectors added
2	Aug 2007	Note on headlamp positioning added
3	Jun 2010	Title amended

## Annex 6 – Lighting requirements for Tricycles (other than Motorcycle) and Heavy Quadricycles

**06**

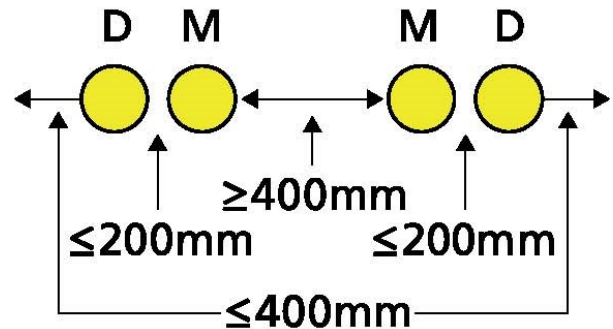
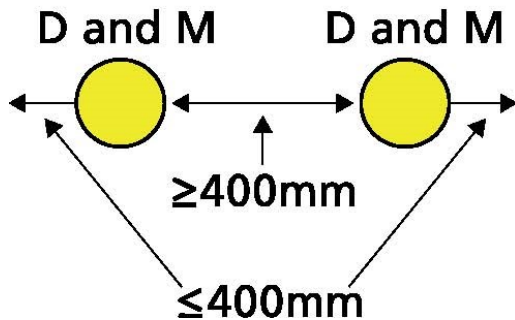
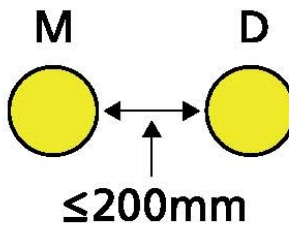
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**Annex 6 – Lighting requirements for Tricycles  
(other than Motorcycle) and Heavy Quadricycles**

**06**

## 06 Annex 7 – Acceptable multi-lamp options for 3&4 wheeled vehicles not requiring two obligatory headlamps

Acceptable multi-lamp options for vehicles not requiring two obligatory headlamps are shown below. D=Dip, M=Main.



Note: These layouts assume the lamps are being viewed from a position ahead of the vehicle

**Annex 7 – Acceptable multi-lamp options for 3&4 wheeled vehicles not requiring two obligatory headlamps 06**

## Record of Revision

Revision	Date	Change
1	Aug 2007	Created

## **Annex 7 – Acceptable multi-lamp options for 3&4 wheeled vehicles not requiring two obligatory headlamps 06**

## 07 Unauthorised Use

### Application

This inspection applies to all vehicles with the exception of mopeds. However, if a device is fitted to a moped, it must meet the requirements below.

#### Notes.

- The device may be mechanical or electrical, or an electronic immobiliser or a combination of these in addition to any switch normally used to start the engine.
- Mechanical devices must act positively to lock the steering or transmission system or both.

### Requirements and Procedures

1. Check that the vehicle is fitted with an operational device or system intended to prevent the unauthorised use of the vehicle such that it shall be necessary to disable it in order to point, drive or move the vehicle straight ahead.
2. Check that any device fitted does not act on any part of the braking system.
3. Check that the protective device cannot accidentally jam when the vehicle is in motion.

### Reasons for Failure

1. A vehicle not fitted with an operational device preventing unauthorised use of the vehicle or, where a mechanical device is fitted, it does not act on the steering or the transmission or both
2. A device that acts upon the vehicle braking system.
3. The device is likely to jam when the vehicle is in motion.

## Record of Revision

Revision	Date	Change
1	Aug 2007	R&P/RfR 1 and 2 amended
2	Jun 2010	Application note added, R&P/RfR 1 amended

## 08 External Projections – Unbodied Vehicles

### Application

This inspection applies to all unbodied vehicles.

The requirements set out below do not apply to the space between the motorcycle and sidecar in motorcycle combinations.

If a vehicle has provision for 2-foot positions (e.g., normal, and forward controls) the vehicle must be assessed with the presenter's feet in both positions.

Where mopeds are fitted with non-retractable pedals, compliance with the requirements for the pedals is optional. Pedals are defined as devices that may function as a means of propulsion instead of the engine.

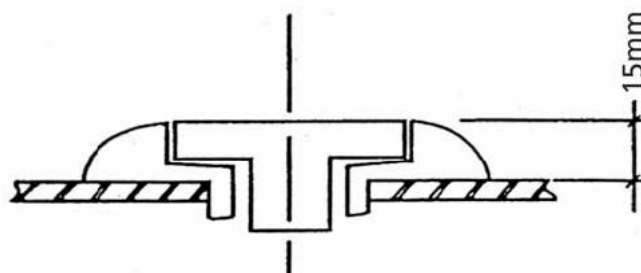
All external projections covered by this examination are considered to meet the requirements if they are made from, or covered with, a material having a hardness of less than 60 Shore A, offering a degree of protection.

If an item is modified to meet this requirement, the item must be assessed against known materials, methods of manufacture and attachment of such materials likely to be used by a manufacturer of mass-produced vehicles. The materials and methods used may be acceptable if they are permanent and durable. For example, pipe lagging (etc.) would be considered unacceptable.

### Requirements and Procedures

#### Specific Requirements

1. Check that any point on the upper edge of the windshield (where fitted);
  - a) has a radius of curvature of at least 2mm, or
  - b) is covered with an edge protection material having a hardness of less than 60 Shore A
2. Check that the ends of the clutch and brake levers are perceptibly spherical and have a radius of curvature of at least 7mm. **Note:** It is acceptable for the underside of the 'ball end' to be flat and/or hollow.
3. Check that the leading edge of the front mudguard has a radius of curvature of at least 2mm.
4. Check that the rear edge of any filler cap located on the upper surface of the fuel tank (which is likely to be struck by the rider in the event of a collision);
  - a) does not protrude more than 15mm above the surface and is smooth or perceptibly spherical
  - b) does protrude more than 15mm above the surface and is fitted with a protective device (see example below)



## External Projections – Unbodied Vehicles 08

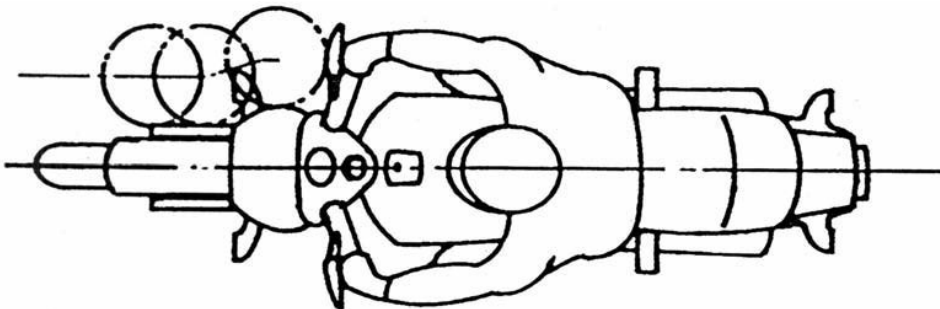
This protective device could be of up to 60 Shore A or a harder material with a smooth rounded finish that does not increase the risk of injury if struck.

5. Check that the ignition key(s) has a protective cap.

**Note.** This requirement does not apply to folding, hidden or removable keys or keys which are flush with the surface.

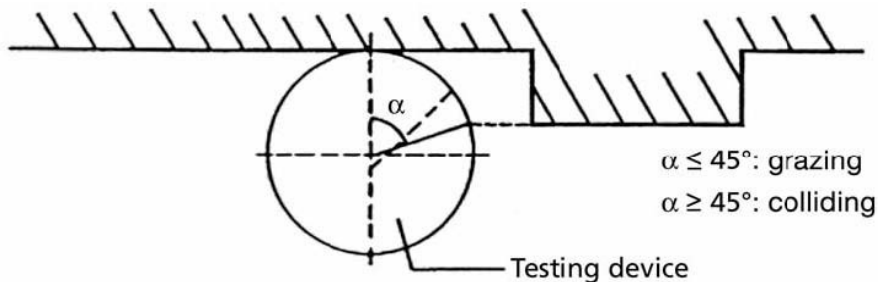
## General Requirements

When using the testing device, the machine must be held in a straight line and a vertical position with both wheels touching the ground, the steering being free to move within its normal range.

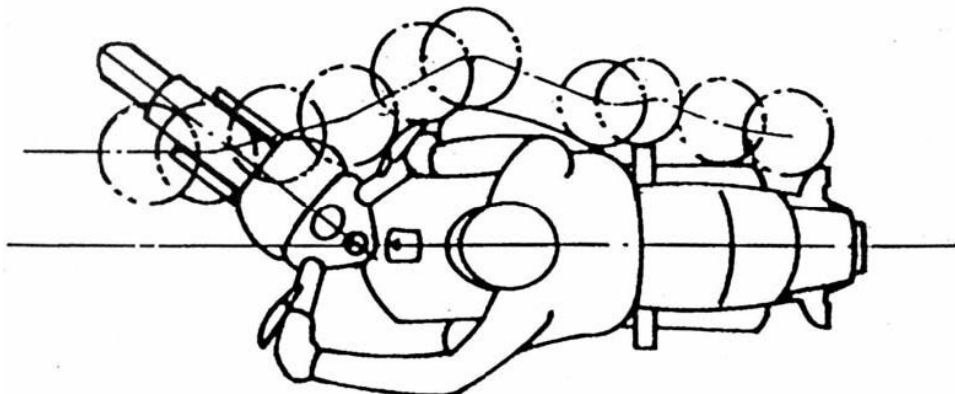


Move the testing device from the front towards the rear of the vehicle to ascertain if any projection coming into contact with the device either grazes or collides with it. (See diagram below).

If the device is able to strike the steering control the control must be rotated to its full lock position and the device must remain in contact with the vehicle. (See diagram below).



The test shall be conducted on both sides of the vehicle, but not across the rear.





6. Check that any projection deemed to graze the testing device shall, in cases other than a stem:

- a) have a corner with a radius of curvature of at least 3mm
- b) have an edge which is blunted or, in the case of a stem;
- c) shall have a diameter of at least 10mm
- d) the edges (on the end of the stem) shall have a radius of curvature of at least 2mm

7. Check that any projection deemed to collide with the testing device shall, in the case other than of a stem;

a) the edges and corners of which shall have a radius of curvature of at least 2mm

or, in the case of a stem;

b) if the stem has a diameter of less than 20mm, the length of the stem shall not exceed half the diameter measured from the point of contact of the assessment device

c) if the stem has a diameter of 20mm or more the edges (on the end of the stem) shall have a radius of curvature of at least 2mm

8. Other than the above, check for any protruding parts pointing outwards, which are;

a) pointed

b) sharp

and are likely to increase the risk or seriousness of body lesions suffered by any person struck or grazed by the vehicle **in the event of an accident.**

### Reasons for Failure

1. The upper edge of the windshield (where fitted);

a) does not have a radius of curvature of at least 2mm, or

b) is not covered with an edge protection material having a hardness of less than 60 Shore A

2. The ends of the clutch and brake levers are not perceptibly spherical and have a radius of curvature of less than 7mm.

3. The leading edge of the front mudguard does not have a radius of curvature of at least 2mm.

4. The rear edge of any filler cap located on the upper surface of the fuel tank

(Which is likely to be struck by the rider in the event of a collision);

## External Projections – Unbodied Vehicles 08

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- a) which does not protrude more than 15mm above the surface, is not smooth or perceptibly spherical
  - b) which does protrude more than 15mm above the surface, is not fitted with a protective device
5. The ignition key(s) are not fitted with a protective cap.
6. Any projection deemed to graze the testing device which, in the case of a plate;
- a) does not have a corner with a radius of curvature of at least 3mm
  - b) does not have an edge which is blunted or, in the case of a stem;
  - c) does not have a diameter of at least 10mm
  - d) the edges (on the end of the stem) do not have a radius of curvature of at least 2mm
7. Any projection deemed to collide with the testing device which, in the case of a plate;
- a) the edges and corners do not have a radius of curvature of at least 2mm or, in the case of a stem;
  - b) which has a diameter of less than 20mm, the length of the stem exceeds half the diameter
  - c) which has a diameter of 20mm or more, the edges (on the end of the stem) do not have a radius of curvature of at least 2mm
8. Any protruding part pointing outwards, which is;
- a) pointed
  - b) sharp

and are likely to increase the risk or seriousness of body lesions suffered by any person struck or grazed by the vehicle **in the event of an accident.**

## Record of Revision

Revision	Date	Change
1	Jun 2005	R&P 1 amended
2	Aug 2014	Note added to R&P 2
3	Sept 2022	Pedal exemption clarified.

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## 09 External Projections – Bodied Vehicles

### Application

This examination applies to all 3 and 4 wheeled bodied vehicles.

A bodied vehicle is defined as “a vehicle with a structure consisting/comprising of a floor plan and panels which with a roof fully encloses the vehicle occupants and without a roof encloses them other than where the roof would be.”

This check **does not** apply to aerals, outside rear-view mirrors, luggage carriers on any vehicle and **any** projections behind the rear bulkhead on goods vehicles.

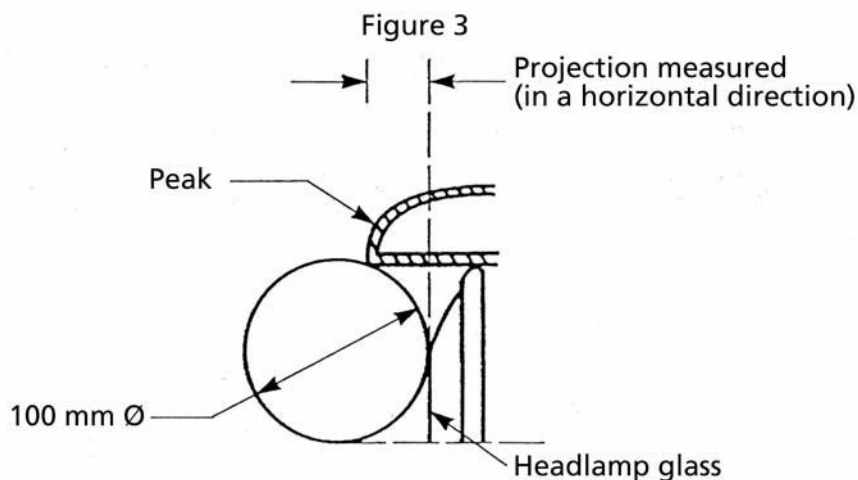
### Requirements and Procedures

Unless otherwise specified under “Specific Requirements” this examination will apply to all external projections that are contactable by a 100mm sphere on the outer surface of the vehicle above the floor line to a height of 2m above the ground.

The floor line is determined by the use of a 30° half angle cone. The cone must be successively positioned around the vehicle in such a way as it contacts, as low as possible, the external surface of the body work. See diagram at Annex 1. The floor line is therefore a theoretical line drawn between these contact points. The gaps of wheel arches are assumed to be filled by an imaginary surface forming a smooth continuation of the surrounding external surface. Jacking points and wheels are not taken into consideration as they have their own requirements.

This check must be conducted with the wheels in the straight-ahead position only. Exposed engines, exhaust, steering suspension, and brake components on vehicles fitted with “cycle wing” mudguards must be checked from the front only.

If the extent of a projection from a panel cannot be determined by a simple measurement, it must be determined by the maximum variation in the distance between the centre of a 100mm diameter sphere and the nominal line of the panel when the sphere is moved (whilst remaining in constant contact) with that projection. (See diagram below)



Protruding parts of the external surface, made from a material of hardness not exceeding 60 Shore A, offering a degree of protection may have a curvature of less than 2.5mm.

If an item is modified to meet this requirement, the item must be assessed against known materials, methods of manufacture and attachment of such materials likely to be

used by a manufacturer of mass-produced vehicles. The materials and methods used may be acceptable if they are permanent and durable. For example, household pipe lagging (etc.) would be considered unacceptable.

### General Requirements

1. Check that all hard parts on the external surface have a radius of curvature of at least 2.5mm.
2. Check that all projections less than or equal to 5mm in height from the external surface have a blunted edge.
3. Check that all projections more than 5mm in height from the external surface have a radius of curvature of at least 2.5mm.

### Specific Requirements

4. Check that added ornaments which project more than 10mm;
  - a) retract, or likely to detach
  - b) do not protrude more than 10mm when retracted
5. Check that projecting peaks and surrounds on headlamps;
  - a) do not project more than 30mm from the outer surface of the headlamp
  - b) have a radius of curvature of at least 2.5mm
6. Check that windscreen and headlamp wiper and washer system components have a blunted edge.
7. Check that bumpers (if fitted) have ends turned inwards or recessed or integrated within the bodywork.

**Note.** Devices mounted to the bumpers must meet any requirements applicable contained in any part of this section of the manual.

8. Check that sheet metal edges are folded back upon themselves by 180°.
9. Check that side air and rain deflectors and window dirt deflectors have a radius of curvature of at least 1mm on outward protruding edges.
10. Check that wheels, hub caps and wheel discs are not fitted with “spinners”, fin shaped devices or wing nuts.

11. Check that no part of the wheel, located above the horizontal plane passing through the axis of rotation (other than in the case of tyres, wheel discs and central wheel securing nuts which have separate requirements at 12 below), projects outside the body plan form.

12. Check that any wheel disc or central securing nut that projects outside the body plan form;

a) protrudes no more than 30mm beyond the body plan form

b) has a radius of curvature of at least 30mm

13. Check handles, hinges, push buttons, fuel tank filler caps do not project more than;

a) 50mm from the external surface

b) 40mm from the external surface if any part projects beyond the extreme outer edge of the vehicle

14. Check that the open end of any door handle which rotates (parallel to the door) to operate is;

a) directed inwards towards the door

b) directed rearward unless the handles cannot under any circumstances project beyond the extreme outer edge of the vehicle and at least one of the following requirements is met;

c) the open end of the handle is shielded towards the front by a protective surround

**or**

d) the open end of the handle is recessed into the vehicle body work

**or**

e) has a gap of less than 2mm measured between the handle and the body work with the handle in its normal position and the door latched

15. Check that door handles that pivot outwards in any direction have open ends which;

a) face either rearwards or downwards, unless

b) they have an automatic return mechanism

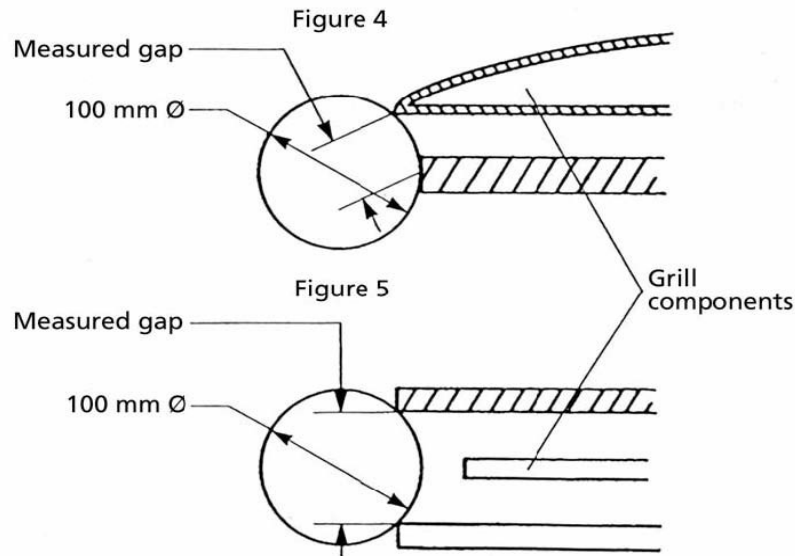
c) that if it fails, does not allow the handle to project more than 15mm from the external surface

16. Check that grill components and gaps;

a) have a radius of curvature of at least 2.5mm if the gap exceeds 40mm

b) have a radius of curvature of at least 1mm if the gap is between 25mm and 40mm

- c) have blunted edges if the gap is less than 25mm



17. Check that windows which open outwards from the external surface of the vehicle do not;

- a) have a forward-facing exposed edge
- b) project beyond the extreme outer edge of the vehicle

18. Check that jacking brackets do not project more than 10mm beyond the floor line directly above.

19. Check that exhaust pipes where the tailpipe projects more than 10mm beyond the floor line directly above it terminate in a radius of curvature of not less than 2.5mm.

20. Check that all fixing holes and recesses less than 12mm diameter have a blunted edge.

21. **Goods vehicles only.** Check that bonnet locking grips do not project more than 70mm from the external surface.

## Reasons for Failure

1. Any hard part of the vehicle surface that does not have a radius of curvature of at least 2.5mm.
2. Any projection less than or equal to 5mm in height that does not have a blunted edge.
3. Any projection more than 5mm in height that does not have a radius of curvature of 2.5mm.
4. Any added ornament which projects more than 10mm;



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- d) that does not retract or detach
  - b) that protrudes more than 10mm when retracted
5. Any projecting peak and headlamp surround;
- d) that projects more than 30mm from the outer surface of the headlamp
  - b) that does not have a radius of curvature of at least 2.5mm
  - d. Any windscreen and headlamp wiper and washer system component which does not have a blunted edge.
  - d. Any bumper (if fitted) that does not have edges turned down and toward the external surface of the body work
8. Any sheet metal edges that are not folded back upon themselves by 180°.
9. Any side air and rain deflectors and window dirt deflectors that do not have a radius of curvature of at least 1mm on outward protruding edges.
10. Any wheel, hub cap or wheel disc fitted with “spinners”, fin shaped devices or wing nuts.
11. Any part of the wheel or its fixing, located above the horizontal plane passing through the centre of the axis of rotation that projects outside the body plan form.
12. Any wheel disc or central securing nut that **does** project outside the body plan form;
- d) that protrudes more than 30mm beyond the body plan form
  - b) that has a radius of curvature of less than 30mm
13. Any handle, hinge, push button, fuel filler which projects;
- d) 50mm from the external surface
  - b) 40mm from the external surface if any part projects beyond the extreme outer edge of the vehicle
  - d. The open end of a side door handle is not;
  - d) directed inwards
  - b) directed rearward and has neither;
  - c) the open end of the handle shielded towards the front by a protective surround
- or**
- d) the open end of the handle recessed into the vehicle body work
- or**

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- e) a gap of less than 2mm measured between the handle and the body work
15. A door handle that pivots outwards in any direction has open ends;
- a) that do not face either rearwards or downwards, or
  - b) that does not have an automatic return mechanism, that if it fails, allows the handle to project more than 15mm.
16. The edge of any grill component or gap which does not;
- a) have a radius of curvature of at least 2.5mm if the gap exceeds 40mm
  - b) have a radius of curvature of at least 1mm if the gap is between 25mm and 40mm
  - c) have blunted edges if the gap is less than 25mm
17. Any window which open outwards from the external surface of the vehicle which;
- a) has a forward-facing exposed edge
  - b) projects beyond the extreme outer edge of the vehicle
18. Any jacking bracket that projects more than 10mm beyond the floor line.
19. Any exhaust pipe where the tailpipe projects more than 10mm beyond the floor line directly above it terminates in a radius of curvature of less than 2.5mm.
20. Any hole or recess less than 12mm diameter that has a non-blunted edge.
21. A goods vehicle bonnet locking grip that projects more than 70mm.

## Record of Revision

Revision	Date	Change
1	Aug 2014	R&P/RfR 12. a) wording amended

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## 09 Annex 1 – Determination of ‘Floor Line’

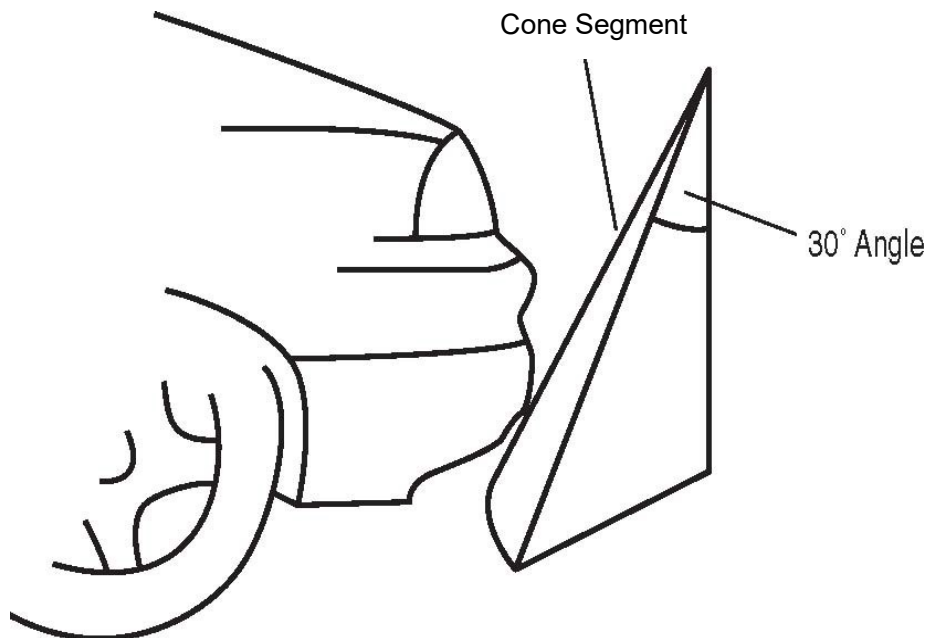
Position the vehicle on a level surface.

Place a cone having a 30° half angle (or cone segment) on the ground such that the conical surface is touching the outer surface of the vehicle to establish a “contact point”.

Reposition the cone at various locations depending on variations in vehicle shape/contour around the vehicle to establish a series of “contact points.”

The floor line is the theoretical line connecting the established “contact points.”

**Note:** Jacking brackets, exhaust tailpipe protrusions from under the body and wheels are not considered when assessing the floor line and it should be assumed that wheel arches are filled in.



## Record of Revision

Revision	Date	Change
1	Jun 2005	Created

## 10 Rear Registration Plate Space

### Application

This examination applies to all vehicles except 250W LPM.

### Requirements and Procedures

1. Check that there is provision for a space at the most practicable rearmost point of the vehicle for mounting a rearward facing rear registration plate or plates.

**Note:** Where the most practicable rearmost point for mounting the number plate is a “side mount” position check a duplicate space is fitted to the opposite side of the vehicle. (This is to comply with visibility requirements for rear registration plates.)

### Reasons for Failure

1. There is no provision for space at the rearmost practicable point of the vehicle for mounting a rearward facing rear registration plate or plates.

## Record of Revision

Revision	Date	Change
1	Jun 2005	Application clarified, note added to R&P
2	Jun 2010	R&P/RfR clarified
3	Jan 2019	Application amended.



# 11 Handholds

## Application

This inspection applies to all two-wheel vehicles where provision is made for the carriage of a passenger. This does not include sidecars.

**Note.** This provision must be in the form of a passenger seat. There is no requirement to check that foot pegs are fitted.

## Requirements and Procedures

1. Check that a passenger handhold system comprising of a strap, **or** a hand grip, **or** hand grips are fitted.
2. Check that a single hand grip is fitted symmetrically across the centre line of the vehicle.
3. Check that twin hand grips are fitted one on each side in a symmetrical manner.
4. Check that any strap or handhold;
  - a) is present
  - b) is securely attached to the vehicle
  - c) is capable of withstanding the forces it is likely to be subjected to under normal use
  - d) is fitted in such a way that it can be easily used by the passenger

## Reasons for Failure

1. A vehicle, where provision is made for carriage of a passenger, which does not have a passenger handhold system fitted.
2. A single hand grip that is not fitted symmetrically across the centre line of the vehicle.
3. Twin hand grips that are not fitted one each side of the vehicle in a symmetrical manner.
4. Any strap or hand hold;
  - a) missing
  - b) insecure
  - c) unable to withstand the forces it is subjected to under normal use
  - d) not easily useable by the passenger

## Record of Revision

Revision	Date	Change

## 12 Headlamp Pattern – Unbodied Vehicles

### Application

This examination applies to all obligatory dipped beam headlamps fitted to unbodied vehicles.

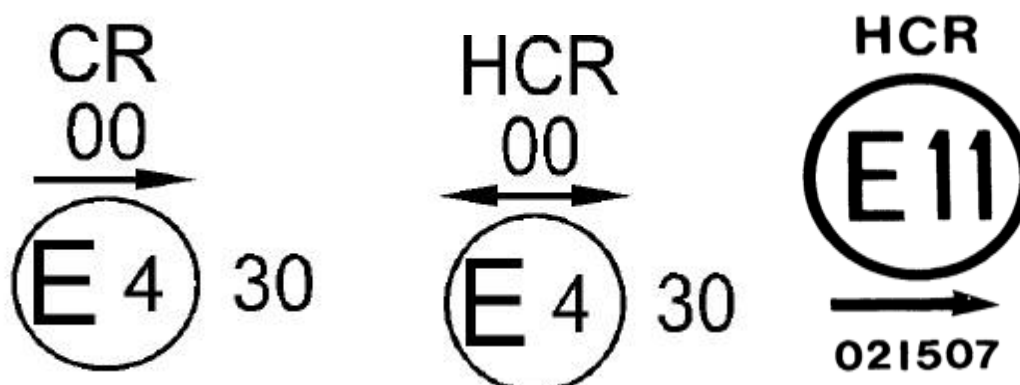
The examination can be carried out using the aiming screen or an approved beam-setter.

**Note:** Headlamps may be marked with an approval mark showing the rule of the road for which the headlamp is approved. The main approvals tend to be UN ECE Regulations 112 (asymmetrical dipped beam) and 113 (symmetrical).

Headlamps with asymmetrical dipped beams (kick-up) designed specifically for left hand rule of the road traffic will be marked with a single headed arrow pointing to the right when viewed from in front of the vehicle (i.e., pointing to the nearside kerb). If the kick up can be adjusted for either rule of the road the lamp will be marked with a double headed arrow.

Headlamps with symmetrical dipped beam (flat top) will be marked with a double headed arrow.

Example markings are shown below. These approval marks can be used as an aid to identify acceptable headlamps, however the dipped beam pattern should still be checked for compliance.



Left hand rule of the road approval mark with single headed arrow

## Headlamp Pattern – Unbodied Vehicles 12

## Requirements and Procedures

The beam pattern must be met without the use of masks or beam converters unless they are an integral part of the headlamp as it was approved. Devices or materials applied to the inside of a headlamp which were not present at the time of approval are unacceptable.

1. Switch the headlamp from the main beam to the “dipped” position and check that the beam pattern;
  - a) **does not** show an offside, right hand, “kickup”
  - b) **does not** dip to the right
  - c) **does not** dazzle
2. Check that the headlamp has a method of adjusting;
  - a) vertical aim
  - b) horizontal aim

**Note:** There is no requirement to check for horizontal aim adjustment if the lamp moves with the steering or the beam pattern is symmetrical (“flat top”)

3. Check that the headlamp beam pattern is not met with the use of a mask or converter that was not present at time of approval.

## Reasons for Failure

1. A dipped beam headlight pattern;
  - a) shows an offside, right hand, “kickup”
  - b) that dips to the right
  - c) that dazzles
2. Any headlamp that has no method for adjusting;
  - a) vertical aim
  - b) horizontal aim (where the lamp does not move with the steering).
3. A headlamp fitted with a beam mask or converter does not present at time of approval.

## Record of Revision

Revision	Date	Change
1	Jun 2005	R&P/RfR 1. a) amended, note added to R&P 2. b)
2	Jun 2010	Application title added, use of beam setter added, approval marking information added

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## 13 Headlamp Aim – Bodied Vehicles

### Application

This examination applies to all obligatory headlamps fitted to bodied vehicles and must be carried out using a headlamp alignment tester.

### Requirements and Procedures

Align the headlamp aim testing equipment to the vehicle in accordance with the manufacturer's instructions. With an assistant seated in the driver's seat, check the alignment of each headlamp in association with the appropriate criteria.

The alignment must be met without the use of masks or beam converters unless they are an integral part of the headlamp as it was approved. Devices or materials applied to the inside of a headlamp which were not present at the time of approval are unacceptable.

An alternative headlamp dipped beam pattern is acceptable providing all of the beam upper edge is, including any peak, contained within the appropriate tolerance band.

### European 'E' Beam Headlamp *(Checked on Dipped Beam)*

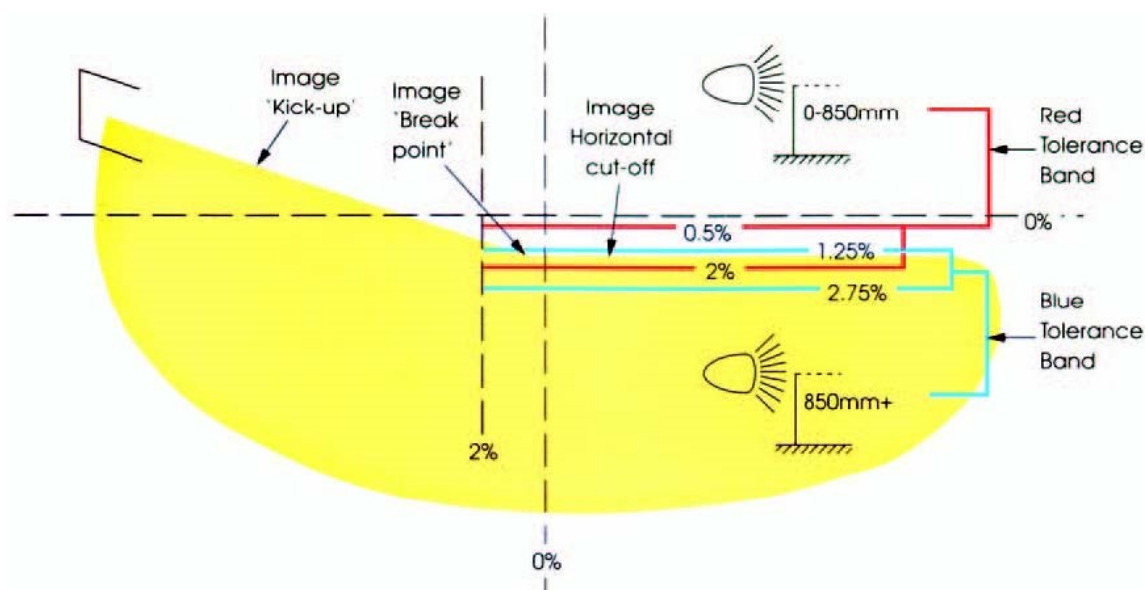


Diagram 1 Dipped beam image

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

### European type headlamp Characteristics

- (a) an asymmetric dipped beam pattern with
  - a distinctive horizontal cut-off on the right, and
  - a 15-degree wedge of light above the horizontal (the 'Kickup') towards the left
- (b) a lens with one or more asymmetric stepped patterns moulded in the glass

(c) a lens may carry

- a European approval mark a circle containing an 'E' and a number,
- or
- a rectangle containing an 'e' and a number

The European approval mark should incorporate a single or double-headed arrow.

A dip beam is denoted by either:

- a capital letter 'C' above a capital 'E'
- a capital letter 'C' above an 'e'

### Reasons for Failure

1. The beam image 'kickup' is to the offside.
2. For headlamps with centres **not more than** 850mm from the ground the beam image horizontal cut-off is not between the horizontal 0.5% and 2% lines, i.e., the **red** tolerance band.
3. For headlamps with centres **more than** 850mm from the ground, the beam image horizontal cut-off is not between the horizontal 1.25% and 2.75% lines, i.e., the **blue** tolerance band.
4. The beam image 'break point' is:
  - to the right of the 0% vertical line, or
  - to the left of the vertical 2% line
5. The headlamp beam pattern is met with the use of a mask or converter that was not present at the time of approval.



## British American Headlamps (Checked on Main Beam)

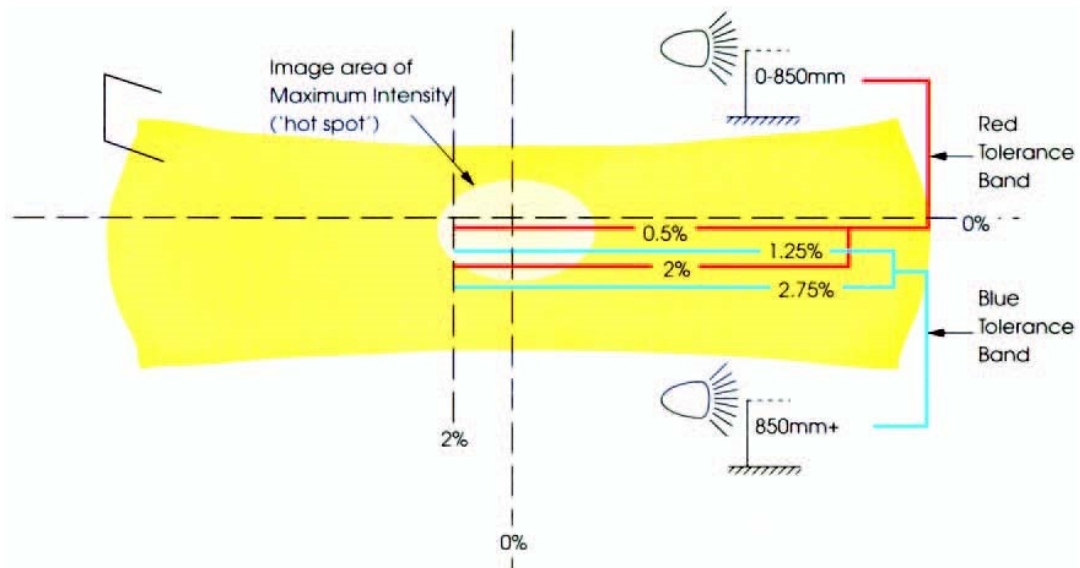


Diagram 2 Main beam image

**Check** the position of the centre of the area of maximum intensity ('hot spot')

### British American type (checked on main beam) Characteristics:

- (a) headlamps tested on main beam have a symmetrical main beam pattern with a central area of maximum intensity (hot spot)
- (b) this type of lamp generally has a circular lens which may be marked with a figure '1' followed by an arrow indicating the direction of dip

### Reasons for Failure

1. The 'hot spot' centre is above the horizontal 0% line.
2. The 'hot spot' centre is to the right of the vertical 0% line, or to the left of the vertical 2% line.
3. For headlamps whose centre is not more than 850mm from the ground the 'hot spot' centre is below the horizontal 2% line.
4. For headlamps whose centre is more than 850mm from the ground, the 'hot spot' centre is below the horizontal 2.75% line.
5. The headlamp beam pattern is met with the use of a mask or converter that was not present at the time of approval.

## British American Headlamp (Checked on Dipped Beam)

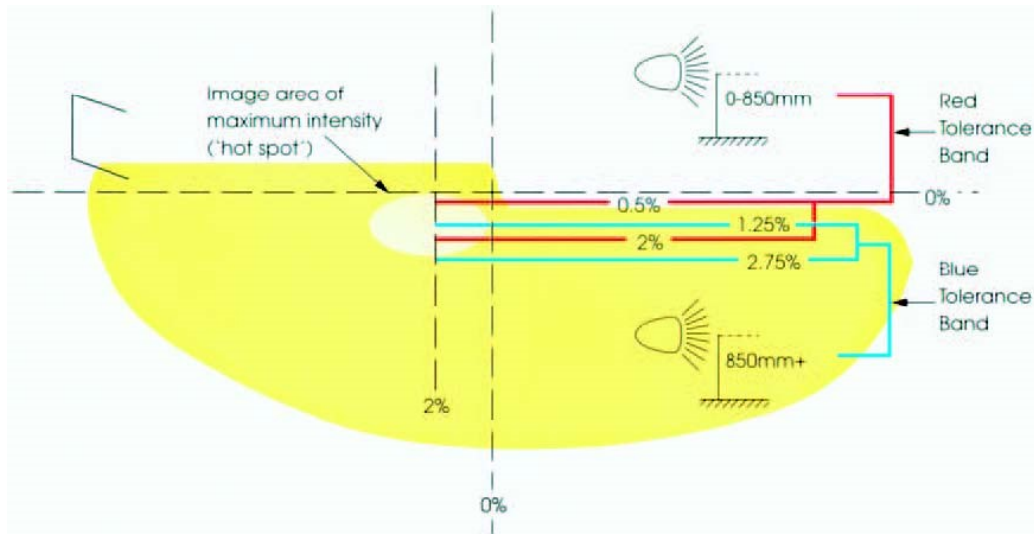


Diagram 3 Dipped beam image

**Check** the position of the upper and right-hand area of maximum intensity ('hot spot')

### British American type (checked on dipped beam) Characteristics:

- (a) an asymmetric dipped beam pattern with an area of high intensity intended to be directed along the nearside of the road
- (b) a circular lens marked with the figure 2 which may also have an arrow showing the direction of dip

### Reasons for Failure

1. The upper edge of the 'hot spot' is **above** the horizontal 0% line.
2. The upper edge of the 'hot spot' is **below** the horizontal 2.75% line.
3. The right-hand edge of the 'hot spot' is **to the right** of the vertical 0% line or **to the left** of the vertical 2% line.
4. The headlamp beam pattern is met with the use of a mask or converter that was not present at the time of approval.

## Record of Revision

Revision	Date	Change

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## 14 Design and Construction

### Application

This examination applies to all vehicles, unless specifically referred to in **bold** text.

### Requirements and Procedures

**Note.** This section **does not apply** to any specific subject covered in other sections of this Manual.

1. Check all aspects of the design and construction of the vehicle such that no danger is caused or is likely to be caused to its driver, passengers or any other road users or pedestrians.

**Note:** The following checks must take account of vehicles use under all conditions including when the vehicle is fully laden. Consideration must be given to the loadings imposed during acceleration, braking and cornering. Assess the ability of the component to withstand the forces and vibration to which it is likely to be subjected.

**Note:** There are no requirements that make the fitting of a final drive chain/belt guard compulsory. However, where any chain or belt run operates above an imaginary line running parallel to the ground and tangent to the top of either wheel rim (depending on which wheel is driven) the belt/chain must be fitted with a guard such that persons either on or off the vehicle cannot contact the belt/chain. The upper drive sprocket/pulley should be fully enclosed to prevent entrapment between chain and sprocket or belt and pulley.

Open primary drives will require a guard protecting the side to prevent injury from protruding bolts and/or entrapment between the belt and pulleys. The belt run need not be covered. However, it should be pointed out to presenters that although a machine without a guard can pass MSVA it may still contravene C & U Regulation 100(1) (Maintenance and use of vehicle so as not to be a danger etc.) which states (abbreviated) *A motor vehicle and all parts and accessories of such vehicle shall at all times be in such condition that no danger is caused or likely to be caused to any person in or on the vehicle or on a road.*

2. Check the chassis frame giving particular attention to highly stressed parts of the vehicle, such as frame joints and connections, reaction brackets, assembly components (bolts, rivets, etc.) and attachment points (especially sidecars) for;

a) strength

b) inadequate welds

c) design characteristics likely to affect the steering, handling, or braking of the vehicle

3. Check body parts, (including full and part-bodied vehicles), such as fairings, windshields, sidecar bodies, seats, mudguards, chain guards, nose cones, side panels, etc., for;

a) security

- b) strength
  - c) attachment
4. Check any subframe and its mounting/attachment for;
- a) security
  - b) strength
5. Check visually any wheel, axle/stub axle/spindle, suspension assembly, steering component, drive train (chain, belt, shaft, etc.), and its fixing for;
- a) strength
  - b) security
  - c) compatibility with its mounting/securing method
  - d) fouling other parts of the vehicle
6. Check any fixing/locking/retaining device for;
- a) presence
  - b) security
  - c) strength
7. Check all fuel system components (e.g., fuel tank, tap, pump, filters, etc.) and fuel pipes for;
- a) leaks
  - b) security
  - c) fouling by moving parts of the vehicle
  - d) not within the proximity of a heat source
  - e) not subject to a corrosive environment likely to cause premature failure
  - f) suitability, by design, to adequately carry out the function for which they are fitted
8. Check fuel filler caps for;
- a) presence
  - b) security
  - c) and to ensure that when closed they form a positive seal which does not allow fuel to leak

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9. Check electrical components for;
  - a) security
  - b) insulation
  - c) adequate capacity
  - d) are not positioned in such a way as to cause a fire hazard
10. Check that cable/wires;
  - a) are securely clipped to the vehicle
  - b) are insulated correctly
  - c) insulation is not likely to be damaged by heat
  - d) are chafing or likely to chafe
  - e) are of adequate capacity

**Note.** Electrical cabling must be routed to prevent damage to the insulation and, unless contained in a hollow component, secured at a maximum of 300mm (12 inches) intervals.

11. Check (where applicable) that any driver's and passenger's doors are;
  - a) capable of being securely latched in the closed position
  - b) not likely to easily burst open
12. Check that all door handles/controls are easily accessible from the adjacent seated position.
13. Check that all aperture covers (including luggage compartments, boot, bonnet, etc.) are capable of being secured in the closed position.
14. Check that all doors, door apertures or entrance/exit apertures (on vehicles without doors) have blunted edges.
15. **Vehicles with motorcycle type steering only.** Using the steering turn plate, where necessary, turn the steering from lock to lock to check that;
  - a) there is no fouling between any components which would interfere with the free movement of the steering
  - b) the handlebars/grips do not contact a fixed part (e.g., fuel tank, fairing, etc)
  - c) control cables are not pulled taut on full lock or are not likely to be trapped or caught in a projection check with engine running
  - d) any steering damper fitted is properly secured, and is not likely to affect/ impede the control of the vehicle
  - e) fairings, leg shields or body parts do not impede the steering

- f) any likelihood of fouling between any components under normal operating conditions

**16. Quadricycles and 3 wheeled vehicles with 2 front (car type) steered wheels only.** Using the steering turn plates, where necessary, turn the steering from lock to lock to check wheels and tyres, transmission/braking components which rotate during vehicle operation and steering components for;

- a) fouling on another component
- b) the likelihood of fouling under normal operating conditions

## Reasons for Failure

1. A design or construction feature or characteristic, causes, or is likely to cause, a danger to the vehicle driver, passengers or to other road users.
2. The vehicle structure or assembly component;
  - a) is of inadequate strength and likely to fail prematurely
  - b) has a welded joint of inadequate strength and likely to fail prematurely.
  - c) which is so designed it is likely to affect the steering, handling, or braking of the vehicle
3. A body or body part;
  - a) insecure
  - b) of inadequate strength and likely to fail prematurely
  - c) attachment or securing method of inadequate strength and likely to fail prematurely
4. Any subframe/mounting/attachment bracket;
  - a) insecure
  - b) of inadequate strength and likely to fail prematurely
5. Any wheel, axle, stub axle, spindle, suspension unit, drive train component and/or its fixing;
  - a) of inadequate strength and likely to fail prematurely
  - b) insecure
  - c) incompatible with its mounting/securing arrangement
  - d) likely to foul other parts of the vehicle

**Note:** On some scooters the engine/drive train is mounted on the suspension and certain components may be designed to foul against others. Examiners must take this into consideration when carrying out this check



6. Any fixing/locking/retaining device;
  - a) missing
  - b) insecure
  - c) of inadequate strength and likely to fail prematurely
7. Any fuel system components;
  - a) leaking
  - b) insecure
  - c) fouling moving parts of the vehicle
  - d) positioned near to a heat source, so a leak will cause a fire hazard
  - e) subject to a corrosive environment likely to cause premature failure
  - f) not suitable, by design, to adequately carry out the function for which they are fitted
8. A fuel filler cap;
  - a) not fitted
  - b) not positively secured
  - c) not incorporating an adequate sealing arrangement
9. Any electrical components;
  - a) insecure
  - b) conductor material exposed such that operation would result in a potential short circuit
  - c) of inadequate capacity
  - d) are positioned in such a way as to cause a fire hazard
10. Any cable or wire;
  - a) insecurely clipped to the vehicle
  - b) conductor material exposed such that operation would result in a potential short circuit
  - c) insulation likely to be damaged by heat
  - d) chafing or likely to chafe
  - e) of inadequate capacity

**Note:** Electrical cabling must be routed to prevent damage to the insulation and, unless contained in a hollow component, secured at a maximum of 300mm (12 inches) intervals.

11. A driver's or passenger's door;
  - a) not capable of being securely latched in the closed position
  - b) likely to easily burst open
12. Any door handle/control not easily accessible from the adjacent seated position.
13. Any aperture cover not capable of being securely latched in the closed position.
14. Any door or aperture edge not blunted.
15. **Vehicles with motorcycle type steering only:**
  - a) any fouling between components that interferes with the free movement of the steering from lock to lock
  - b) the handlebars/grips contacting a fixed part of the machine
  - c) restriction to the handlebars by any cables being pulled taut, becoming trapped or by being caught on a projection (Check with engine running)
  - d) a steering damper which is insecure, or is fitted in such a way that the steering action is impaired
  - e) any fairing, leg shield or body part insecure or likely to impede the steering
  - f) any likelihood of fouling between any components under normal operating conditions
16. **Quadricycles and 3 wheeled vehicles with 2 front (car type) steered wheels:**

Any wheel, tyre, transmission/braking component which rotates during vehicle operation, and any steering component;

  - a) fouling on another component
  - b) likely to foul under normal operating conditions

## Record of Revision

Revision	Date	Change
1	Aug 2005	Note added to R&P 1 relating to chain guards
2	Jun 2010	Note in R&P 1 expanded to cover unconventional chain runs
3	Jan 2019	R&P, RfF alignment corrected

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# 15 Tyres

## Application

This inspection applies to all vehicles.

This section does not apply to Low Power Mopeds with the exception of item 3.

## Requirements and Procedures

Arrangement of motorcycle tyre markings.

On a motorcycle tyre showing the markings: 100/80 B 18 53 S:

- 100/80-18 will indicate nominal size
- 53 will indicate a load capacity of 206kg - see list in Annex 1
- S will indicate a maximum speed of 180kmh/112mph – see list in Annex 2
- B indicates bias belted. Radial tyres will display an R and cross ply tyres will display a D or a – (dash)

Combinations, Tricycles and Quadricycles may be fitted with car tyres.

1. Check that each tyre is moulded so that it displays permanently the following information;

- a) “E” or “e,” JIS (Japanese) or DOT (American) or BSAU 144 (car remould tyres) approval marking. **Note:** DOT approval is only acceptable if a service description (load/speed rating) is present.
- b) nominal size
- c) load capacity
- d) speed capability
- e) construction type, e.g., Radial

**Note 1.** Motorcycle “re-treaded” tyres do not require approval marks.

**Note 2.** There are no requirements for **car** tyres displaying “VR” or “ZR” to display a load index or speed rating, so documentary evidence **may** be required from the presenter/manufacturer. See explanatory notes at Annex 2.

2. Check each tyre for suitability in the case of;

- a) having the correct nominal size for the wheel to which it is fitted
- b) having the correct load capacity for the maximum permitted weight for the axle to which it is fitted
- c) having the correct speed capability for the maximum design speed of the vehicle
- d) not being fitted in accordance with the manufacturer’s instructions marked on the sidewall(s)

**Note.** Directional tyres must be fitted in accordance with the instructions on the sidewall. The direction of forward rotation is indicated by an arrow, words, or both.

Single asymmetric tread tyres are not acceptable on a trike single wheel axle as inside/outside is not applicable.

e) an incorrect mix of tyre structures such as;

(i) a cross ply or bias belted tyre fitted on the rear axle and a radial tyre fitted on the front axle

(ii) a cross ply tyre fitted on the rear axle and a bias belted tyre fitted on the front axle

**Note:** some tyres might be described as being of 'Breaker' construction. These tyres are a variation on cross ply and should be treated as such.

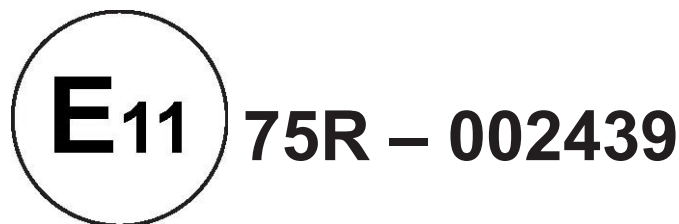
f) an incorrect mix of tyre structures cross the same axle (tricycles and quadricycles)

g) nominal size as any other tyre fitted on the same axle (where applicable)

h) sidecar or car tyres fitted to a solo machine

i) tyres designated by their manufacturer as unsuitable for road use, e.g., racing tyres or those marked NHS or NOT FOR HIGHWAY USE

**Note.** A tyre which has NHS or similar markings will be deemed acceptable if it is approved to a UN ECE Regulation and has the full UN ECE approval markings. An example of a Regulation 75 (motorcycle tyres) approval is shown below.



ARRANGEMENT OF THE APPROVAL MARK

The approval mark is the circle with the capital letter "E" and a number, the number represents the country that granted the approval (11 means UK). "75R" means the tyre is approved to ECE Regulation number 75 (Tyres), this will not change. The final group of numbers is the type approval number and will vary from tyre to tyre. The approval number must be placed close to the circle and either above or below or to the left or right of the approval mark. Tyres approved to Regulation 30 (light vehicles and trailers) will not have the regulation number as part of the marking. Tyres could also be approved to Regulation 106, these will include the regulation number in the marking as 106R.

j) a tyre specifically designed for front wheel use is fitted to the rear wheel or vice versa.

**Note:** Some tyres are manufactured for use on either axle; the direction for front or rear fitment will be clearly marked.

3. **Low power mopeds only.** Check the tyres are appropriate for the use of the machine.

### Reasons for Failure

1. A tyre not moulded, so as to display permanently the required information markings for;

- a) approval
- b) nominal size
- c) load capacity (unless car type supported by evidence)
- d) speed capability (unless car type supported by evidence)
- e) construction type (other than cross ply)

2.

- a) a tyre not the correct nominal size for the wheel to which it is fitted
- b) a tyre with a lower load capacity than the maximum permitted weight for the axle to which it is fitted
- c) a tyre with a lower speed capability than the maximum design speed of the vehicle
- d) a tyre not fitted in accordance with the manufacturers' instructions marked on the sidewall(s).
- e) an incorrect mix of tyre structures on different axles
- f) an incorrect mix of tyre structures across the same axle
- g) a tyre of different nominal size to any other tyre fitted on the same axle
- h) sidecar or car tyres fitted to a solo machine
- i) tyres designated by their manufacturer as unsuitable for road use, e.g. racing tyres or those marked NHS or NOT FOR HIGHWAY USE
- j) tyre specifically designed for the front wheel use is fitted to the rear wheel or vice versa

3. **Low powered mopeds only.** A tyre not suitable for the use of the machine.

## Record of Revision

Revision	Date	Change
1	Jun 2005	Car tyre use on combinations added
2	Aug 2007	R&P/RfR 2. d) amended and note added, note added to R&P 2. i)
3	Jun 2010	Note added to R&P 1. a)
4	Aug 2014	Note added to R&P 2. e)
5	Jan 2019	R&P 2. i) note amended



## 15 Annex 1 – Tyre Load Indices

Load Index (LI)	Single Tyre kg	2 Tyres kg	Load Index (LI)	Single Tyre kg	2 Tyres kg
0	45	90	50	190	380
1	46.2	92.4	51	195	390
2	47.5	95	52	200	400
3	48.7	97.4	53	206	412
4	50	100	54	212	424
5	51.5	103	55	218	436
6	53	106	56	224	448
7	54.5	109	57	230	460
8	56	112	58	236	472
9	58	116	59	243	486
10	60	120	60	250	500
11	61.5	123	61	257	514
12	63	126	62	265	530
13	65	130	63	272	544
14	67	134	64	280	560
15	69	138	65	290	580
16	71	142	66	300	600
17	73	146	67	307	614
18	75	150	68	315	630
19	77.5	155	69	325	650
20	80	160	70	335	670
21	82.5	165	71	345	690
22	85	170	72	355	710
23	87.5	175	73	365	730
24	90	180	74	375	750
25	92.5	185	75	387	774
26	95	190	76	400	800
27	97.5	195	77	412	824
28	100	200	78	425	850
29	103	206	79	437	874
30	106	212	80	450	900
31	109	218	81	462	924
32	112	224	82	475	950
33	115	230	83	487	974
34	118	236	84	500	1000
35	121	242	85	515	1030
36	125	250	86	530	1060
37	128	256	87	545	1090
38	132	264	88	560	1120
39	136	272	89	580	1160
40	140	280	90	600	1200
41	145	290	91	615	1230
42	150	300	92	630	1260
43	155	310	93	650	1300
44	160	320	94	670	1340
45	165	330	95	690	1380
46	170	340	96	710	1420
47	175	350	97	730	1460
48	180	360	98	750	1500
49	185	370	99	775	1550

### Annex 1 – Tyre Load Indices 15

## Record of Revision

Revision	Date	Change
1	Jun 2005	Note removed

## 15 Annex 2 – Speed Categories

### Appendix 1 - Motorcycle Tyres

The service description (load index and speed symbol) indicates the speed limit of the tyre **except where the service description is marked within brackets**. Speed limit means the maximum speed of which the motorcycle is capable. See Table 1 for speed limits for each speed symbol.

Tyres suitable for speeds in excess of 149 mph (240 km/h) are identified by the letter “V” or “Z” placed within the tyre size designation in front of the tyre structure indication, e.g., 150/80VB16 or 180/55ZR17.

Speed category “V,” “VB” or “VR” tyres suitable for speeds over 149 mph (240 km/h) will be marked with a service description within brackets where the speed symbol is “V” e.g., 120/60VR17 (55V). It is recommended that these tyres do not exceed 168 mph, therefore any vehicle fitted with these tyres where the declared maximum speed of the vehicle exceeds 168 mph will require documentary evidence of the tyres’ suitability.

Speed category “ZB” or “ZR” tyres suitable for speeds up to 168 mph (270 km/h) will be marked with a service description where the speed symbol is “W” e.g., 120/60ZR17 55W. If they are suitable for speeds over 168 mph the service description will be marked within brackets e.g., 120/60ZR17 (55W).

**Table 1**

Speed Category Symbol	Relevant Speed (km/h)	Relevant Speed (mph)
B	50	31
F	80	50
G	90	56
J	100	62
K	110	68
L	120	75
M	130	81
N	140	87
P	150	93
Q	160	99
R	170	106
S	180	112
T	190	118
U	200	124
H	210	130
V	240	149
W	270	168

## Load Capacities and Speed Limits

For speeds above 81 mph but not exceeding 130 mph the calculated maximum axle load must not exceed the value associated with the relevant load index as shown in Annex 1.

For speeds lower than or equal to 81 mph the calculated maximum axle load must not exceed the percentage of the value associated with the relevant load index as shown in Table 2 with reference to the speed symbol and to the maximum speed capability of the vehicle. **This only applies to “E” or “e” approved tyres.**

**Table 2**

Max. Speed (mph)	Variation in Load Carrying Capacity (%)						
	Moped	Speed Symbol					
	B	J	K	L	M	N	P and above
19	130	130	130	130	130	130	130
31	<b>100</b>	130	130	130	130	130	130
38		123	123	123	123	123	123
44		116	116	116	116	116	116
50		110	110	110	110	110	114
56		105	105	107.5	107.5	107.5	112
62		<b>100</b>	100	105.0	105.0	105.0	110
68			<b>100</b>	102.5	102.5	102.5	108
75				<b>100</b>	100	100	106
81					<b>100</b>	100	104
87						<b>100</b>	100
<b>100</b> (bold) is the maximum speed permitted for the relevant speed symbol							

### Example

A Chinese 125cc commuter motorcycle is fitted with a **2.75-17 41L** front tyre and a **3.00-17 50L** rear.

The declared maximum speed is **60 mph**.

The calculated axle weights are **72.25kg** for the front and **197.93kg** for the rear.

The speed capability of both tyres is acceptable (**L** equates to a max speed of **75 mph**) as is the maximum load capacity of the front tyre (**41** equals **145kg** max).

From the table in Annex 1 the maximum load for a **50** rated tyre is **190kg**.

## Motorcycle Single Vehicle Approval Manual

This is insufficient for the calculated rear axle load, but from table 2, an L speed category tyre fitted to a machine with a max speed of **62 mph** or less is permitted to carry a maximum load of **105%** of its rated load capacity.

This means that the permitted maximum load in this example is **190kg x 105%** which equals **199.5kg** (190x1.05).

The tyre would therefore be acceptable.

For speeds above 130 mph but not exceeding 168 mph the calculated maximum axle load must not exceed the percentages of the load capacity as shown in table 3.

**Table 3**

Max Speed (mph)	Variation in Load Carrying Capacity (%)			
	Speed Symbol			
	H	V		W
130	100	100	100	100
137		95	95	100
143		90	90	100
149		85	85	100
155			80 (1)	95
161			75 (1)	85
168			70 (1)	75

(1) Only applicable to tyres with speed category markings V VB or VR

For speeds in excess of 168 mph further reduce the load capacity by 10% for every 6 mph speed step.

## Appendix 2 - Car Tyres

Car tyres may be fitted to trikes, quads, and motorcycle/sidecar combinations.

On radial tyres suitable for higher speeds, the letter 'R' in the tyre designation (placed in front of the rim diameter) may be replaced by 'VR' or 'ZR', e.g., 205/55ZR16.

Tyres marked 'VR' are suitable for speeds of at least 130mph. Tyres marked 'ZR' are suitable for speeds of at least 149mph.

Tyres displaying the 'VR' or 'ZR' marking may not always display a Max load capacity, Load index or Speed rating.

If a **car** tyre max load capacity or speed rating is not displayed, documentary evidence of its capabilities will be required unless the examiner has prior knowledge the tyre is acceptable.

If a tyre max load capacity is displayed and is suitable, but there is no speed rating letter other than 'VR' or 'ZR', documentary evidence of the tyre speed rating is only necessary if the vehicle maximum road speed is in excess of 130mph (in the case of a 'VR' tyre) or 149mph (in the case of a 'ZR' tyre). ('VR' and 'ZR' are minimum speed ranges, whereas speed rating letters [V, W, Y] give the maximum speed capability).

### Table 4

For speeds not exceeding 130mph

Speed Category Symbol	Corresponding Speed	
	Km/h	mph
B	50	31
C	60	38
D	65	41
E	70	44
F	80	50
G	90	56
J	100	62
K	110	68
L	120	75
M	130	81
N	140	87
P	150	93
Q	160	99
R	170	106
S	180	112
T	190	118
U	200	124
H	210	130
V	240	149 – see table 5
W	270	168 – see table 6
Y	300	186 – see table 7

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The tables below show the allowance of a reduction in load against speed for those tyres displaying V, W and Y speed category symbols. Z (ZR) marked tyres are suitable for speeds in excess of 149mph (240kph) and a tyre may display a Z marking in place of a W or Y.

A tyre displaying a V speed category symbol with a load capacity of 42 will only be classified to a speed of 130mph at a load of 150kg. However, using the table(s) below it is possible for a tyre displaying a V category symbol to be fitted to a vehicle with a declared speed of 143mph as long as the calculated load (machine axle weight plus rider) does not exceed a load of 141kg. (150kg x 94%).

**Table 5**

For speeds higher than 130mph but not exceeding 149mph (speed category V)

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

**Table 6**

For speeds higher than 149mph but not exceeding 168mph (speed category W)

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

**Table 7**

For speeds higher than 168mph but not exceeding 186mph (speed category Y)

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

### Appendix 3 – Commercial Vehicle Tyres

Commercial vehicle tyres are those with the letter C or the letters LT placed after the tyre size designation. These tyres have a variation of load capacity with speed as detailed in the table below.

Max Speed km/h=mph	Variation in Load Carrying Capacity C & LT Tyres (%)							
	All Load Indices ≤121							
	Speed Category Symbol							
	F	G	J	K	L	M	N	P and above
45 = 28	113	113	113	113	122	122	122	122
50 = 31	112	112	112	112	120	120	120	120
55 = 34	111	111	111	111	117.5	117.5	117.5	117.5
60 = 37	110	110	110	110	115	115	115	115
65 = 40	107.5	108.5	108.5	108.5	113.5	113.5	113.5	113.5
70 = 43	105	107	107	107	112.5	112.5	112.5	112.5
75 = 46	102.5	105.5	105.5	105.5	111	111	111	111
80 = 50	100	104	104	104	110	110	110	110
85 = 53		102	103	103	108.5	108.5	108.5	108.5
90 = 56		100	102	102	107.5	107.5	107.5	107.5
95 = 59			101	101	106.5	106.5	106.5	106.5
100 = 62			100	100	105	105	105	105
105 = 65					103.75	103.75	103.75	103.75
110 = 68					102.5	102.5	102.5	102.5
115 = 71					101.25	101.25	101.25	101.25
120 = 74					100	100	100	100



## Record of Revision

Revision	Date	Change
1	Jun 2005	Expanded into separate appendices for bike and car tyres
2	Jun 2010	Appendix 3 added

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## 16 Brakes

### Application

This inspection applies to all vehicles. Where there are requirements for specific vehicles the vehicle type will be shown in **bold** text.

Light quadricycles will need to meet the requirements for 3-wheel mopeds.

Heavy quadricycles will need to meet the requirements for tricycles.

All low power mopeds can have pushbike caliper brakes (rim brakes) and need to meet the requirements of 2 wheeled vehicles.

**Note.** The braking devices must act on brake surfaces permanently connected to the wheels either rigidly or through components unlikely to fail. A chain is considered to be a component likely to fail, as are sprockets. Automatic transmission “Park” position engagement is not acceptable as a parking brake

### Requirements and Procedures

1. Check that every **two wheeled** vehicle is equipped with;
  - a) one independently controlled service braking device acting on the front wheel, **and**
  - b) one independently controlled service braking device acting on the rear wheel

It is acceptable if a braking device operates on more than the required wheel.

A motorcycle and sidecar combination does not need to be fitted with a brake on the sidecar wheel unless the braking performance cannot be met.

There is no requirement for a parking brake to be fitted to a combination.

2. Check that every **three wheeled moped** is equipped with either;
  - a) two independent service braking devices, which together operate the brakes on all the wheels

**or**

  - b) a single line service braking device which operates the brakes on all wheels

**and**

  - c) a secondary (emergency) braking device (that may be the parking brake)

**or**

  - d) a dual/tandem service braking device which operates the brakes on all wheels

**and in addition to any of the above**

- e) a parking brake device that operates on at least one wheel

Acceptable combinations are: a) & e) **or** b), c) & e) **or** d) & e)

3. Check that every **motorcycle tricycle or motorcycle quadricycle** is equipped with either;

a) two independent service braking devices fitted, one acting on the front axle/one acting on the rear axle which together operate the brakes on all the wheels

**or**

b) a single line service braking device that operates the brakes on all wheels

and

c) a secondary (emergency) braking device (that may be the parking brake)

**or**

d) a dual/tandem service braking device which operates the brakes on all wheels

**and in addition to any of the above**

e) a parking brake device that operates on the wheels of at least one axle

Acceptable combinations are: a) & e) **or** b), c) & e) **or** d) & e)

4. Check that every other **tricycle or quadricycle** is equipped with;

a) a **foot-controlled** service brake device, which operates on all wheels

b) a secondary (emergency) brake device (that may be the parking brake), and

c) a parking brake device, which operates on the wheels of at least one axle

5. Check that the service brake system or systems are capable of being operated from the riding or driving position whilst keeping both hands on the steering control.

6. Check (where applicable) that the secondary braking system;

a) operates progressively

b) is able to be applied from the driving position while keeping one hand on the steering control

7. Check (where applicable) that the parking brake system;

a) is able to be applied from the driving position

b) uses a control that is operated independently from any service brake and can be positively locked on

c) is able to be held in the “on” position by purely mechanical means

8. Check (visually and where possible) all braking systems;

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- a) have a method to compensate for friction material wear
- b) have sufficient reserve travel

9. Check that all braking system components (including discs, drums, back plates, callipers, mounting brackets, linkages, pivots, bushes, fixing cables, levers, pedals, locking devices, etc.) are;

- a) present
- b) complete
- c) secure
- d) by design suitable to adequately carry out the function for which they are fitted
- e) made of a material of sufficient strength and/or durability to resist the stresses, vibration, corrosion, and ageing that it will be subject to in normal use
- f) not obstructed in travel (moving components only check in “on” and “off” positions)

10. Check hydraulic (and where applicable, vacuum) brake pipes and hoses;

- a) for fouling
- b) for kinking, stretching, or twisting
- c) for adequate securing/support
- d) for exposure to excessive heat
- e) for unsuitable joint fittings
- f) are made from a suitable material

**Note.** Braided stainless steel brake lines with **aluminium** end fittings are not deemed to be suitable due to the possibility of unseen electrolytic corrosion.

11. Check hydraulic (and where applicable, vacuum) components for leaks (with or without the brake applied).

**Note.** Vacuum components must be checked with the engine running.

12. Check that hydraulic system reservoirs are so designed and constructed that the level of the reserve fluid can be easily checked.

**Note.** ‘Easily checked’ means that the task can be completed by using no more than those tools originally supplied as part of the vehicle equipment.

**Note.** This does not apply to Low Power Mopeds with a maximum speed of up to 25km/h (16 mph).

13. Assess the capability of the brake friction surfaces, without dismantling, to dissipate energy sufficiently to maintain the brake performance under all conditions, including long descents, without the occurrence of “brake fade.”

**Note.** This assessment must take account of the vehicle’s weight, weight distribution and speed capacity.

14. If the vehicle is fitted with an antilock braking system (ABS), check that a system warning light is

- a) fitted
- b) visible from the driving position
- c) operational

### Reasons for Failure

1. Any **two wheeled** vehicle not equipped with;
  - a) one independent braking device acting on the front wheel
  - b) one independent braking device acting on the rear wheel
2. Any **three wheeled** moped not equipped with;
  - a) two independent service braking devices, which together actuate the brakes on all the wheels

**or**

  - b) a service braking device that operates on all wheels

and

  - c) a secondary braking device

**or**

  - d) a dual/tandem braking device which operates on all the wheels and in all cases
  - e) a parking brake device
3. Any **motorcycle tricycle or motorcycle quadricycle** not equipped with;
  - a) two independent service brakes fitted, one acting on the front axle/one acting on the rear axle which together actuate the brakes on all the wheels

**or**

  - b) a single line service brake that operates on all wheels

and

  - c) a secondary (emergency) braking device (that may be the parking brake)

**or**

  - d) dual/tandem service braking device which operates on all wheels and in all cases
  - e) a parking brake device, which operates on the wheels of at least one axle
4. Any other **tricycle or quadricycle** not equipped with;

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- a) a **foot-controlled** service brake device, which operates on all wheels
  - b) a secondary (emergency) brake device (that may be the parking brake), and
  - c) a parking brake device, which operates on the wheels of at least one axle
5. A service brake system not capable of being operated from the riding or driving position whilst keeping both hands on the steering control.
6. A secondary brake system;
- a) that does not operate progressively
  - b) that is unable to be applied from the driving position while keeping one hand on the steering control
7. A parking brake system;
- a) that is unable to be applied from the driving position
  - b) that uses a control not operated independently from any service brake and/or cannot be positively locked on
  - c) unable to be held in the “on” position by purely mechanical means
8. Any braking system that does not;
- a) have an adjustment/compensation ability to compensate for friction material wear
  - b) have sufficient reserve travel
9. Any braking system component;
- a) missing
  - b) incomplete
  - c) insecure
  - d) by design unsuitable to adequately carry out the function for which it is fitted
  - e) of inadequate strength and likely to fail prematurely
  - f) not made of material sufficiently durable and likely to fail prematurely
  - g) obstructed in its travel
10. Any hydraulic and (where applicable) vacuum brake pipe or hose;
- a) fouling other parts
  - b) kinked, stretched, or twisted

- c) inadequate secured or supported
  - d) exposed to excessive heat
  - e) with unsuitable joint fittings
  - f) made from a clearly unsuitable material
11. Any hydraulic and (where applicable) vacuum components;
- a) leaking
  - b) situated in a corrosive environment and likely to fail prematurely
12. Any hydraulic system reservoir with no provision for the reserve fluid to be easily checked.
13. The brake friction surfaces have insufficient capacity to dissipate heat and prevent fade.
14. An antilock braking system (ABS) warning lamp;
- a) missing
  - b) not visible from the driving position
  - c) inoperative



## Record of Revision

Revision	Date	Change
1	Jun 2005	R&P 8 modified, note added to R&P 12
2	Aug 2007	Note added to Application
3	Jun 2010	Note in Application expanded, clarification added to R&P 2 and 3, R&P/RfR 7. b) expanded, Note added to R&P 10
4	Jan 2019	Application clarified.
5	Sept 2022	Clarification of pushbike caliper type brakes

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## 17 Radio Suppression

### Application

All vehicles fitted with a spark ignition engine.

**Note.** Volume production vehicles can be assumed to meet this requirement unless evidence suggests otherwise.

### Requirements and Procedures

1. Visually check the HT ignition system is fitted with radio interference suppression.

### Reasons for Failure

1. The HT ignition system is not fitted with radio interference suppression equipment.

## Record of Revision

Revision	Date	Change
1	Jun 2010	Note added to Application

## 18 Exhaust System / Noise

### Application

This examination applies to all vehicles (other than electrically powered vehicles) unless specifically referred to in **bold** text.

### Requirements and Procedures

1. Check that the exhaust system;
  - a) is complete
  - b) is fitted with a silencer
  - c) is secured to the vehicle
  - d) mountings are of adequate strength to support the weight of the system
  
2. **2 Wheeled Mopeds and Motorcycles only.** Check that the exhaust silencer has a permanently marked applicable identification mark or plate either:
  - a) the manufacturers trade name or mark, **or**
  - b) the EC component approval mark (“e”), **or**
  - c) the UN ECE component approval mark (“E”), **or**
  - d) the British Standard classification BSAU 193/T2, or BS AU 193a 1990/T2, or BS AU 193a 1990/T3

### Noise Test.

**Note.** Care must be taken when carrying out a noise test on a “twist and go” moped with direct drive.

Position the vehicle on an unobstructed open test site (concrete or asphalt) which covers a rectangular area the sides of which are at least 3 metres from the vehicle sides, front, and rear.

Ensure the engine is at operating temperature.

**Note.** This check should be carried out after the emissions test.

Using a sound level meter of “Type 1” as defined in (BSEN 5969 or IEC651) to the manufacturer’s instructions; carry out a static noise test.

Using the alignment tool, place the microphone;

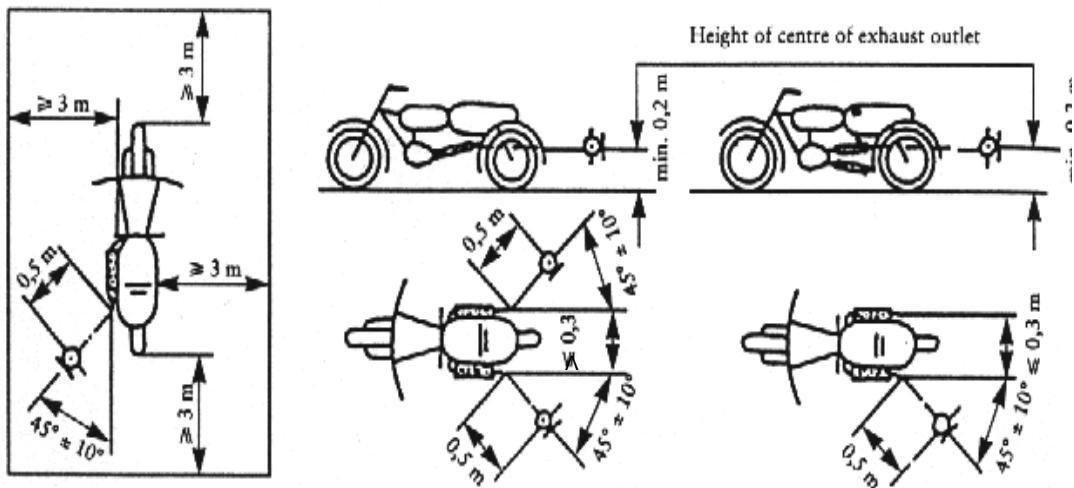
- at the height of the exhaust outlet, or a height of 200mm, whichever is the higher

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- at an angle of  $45^\circ$  to the exhaust outlet in the direction which gives the greatest possible distance between it and the outline of the motorcycle (handlebars excluded), or body contour of a bodied vehicle
- at a distance of 500mm from the exhaust outlet

If the exhaust system has more than one outlet at centres less than 300mm apart, or more than one outlet from a common silencer, the microphone must be faced towards the outlet which is nearest the motorcycle (handlebars excluded), or body contour if bodied vehicle or the highest point above the ground.

If the centres of the outlets are **more** than 300mm apart, separate measurements must be taken for each of them; the highest figure recorded being taken as the test value.



Run the engine at a constant speed of;

- $\frac{3}{4}$  of its maximum power speed if that is less than or equal to 5000rpm
- or
- $\frac{1}{2}$  of its maximum power speed if that is more than 5000rpm

3. Check that the level of sound emitted for **mopeds, motorcycles and light quadricycles** is not more than;

- 91 dbA with an engine capacity of 80cc or less
- 94 dbA with an engine capacity of more than 80cc but not more than 175cc
- 99 dbA with an engine capacity of above 175cc

for **motor tricycles and heavy quadricycles** is not more than;

- 99 dbA

## Reasons for Failure

1. Any exhaust system;
  - a) incomplete
  - b) not fitted with a silencer
  - c) mounting or component insecure
  - d) mounting of inadequate strength to support the system
2. **2 Wheeled mopeds and motorcycles only.** An exhaust silencer that is not indelibly marked with either;
  - a) the manufacturers trade name or mark, **or**
  - b) the EC component approval mark (approval number prefixed by an “e”), **or**
  - c) the UN ECE component approval mark (approval number prefixed with an” E”), **or**
  - d) the British Standard classification BSAU 193/T2, or BS AU193a 1990/T2, or BS AU 193a 1990/T3
3. The sound level is more than allowed for the engine capacity or vehicle type.

## Record of Revision

Revision	Date	Change
1	Aug 2007	R&P 3 clarified
2	Jun 2010	R&P 2 expanded; R&P/RfR 3 modified



## 19 Exhaust Emissions – Spark Ignition

### Application

This examination applies to all vehicles fitted with a spark ignition engine except;

- vehicles fitted with rotary engines
- vehicles fitted with engines manufactured before 1 January 1993
- mopeds (including 3 wheeled mopeds and light quadricycles)

which are subject to a visual test only.

Where there are requirements for specific vehicles the vehicle type will be shown in **bold** text.

There is no requirement to test alternative or dual fuelled vehicles other than on petrol emissions.

<b>Emission levels</b>	
Vehicle and/or engine type	CO% at idle
Mopeds, 3-wheel mopeds and light quadricycles Vehicles fitted with an engine manufactured pre 1/1/1993 Any vehicle fitted with a rotary engine	Visual check only
Motorcycles, tricycles, and heavy quadricycles	4.5%

### Requirements and Procedures

The exhaust emissions must be checked visually and (where applicable) using an approved and calibrated exhaust gas analyser.

If the exhaust system has more than 1 tailpipe (not connected to a common silencer) the emission check must be carried out on all tail pipes, the average of readings obtained being used to base the result of the test upon.

Prior to conducting the test, check;

- the choke/excess fuel device is not operating
- there is sufficient oil/coolant
- where possible/applicable the camshaft drive belt for maladjustment, damage, or contamination
- the engine is at normal working temperature

1. **All vehicles.** Run the engine to around 2500rpm or half the maximum engine speed (if lower) for 20 seconds to ensure the engine is purged.

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Allow the engine to return to idle and assess;

- a) the idle speed
- b) the smoke emitted from the tailpipe

Rapidly increase the engine speed to around 2500rpm, or half the maximum engine speed if this is lower, and assess;

- c) the smoke emitted from the tailpipe

2. Check the exhaust tailpipe(s) for shape, accessories/shield, restriction, etc. that prevents the insertion of the meter probe unless it is part of the original manufacture.

3. All vehicles except mopeds, 3-wheel mopeds and light quadricycles and vehicles fitted with pre 1993 engines. Using an exhaust gas analyser and following the manufacturer's instructions determine the proportions of carbon monoxide (CO), over a period of at least 5 seconds at idle.

### Reasons for Failure

1. The engine;

- a) idles at a speed **clearly** above its normal idle speed
- b) emits dense blue or clearly visible black smoke for a continuous period of more than 5 seconds at idle
- c) emits excessive smoke or vapour of any colour during acceleration which would obscure the view of other road users

2. The emissions cannot be measured because a tailpipe accessory/shield or restriction is fitted which prevents insertion of the meter probe.

3. The exhaust gas contains a carbon monoxide (CO) content exceeding the required limits for a continuous period of 5 seconds.

## Record of Revision

Revision	Date	Change
1	Jun 2010	Application clarified

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## 20 Exhaust Emissions – Diesel

### Application

This examination applies to all vehicles fitted with a compression ignition (diesel) engine except amateur built, rebuilt vehicles and vehicles manufactured using the parts of a registered vehicle fitted with engines manufactured before 1 January 1993 which are subject to a visual test only.

### Requirements and Procedures

Prior to conducting the test, check;

- there is sufficient oil/coolant and no indication of low oil pressure.
- where possible/applicable the camshaft drive belt for maladjustment, damage, or contamination
- there are no obvious signs of an engine defect, or the governor having been tampered with
- the engine is at normal operating temperature

The metered smoke test **must not** be carried out if the engine is not in a safe condition to test or is not at operating temperature.

If the exhaust system has more than 1 tailpipe (not connected to a common silencer), the smoke check must be carried out on all tailpipes, the average reading obtained being the reading used to base the result of the test upon.

1. Check the exhaust tailpipe(s) for shape, accessories/shield, restriction, etc. that prevents the insertion of the meter probe unless it is part of the original manufacture.

Run the engine at approx. 2500rpm or half maximum engine speed (whichever is the lower) for 30 seconds to purge the system.

Raise the engine speed slowly to check the operation of the governor. Return the engine to idle speed. The engine **must not** be held at governed speed.

#### 2. Fast Pass

- a) Using a smoke meter in accordance with the manufacturer's instructions and following the meter prompts, carry out three acceleration tests, operating the accelerator quickly to maximum and when prompted by the meter allowing the engine to return to idle speed.

At the end of the 1st acceleration read the smoke level displayed on the meter.

If it is at or below  $1.50\text{m}^{-1}$  the vehicle has passed the metered part of the test. (Go to Requirements and Procedures 3)

- b) If the average opacity is too high, carry out 2 further accelerations. At the end of the 3rd acceleration read the smoke level displayed on the meter.

## Exhaust Emissions – Diesel 20

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If it is at or below the appropriate limit the vehicle has passed the metered part of the test. (Go to Requirements and Procedures 3)

- c) If the average opacity is too high, carry out further accelerations up to a maximum of 6 in total.

Check the meter reading after each acceleration. If it is at or below the appropriate limit the vehicle has passed the metered part of the test.

If the appropriate limit has not been met after 6 accelerations have been performed the vehicle has failed the metered smoke check.

3. Assess whether the smoke or vapour emitted, regardless of measured opacity is likely to obscure the vision of other road users.

### Reasons for Failure

1. The emissions cannot be measured because a tailpipe accessory/shield or restriction is fitted which prevents insertion of the meter probe.
2. After 6 free accelerations, the mean of the last 3 smoke levels is;
  - a) for a non-turbo charged engine, more than  $2.5\text{m}^{-1}$
  - b) for a turbo charged engine, more than  $3.0\text{m}^{-1}$
3. The exhaust emits excessive smoke or vapour of any colour to an extent likely to obscure the vision of other road users.

## Record of Revision

Revision	Date	Change
1	Jan 2019	Reference to SVA leaflet removed

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## 21 Brake Performance

### Application

This inspection applies to all vehicles.

### Requirements and Procedures

1. Using a roller brake tester, carry out a brake test following the RBT operating instructions, check;
  - a) service brake performance
  - b) secondary brake performance (3/4-wheel vehicles with single line system only)
  - c) parking brake performance (3/4-wheel vehicles only)
  - d) for a sticking or binding brake
  - e) for severe grab or judder
  - f) the braking effort rises and falls at about the same rate as the effort applied
  - g) any brake imbalance between two wheels on a steered axle is not more than 30%
  
2. Vehicles that cannot be tested using a roller brake tester due to their design e.g., solid rear axle, narrow track etc. are to be checked using an electronic decelerometer and its associated mounting kit in accordance with the operating instructions, remember that this test is to check that the system being tested meets the minimum requirements and is not aimed at establishing the maximum braking efficiency, check;
  - a) service brake performance
  - b) secondary brake performance (3/4-wheel vehicles with single line system only)
  - c) parking brake performance (3/4-wheel vehicles only)

### Notes:

Any braking system will be considered to have met the performance requirements if more than half the wheels lock.

Serious under inflation of tyres is not a reason for failure; however, an examiner may decide not to conduct a brake test if tyre damage is likely.

When using a roller brake tester, the wheel not on the rollers must be braked and chocked against the reaction force. This is especially important for lightweight machines and those with small wheels.

In the case of a linked brake system, it may not be possible to apply the brake of the wheel not being tested prior to starting the test.

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If a roller brake test is repeated, the chock should be removed, the machine resettled in the rollers and the chock replaced.

The retardation force of a sidecar brake is not to be included unless it is operated by one of the motorcycle brake controls.

Disregard any brake "imbalance" when the brake effort from each wheel on the axle is less than 15% of the axle weight.

The efficiency of each system operated by a single brake control is the ratio of the total retarding force generated by that system divided by the calculated laden weight of the machine.

Most machines have two controls, one operating the front wheel brake and the other the rear wheel brake. The efficiency for front and rear wheels can then be calculated using the formulae in Annex 1, Efficiency note 5.

Where a linked or combined system is operated by one control, the retarding force used in the efficiency calculation is the total obtained by that wheel when operated by both controls.

### Reasons for Failure

1.
  - a) the calculated service brake efficiency is below the minimum required
  - b) the calculated secondary brake efficiency is below the minimum required
  - c) the calculated parking brake efficiency is below the minimum required
  - d) a sticking or binding brake
  - e) severe brake grab or judder
  - f) the braking effort does not rise or fall at about the same rate as the effort applied
  - g) a brake imbalance between two wheels on a steered axle of more than 30%
2.
  - a) the indicated service brake efficiency is less than the minimum required
  - b) the indicated secondary brake efficiency is less than the minimum required
  - c) the indicated parking brake efficiency is less than the minimum required

## Record of Revision

Revision	Date	Change
1	Jun 2005	R&P 1. b) expanded
2	Aug 2007	R&P 2 added (dynamic testing)

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## 21 Annex 1 - Brake Performance

### Efficiency

1. Total up the braking effort recorded from all the relevant wheels of the braking system under assessment, i.e., the service brake, secondary brake, or parking brake system.
2. For mass production vehicles obtain the laden weight of the vehicle, this can be either the “Design Gross Weight” (DGW) issued by the manufacturer (where confirming evidence is available) or the “Calculated Laden Weight” (see below), where there is no evidence of the manufacturers weight, or there is evidence that the weights determined by the manufacturer are no longer appropriate e.g., due to modification.
3. For bespoke or “non-mass production” vehicles or when there is no evidence of the manufacturers Design Gross Weight the “Calculated Laden Weight” must be used. The Calculated Laden Weight is the mass in running order (in kg) plus 75kg for each designated sitting position.
4. For goods vehicles obtain the “Design Gross Weight” from the manufacturer’s plate fitted to the vehicle.
5. The brake efficiency is calculated by using the equation

$$\text{Efficiency \%} = \frac{\text{Total retarding force for one system} \times 100}{\text{Gross/Laden Weight}}$$

6. Using the brake figures obtained during the test; calculate the value of the required system against the minimum requirements below.

Vehicle Type	Independent Service Brakes		Other Systems		
	Front	Rear	Combined	Secondary	Parking
2-wheel moped & low powered moped	32%	25%	n/a	n/a	n/a
3-wheel moped/light quad	32%	25%	50%	23%	18%
Motorcycle	40%	27%	n/a	n/a	n/a
Motorcycle tricycle or quadricycle	28.5%	28.5%	50%	23%	18%
Tricycle/heavy quad	n/a	n/a	50%	23%	18%

## Record of Revision

Revision	Date	Change
1	Aug 2007	Item 3 clarified
2	Jun 2010	Table expanded for clarity
3	Jan 2019	Table (Vehicle Type) updated.

## 22 Goods Vehicle Identification Plate

### Application

This examination applies to goods vehicles only.

### Requirements and Procedures

1. Check that a plate is;
  - a) fitted
  - b) in a conspicuous and readily accessible position
  - c) readable
2. Check that the plate is indelibly marked with;
  - a) the manufacturer's name
  - b) vehicle identification number
  - c) maximum permitted laden weight for each axle
  - d) maximum permitted laden weight for the vehicle
  - e) maximum permitted laden train weight if equipped to tow a trailer
3. Check that the maximum laden weight displayed does not exceed;
  - a) The mass in running order plus 1075 kg for a goods quadricycle
  - b) The mass in running order plus 1575 kg for a goods tricycle

### Reasons for Failure

1. A plate;
  - a) missing
  - b) not fitted in a suitable position
  - c) not readable
2. A plate not indelibly marked with;
  - a) the manufacturers name
  - b) a vehicle identification number
  - c) the maximum weight for each axle
  - d) the maximum permitted weight for the vehicle
  - e) the maximum permitted laden train weight if equipped to tow a trailer
3. The maximum laden weight displayed exceeds;
  - a) The mass in running order plus 1075 kg for a goods quadricycle
  - b) The mass in running order plus 1575kg for a goods tricycle

## Goods Vehicle Identification Plate 22

## Record of Revision

Revision	Date	Change
1	Jun 2010	Maximum laden weights clarified



## 23 Engine Power Restriction Information Plate

### Application

This examination applies to 2 wheeled mopeds (Category A) and motorcycles with engine capacity not exceeding 125cc and a power output not exceeding 11kW (15 bhp) (Category B).

This examination **does not apply** to any vehicle manufactured before the date the Regulations come into force (08 August 2003), amateur built vehicles, rebuilt vehicles or vehicles manufactured using the parts of a registered vehicle. It does not apply to 250W LPM or any 2 wheeled vehicle propelled purely by electrical means.

### Requirements and Procedures

The details of the restrictions will be displayed on a plate (at least 60mm x 40mm) attached to the vehicle by the manufacturer. There are only requirements to check the details below although the plate may contain other details. The information may be incorporated into the manufacturer's VIN plate.

1. Check that a plate is;
  - a) permanently fitted and of at least the minimum required size
  - b) in a conspicuous and readily accessible position
  - c) legible
2. Check that the plate is indelibly marked with;
  - a) the manufacturer's name
  - b) the category of vehicle
  - c) the number of teeth on the drive and driven sprockets

**or**

  - d) the diameter (in mm) of the drive and driven pulleys in the case of a belt drive

**Note.** There is no requirement to count the teeth/measure pulleys. Items c) and d) do not apply to direct drive or continually variable transmissions.

#### Example of an acceptable plate

Manufacturer	Musvah Motors
Category	B
Drive Sprocket	14T
Driven Sprocket	43T

## Engine Power Restriction Information Plate 23

## Reasons for Failure

1. A plate;
  - a) missing or not permanently attached or less than the minimum required size
  - b) not fitted in a suitable position
  - c) not legible
  
2. A plate not indelibly marked with;
  - a) the manufacturer's name
  - b) the category of vehicle
  - c) the number of drive/driven sprocket teeth

**or**

  - d) drive/driven pulley diameter in mm

**Record of Revision**

<b>Revision</b>	<b>Date</b>	<b>Change</b>
1	Jun 2005	RfR 2. c) and d) expanded
2	Aug 2007	R&P/RfR 1. a) expanded
3	Jun 2010	Regulation date added to Application, R&P/RfR 1. a) modified, R&P 2 note expanded, example plate added
4	Jan 2019	Application updated

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## 24 Defrost/Demist

### Application

This examination applies to all bodied; three wheeled mopeds with an engine developing more than 4kW, tricycles and quadricycles, having a windscreen through which the driver must look through to obtain a view from his normal seated position.

The method of determining a windscreen can be found at Section 26 Annex 1.

This examination does not apply to vehicles having a fully opening windscreen.

### Requirements and Procedures

1. Check that a defrosting/demisting system is;
  - a) fitted
  - b) capable of clearing a sufficient area of the windscreen to allow the driver an adequate view
  - c) operational

### Reasons for Failure

1. A defrosting/demisting system;
  - a) not fitted
  - b) not capable of clearing a sufficient area of the windscreen to allow the driver an adequate view
  - c) inoperative

## Record of Revision

Revision	Date	Change
1	Aug 2007	Application clarified

## 25 Seat Belts and Anchorages

### Application

This inspection applies to all 3 and 4 wheeled vehicles except;

- 3 wheeled mopeds and quadricycles having an unladen weight of not more than 250kg
- tip up occasional seats fitted to any vehicle
- sidecars

However, if the above exceptions are fitted with seat belt anchorages, they must meet the requirements.

This inspection **does not** apply to tricycles and quadricycles without bodies that have driver/passengers that sit astride (immediately in front/behind each other along the longitudinal plane) on saddle type seats.

# Additional seats to the side of, and non-sit astride seats directly behind the driver/passenger, are required to be fitted with a lap belt.

Disabled person's vehicles fitted with a disabled person's belt are exempt from the requirements of items 3b and c, 5, 6, 7, 10, and 11.

### Requirements and Procedures

Minimum anchorage points and seat belt requirements			
Driver's seat	Outboard (front) passenger seat	Centre front seat	Forward facing rear seats. Other seats as defined in # above fitted to unbodied tricycles
3 anchorage points	3 anchorage points	2 or 3 anchorage points	2 anchorage points
3-point lap and diagonal belt fitted	3-point lap and diagonal belt fitted	2-point lap belt or 3-point lap and diagonal belt*	2-point lap belt

\* The front centre seat will require 3 anchorages and a 3-point lap and diagonal belt where the windscreen is located;

- within 840mm of the seat reference point in the case of a non-sliding seat
- within 840mm of the seat reference point with the seat 127mm forward of its rearmost position, in the case of a sliding seat

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Annex 2 defines “seat reference point”.

Evidence that a vehicle complies with the following standards will be accepted instead of the indicated MSVA requirements.

Subject	USA (U)	Canada (C)	Japan (J)
Seats and their anchorages	FMVSS 207	CMVSS 207	11-4-8 11-4-46 (seats and seat anchorages) (J1)
Seat belts Checks 3c, 5, 6, and 7	FMVSS 209 (U1)	CMVSS 209 (C1)	
Seat belt anchorages Checks 1 and 2	FMVSS 210 including associated requirements of FMVSS 207 and 208	CMVSS 210 including associated requirements of CMVSS 207 and 208	11-4-10 11-4-21 (seat belt anchorages)
Installation of seat belts Checks 3a/b, 4, 8, 9, 10 and 11	FMVSS 208	CMVSS 208	

A lap belt means a seat belt which;

- passes across the wearer’s pelvic region
- is designed for use by an adult

A 3-point lap and diagonal belt means a belt which;

- restrains the upper and lower parts of the torso
- includes a lap belt
- is anchored at no less than 3 points
- is designed for use by an adult

An adult harness comprising of a lap belt and shoulder straps is considered an alternative to a 3-point belt.

1. Check that each seating position is fitted with the required number of anchorage points.
2. Check that all anchorage points (including those that have no belt fitted), and the surrounding vehicle structure is of adequate strength and not likely to fail prematurely.

## Seat Belts and Anchorages 25



**Note.** The anchorage and surrounding structure must be of adequate strength to withstand the load likely to be imposed by the belt in the event of a frontal impact. Where the belts are attached to the seat itself consideration must be given to the seat mounting as a belt anchorage point. (See Annex 1). Materials and construction methods must be considered.

3. For each seat requiring a seat belt check that the belt is;
  - a) fitted
  - b) of the correct type and adult size
  - c) bears one of the following approval markings
    - (i) "E" or "e," DOT (American/Canadian)
    - (ii) BSAU 183; 1983 for passive belts
    - (iii) BS3254: 1960 or BS 3254 part 1 1988 for harness belt

**or**

  - (iv) has the equivalent characteristics to that of a belt approved for the same category of vehicle (5a, b, c, d, 6a, b, c, d, 7b)
4. Check that each seat belt is secured;
  - a) to the vehicle structure, or where the belt is fitted to the seat
  - b) to the seat structure
  - c) using a fixing of adequate strength
  - d) such that it can be separated from the anchorage without causing damage to the anchorage
5. Check that the seat belt;
  - a) webbing is a minimum of 46mm in width (33mm in the case of a harness)
  - b) components are suitably protected against corrosion (e.g., plated or coated)
  - c) locking mechanism can be released by a single movement by either hand when under load or not under load
  - d) locking mechanism that is in contact with the body is a minimum of 46mm in width
6. Check that a static belt;
  - a) has a manual adjusting device, which is
  - b) accessible to the wearer when seated, and
  - c) convenient and easy to use, and
  - d) capable of being tightened with one hand

7. Check that a retractable belt mechanism (where fitted);
  - a) so acts from the upper anchorage where a lap/diagonal belt is fitted
  - b) locks when the vehicle is subject to
    - (i) deceleration, or
    - (ii) tilt, or
    - (iii) the belt is pulled quickly from the retracting mechanism
  - c) retracts the webbing sufficiently to remove all the slack from the belt with the belt locking mechanism fastened and the seat unoccupied.

**Notes.** A belt may be fitted with retractor mechanisms on both lap and diagonal sections. If a single retractor mechanism is fitted it must act on the diagonal section.

It is permissible to assist the retracting mechanism when checking 7c

8. Check that there are no sharp edges likely to damage the belt in normal use.
9. Check that there is provision for safe and convenient storage of the type of belt fitted.
10. Whilst sitting in each seat in turn and wearing the belt ensuring it is correctly adjusted, check the position of the webbing on the torso and the location of the **effective belt anchorage** points in relation to the seated body position (note 2 below). The position of the belt upon the torso must be determined by the location of the anchorage point or an intermediate securely fixed device such as a belt guide.

Check that the belt effective anchorage location;

- a) allows the belt to rest on the pelvic area of the body
- b) of the lap belt section is to the rear of a vertical line taken at the point where the belt passes over the body
- c) allows the belt to rest on the shoulder of the wearer without slipping off (3 point/harness only)
- d) of the diagonal section is to the rear of the front of the body/shoulder of the wearer when seated in a relaxed upright position.

**Note 1.** This check (10) may be carried out with the presenter wearing the belt, though the seat must be in the normal driving position

**Note 2.** The **effective belt anchorage** is the actual anchorage point to the vehicle unless a change of direction of the belt to the wearer is produced by a fixed intermediate device, for example a belt guide.

11. Check upper seat belt anchorage point for lap/diagonal and harness type belts (see Annex 2);
  - a) has a height of at least 450mm from the reference point
  - b) has a minimum distance of 140mm from the seat centre line

## Reasons for Failure

1. An anchorage point missing.
2. Any seat belt anchorage or the surrounding structure not of adequate strength and likely to fail prematurely.
3. Any seat belt;
  - a) missing
  - b) of the wrong type
  - c) does not bear one of the following approval markings
    - (i) "E" or "e," DOT (American)
    - (ii) BSAU 183; 1983 for passive belts
    - (iii) BS3254: 1960 or BS 3254 part 1 1988 for harness belt
    - (iv) does not have the characteristics to that of the same belt approved for the same category of vehicle (5a, b, c, d, 6a, b, c, d, 7b)
4. Any seat belt;
  - a) not secured to the vehicle structure
  - b) not secured to the seat structure
  - c) using a fixing of inadequate strength
  - d) that cannot be separated from the anchorage without causing damage to the anchorage
5. Any seat belt;
  - a) where the webbing is not of minimum width
  - b) component not suitably protected against corrosion
  - c) locking mechanism that cannot be released by a single movement by either hand when under load or not under load
  - d) locking mechanism that is in contact with the body is not a minimum of 46mm in width
6. Any static belt manual adjusting device;
  - a) missing
  - b) not accessible to the wearer when seated
  - c) not convenient and easy to use
  - d) not capable of being tightened with one hand

## Motorcycle Single Vehicle Approval Manual

7. A retractable belt mechanism (where fitted);
  - a) not acting from the upper anchorage where a lap/diagonal belt is fitted
  - b) does not lock when the vehicle is subject to:
    - (i) deceleration, or
    - (ii) tilt, or
    - (iii) the belt is pulled quickly from the retracting mechanism
  - c) does not remove all the slack from the belt
8. A sharp edge likely to damage the belt in normal use.
9. No provision for safe and convenient storage of the type of belt fitted.
10. A seat belt effective anchorage location;
  - a) does not allow the belt to rest on the pelvic area of the body
  - b) of the lap belt section is not to the rear of a vertical line taken at the point where the belt passes over the body
  - c) is so positioned that the belt is likely to slip off the shoulder
  - d) of the diagonal section is not to the rear of the front of the body/shoulder of the wearer when seated in a relaxed upright position
11. An upper seat belt anchorage point for lap/diagonal and harness type belts;
  - a) has a height of less than 450mm from the reference point
  - b) has a distance of less than 140mm from the seat centre line

## Record of Revision

Revision	Date	Change
1	Aug 2007	R&P 3. b) expanded

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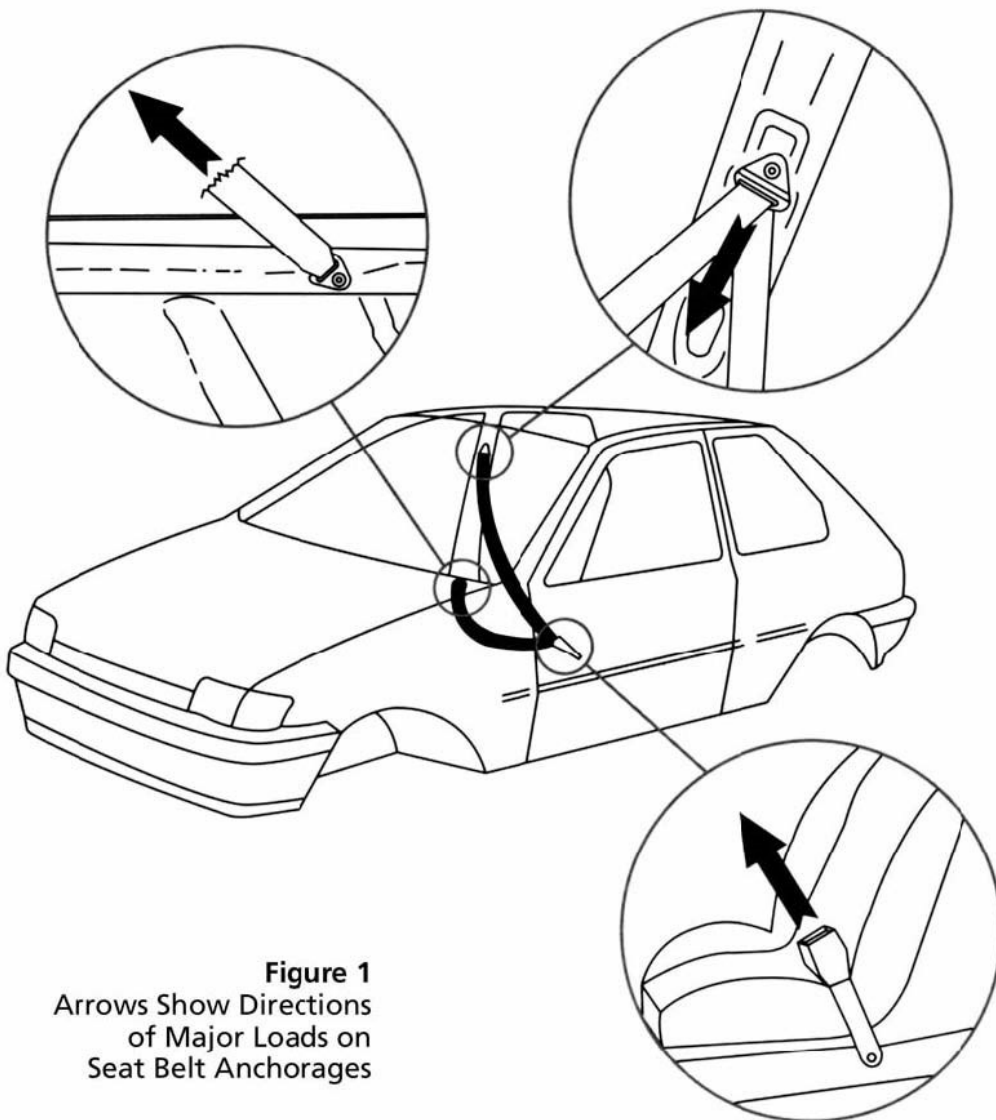
## 25 Annex 1- Seat Belt Anchorage Strength Assessment

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

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

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

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



## Annex 1- Seat Belt Anchorage Strength Assessment 25

## 1. All Vehicles

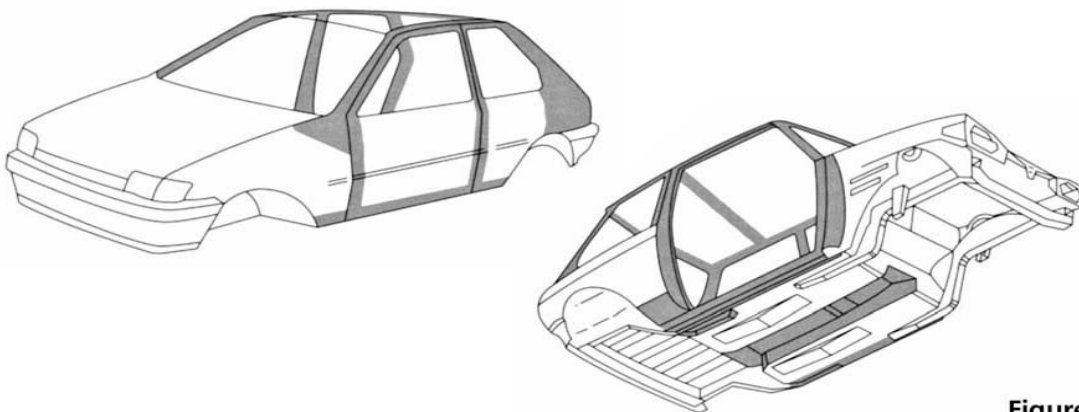
What to look for:

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

Cause for concern:

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

## 2. Monocoque Construction



**Figure 2**  
Shaded Areas Show  
Important Structure.

# Annex 1- Seat Belt Anchorage Strength Assessment 25



## 2i. Steel Monocoques

What to look for:

- Structural box sections.

## 2ii. Composite Monocoques

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

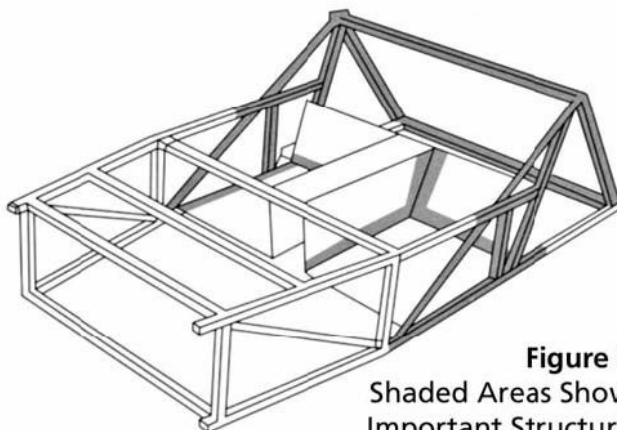
What to look for:

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

Cause for concern:

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

## 3. Anchorages on Steel Chassis



**Figure 3**  
Shaded Areas Show  
Important Structure

# Annex 1- Seat Belt Anchorage Strength Assessment 25

## Motorcycle Single Vehicle Approval Manual

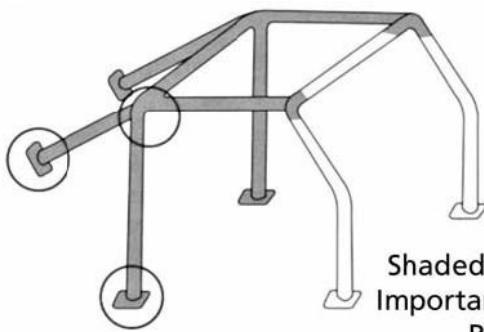
What to look for:

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

Cause for concern:

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

### 4. Steel Chassis with Anchorages on Roll Cage.



**Figure 4**  
Shaded Areas Show  
Important Structure.  
Pay Particular  
Attention to Joints  
(Example Circled.)

What to look for:

- Triangulation and bracing which will provide strength and spread the loads effectively into the chassis.
- The joint where the roll cage joins the chassis and the chassis itself must be sufficiently strong to withstand the loads from the anchorages.
- Upper anchorage must be adequately braced from near the anchorage to strong areas of the chassis.
- Threaded seatbelt anchorage fastening should be welded into tubes or on to plates of sufficient thickness.
- Bolted joints joining the cage to the chassis and parts of the cage to each other should be of sufficient strength.

**Note:** For guidance roll cages should ideally be manufactured of Cold Drawn Steel tube dia. 45mm x 2.5mm wall thickness OR dia. 50mm x 2.0mm wall thickness. Bend radii should exceed three times the tube diameter. Where tubes are ovalised during bending, the ratio  $d/D$  should not be less than 0.9 ( $d$  = small diameter,  $D$  = larger diameter).

## Annex 1- Seat Belt Anchorage Strength Assessment 25

## Motorcycle Single Vehicle Approval Manual

Cause for concern:

- Roll cage manufactured using aluminium.
- Poor bolted joints, or joints that could separate due to loads in anchorages.
- Insufficient bracing or bracing to upper anchorage too low.
- Roll cage material cracked or badly creased.
- Cage-to-chassis mounting plates of smaller thickness than cage wall thickness.
- Cage not attached to chassis, or insufficient joint strength.

### **5. Composite Structural Body with Anchorages on Integral Roll Cage.**

What to look for:

- A combination of the strength characteristics of (2ii) and (4) above.
- Where a combination of the strength of the body and cage are used to strengthen the anchorages, body and cage should be joined at regular intervals.

Cause for concern:

- As (2 ii) and (4) above.

### **6. Anchorages Integral with Seat Structure.**

What to look for:

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

## **Annex 1- Seat Belt Anchorage Strength Assessment 25**

## Motorcycle Single Vehicle Approval Manual

### Cause for concern:

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

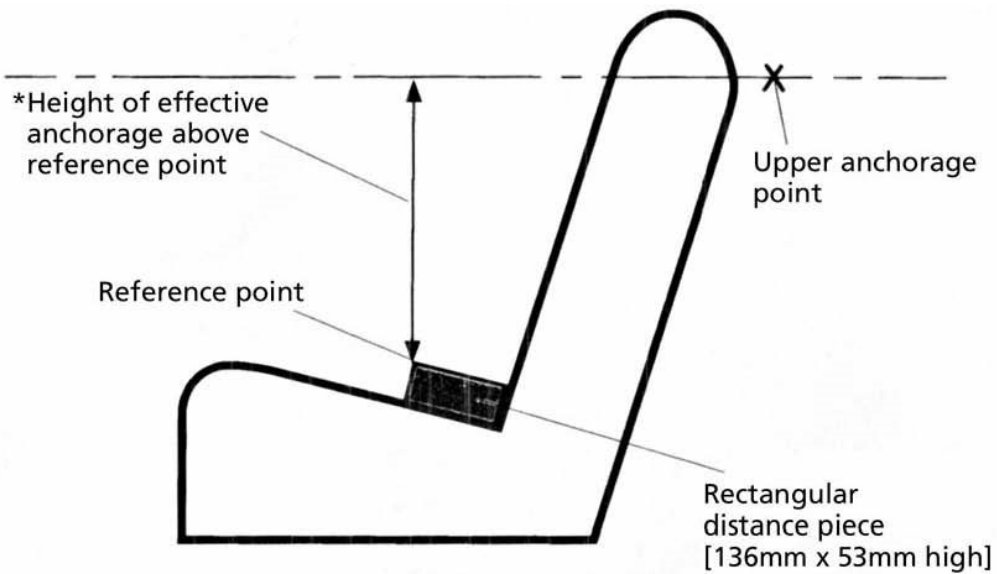
## **Annex 1- Seat Belt Anchorage Strength Assessment 25**

**Record of Revision**

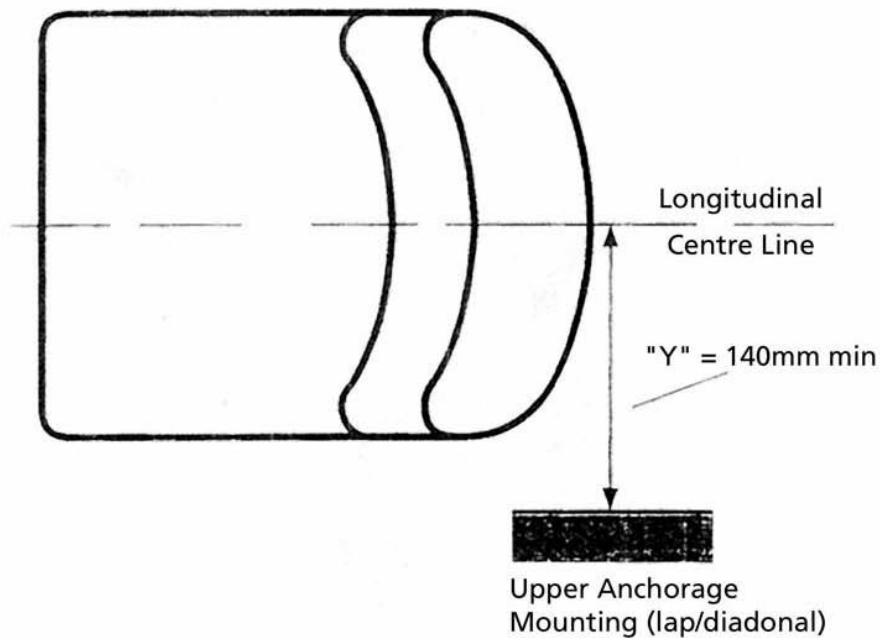
<b>Revision</b>	<b>Date</b>	<b>Change</b>

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## 25 Annex 2- Seat Belt Upper Anchorage Location



\*Minimum Anchorage Height 450mm



**Record of Revision**

Revision	Date	Change



## 26 Glazing

### Application

This examination applies to all bodied vehicles, other than mopeds, fitted with a windscreen, side screens or windows.

**Note:** Bodied mopeds with glazing must meet R&P1.

The method of determining a windscreen can be found at Annex 1.

### Requirements and Procedures

Safety Glass must conform to one of the following European Standards;

- British Standard: BS 857 or 857/2
- BS 5282
- BSAU 178
- ECE Regulations 43  
– e.g., E11 - 43R 002439
- EEC Directive 92/22  
– e.g., e11

Standards acceptable in place of the European Standards required in this examination are:

USA	FMVSS 205 (U2)
Canada	CMVSS 205 (C2)
Japan	JIS 3211
South Africa	SABS 1191/1193
Australia/New Zealand	AS/NZS 2080/2080T (A1)
India	IS 2553 (Part 2) 1992 (I1)

U2 and C2 glass bearing the following marking complies with FMVSS 205 and CMVSS 205;

- in the case of a windscreen AS1 or AS10
- in the case of a window wholly or partly on either side of the driver's seat AS1, AS2, AS10, AS11A
- in any other case AS1, AS2, AS3, AS10, AS11A, AS14, AS15, AS16

A1 glass does not include opacity. It must display the manufacturer's name or trademark

- Windscreen to show 2080 and WHP

- Other windows 2080T and CHT, L, LT, LCHT or HP

I1 glass does not include opacity. It must display the manufacturer's name or trademark

- Windscreen to show Z or LW
- Other windows T, TW, Z, L or LW

1. Check that, whilst seated in the driving position, the driver has a fully unobstructed view of the road to the front and forward of the nearside and offside of the vehicle.

**Note.** The following items do not constitute an obstruction to vision: Fixed or moveable vents, outside radio aerials, rear view mirrors, windscreen wiper and the steering and dashboard to the rear of the wheel as measured by method of "determining the height of the wheel rim" in the Annex to this section.

2. Check that side screens (where fitted), windscreens and windows are securely attached to the vehicle.

**Note.** Side screens are permitted to be detachable, i.e., slot into position, but must be secured such that during normal use they will not become detached or interfere with the driver's control of the vehicle.

3. Check that all windscreens and other windows wholly or partly on either side of the driver's seat (not including side screens), are made of safety glass and marked by the manufacturer, to one of the European or acceptable Standards above.

4. Check that all other windows (including sunroofs) and side screens are made of;

- a) safety glass (as above), or
- b) safety glazing

**Note.** "Safety glazing" means material (other than glass) which is so constructed or treated that if fractured does not fly into fragments likely to cause severe cuts. There is no marking requirement for safety glazing.

5. Check opacity of all windscreens and windows which are used to obtain a rear field of view via external rear view mirrors allow a visual transmission of light of not less than 70%.

### Reasons for Failure

1. The driver does not have a fully unobstructed view of the road forward of the vehicle.
2. A side screen (where fitted), windscreens or windows insecure.
3. Any windscreen and other windows wholly or partly on either side of the driver's seat (not including side screens), not made of safety glass and marked by the manufacturer, to one of the European or equivalent Standards above.

4. Any other windows (including sunroofs) and side screens not made of;
  - a) safety glass (as above), or
  - b) safety glazing
  
5. A windscreen window and windows which are used to obtain the rear field of view via external rear view mirrors or side screen which allows a visual transmission of light less than 70%.

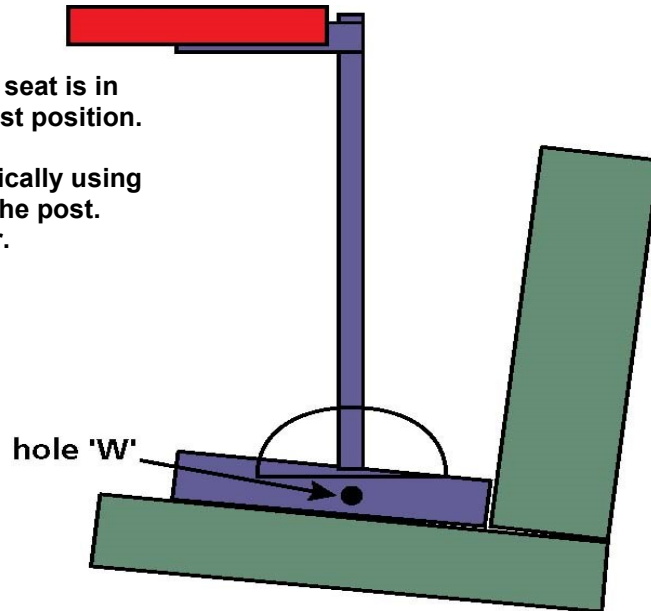
## Record of Revision

Revision	Date	Change
1	Aug 2007	Acceptable standards expanded
2	Jan 2019	Clarify application

## 26 Annex 1 – Determining a Windscreen

### Determining the 'Horizontal Plane'

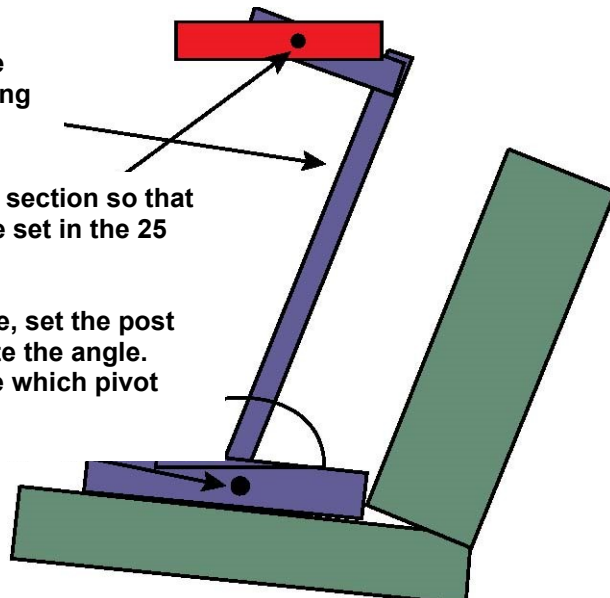
Make sure that the seat is in the rear-most/lowest position.  
Use hole 'W'.  
Align the post vertically using the spirit level on the post.  
Zero the protractor.



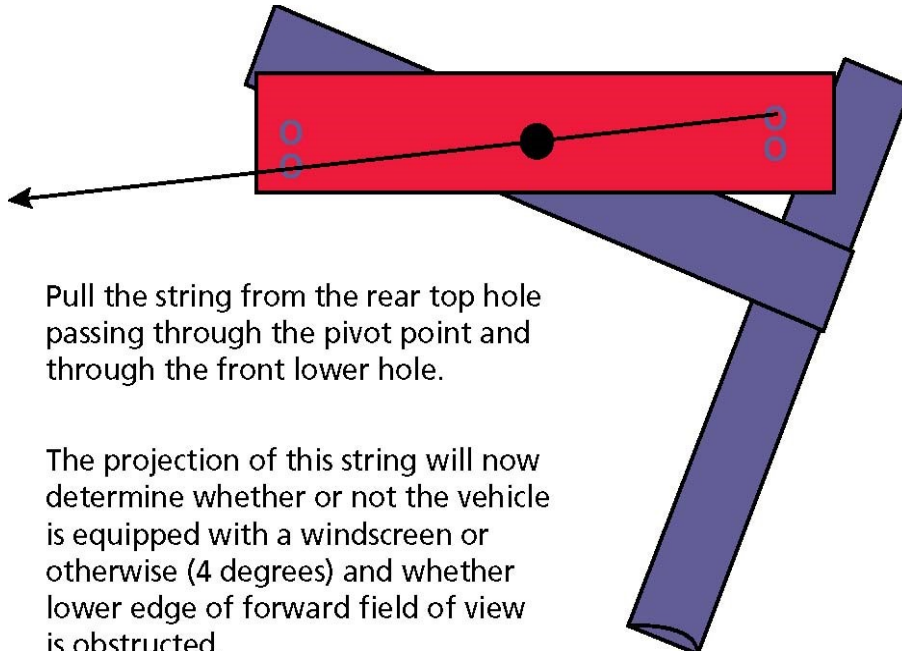
Then using the protractor set the post back to 25 degrees (assuming it has an adjustable seat back).

Using the spirit level set the top section so that it is level, with the top pivot hole set in the 25 degrees hole.

(If the back rest is not adjustable, set the post parallel to the seat back and note the angle. Now use this angle to determine which pivot hole to use on the top section).



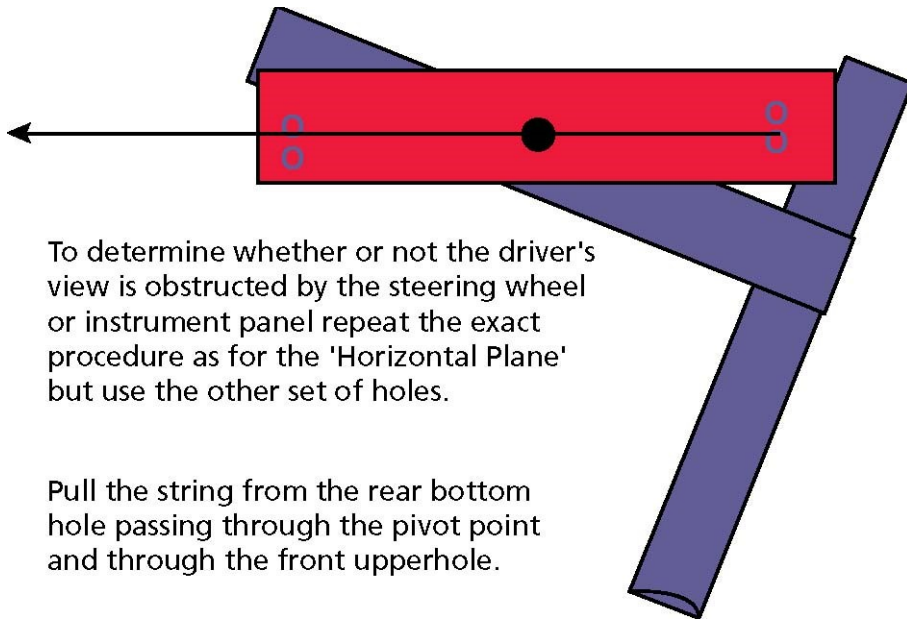
Determination of correct top pivot hole	
Angle	Correct pivot hole
15° to 19°	15
20° to 24°	20
25° to 29°	25
30° to 34°	30
35° to 39°	35
40° +	40



Pull the string from the rear top hole passing through the pivot point and through the front lower hole.

The projection of this string will now determine whether or not the vehicle is equipped with a windscreen or otherwise (4 degrees) and whether lower edge of forward field of view is obstructed.

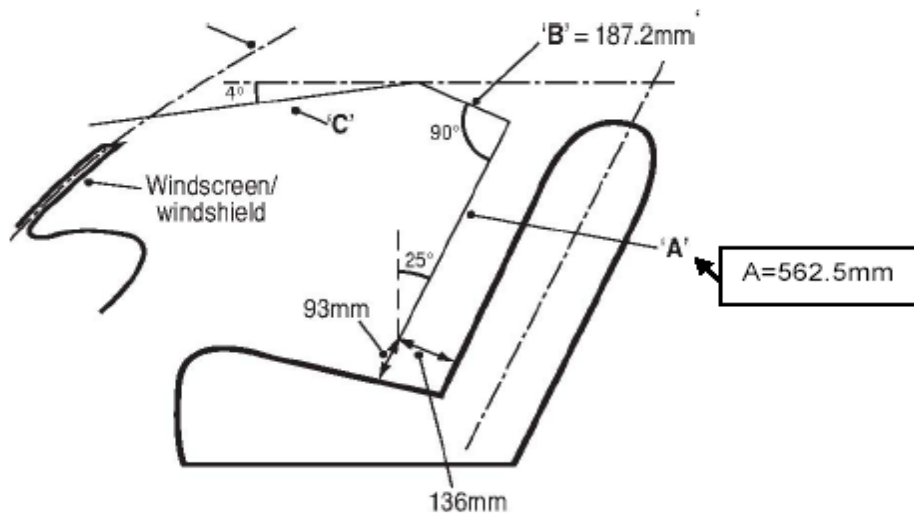
## Annex 1 – Determining a Windscreen 26



To determine whether or not the driver's view is obstructed by the steering wheel or instrument panel repeat the exact procedure as for the 'Horizontal Plane' but use the other set of holes.

Pull the string from the rear bottom hole passing through the pivot point and through the front upperhole.

**The projection of this string will now determine whether or not the driver's view is obscured. (1 degree)**



Angle	'A'	'B'
15° - 19°	582.5mm	178.8mm
20° - 24°	572.0mm	182.6mm
25° - 29°	562.5mm	187.2mm
30° - 34°	553.4mm	191.3mm
35° - 39°	543.5mm	194.9mm
40° +	534.1mm	198.8mm

## Record of Revision

Revision	Date	Change
1	Jun 2010	Dimensions diagram and table added



## 27 Windscreen Wipers and Washers

### Application

This examination applies to all three wheeled mopeds, tricycles and quadricycles fitted with a body, having a windscreen which the driver must look through to obtain a view from his normal seated position.

The method of determining a windscreen can be found at Section 26 Annex 1.

### Requirements and Procedures

1. Check that the vehicle is equipped with;
  - a) at least one automatic windscreen wiper, which;
  - b) is secure
  - c) is operational (with the engine running)
  - d) when switched on continues to operate automatically
  - e) gives the driver an adequate view of the road to the front
  - f) is capable of being folded back to allow for manual cleaning of the windscreen

**Note.** There is no requirement for the wiper arm to self-park.

2. Check, whilst keeping the windscreen wet, that the wiper has an operating frequency of at least 40 cycles per minute, a “cycle” being the forward and return movement of the windscreen wiper.

**Note.** It is permissible for the engine to be running during this test.

3. Check the vehicle is equipped with;
  - a) a windscreen washer system, which;
  - b) provides enough liquid to clear the windscreen in conjunction with the wipers, and
  - c) has a reservoir capacity of not less than 1 litre

### Reasons for Failure

1. A windscreen wiper;
  - a) not fitted
  - b) insecure
  - c) inoperative

## Motorcycle Single Vehicle Approval Manual

- d) does not operate automatically when switched on
  - e) does not move over an area of the windscreen to allow sufficient view
  - f) does not fold back sufficiently to allow the windscreen to be cleaned manually
2. A windscreen wiper that does not have an operating frequency of at least 40 cycles per minute.
3. A windscreen washer system;
- a) not fitted
  - b) which is not capable of supplying enough liquid that would allow the wiper to clear the screen
  - c) has a reservoir capacity of less than 1 litre

## Record of Revision

Revision	Date	Change

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## 28 Masses and Dimensions

### Application

This inspection applies to all vehicles.

### Requirements and Procedures

1. Visually assess dimensions only. If doubt exists that the vehicle meets the requirements, then measure.
2. The maximum unladen vehicle mass must be declared on the test application form. The declared weight of the vehicle should be verified when carrying out the RBT test. In extreme circumstances, the vehicle may be weighed at the start of the examination.
3. If necessary, assess that the maximum payload, where stipulated in table 3, will not be exceeded

**Table1**

Maximum vehicle dimensions		
<b>Length</b>	4.0 m	
<b>Width</b>	2.0 m	1.0 m For Two Wheel Mopeds
<b>Height</b>	2.5 m	

**Table2**

Maximum vehicle masses	
Vehicle	Maximum unladen mass
2 Wheel Moped	As Manufacturers Declaration
3 Wheel Moped	270 kg
Light Quadricycle	350 kg
Motorcycle	As Manufacturers Declaration
Heavy Quadricycle	400 kg
Heavy Quadricycle, Goods	550 kg
Tricycles	1000 kg

**Table 3**

<b>Maximum vehicle masses</b>	
<b>Vehicle</b>	<b>Maximum Payload</b>
3 Wheel Moped	300 kg
Light Quadricycle	200 kg
Tricycle, Goods	1,500 kg
Tricycle, Passenger	300 kg
Heavy Quadricycle, Goods	1,000 kg
Heavy Quadricycle, Passenger	200 kg

### **Reasons for Failure**

1. Any vehicle which does not meet dimensional requirements.
2. Any vehicle with an unladen mass clearly heavier than is permitted for its class.
3. Any specified vehicle with a payload (declared or calculated) in excess of that permitted.

## Record of Revision

Revision	Date	Change
1	Jun 2010	R&P 1 clarified, R&P 3 and Payload table added

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## 29 Glossary of Terms

### **250W LPM**

250-Watt Low Powered Moped. This is a sub-group of Low Powered Moped that meets the criteria laid down in the Electrically Assisted Pedal Cycle Regulations 1983 (SI 1983 No. 1168) as amended by SI 2015 No. 24. The requirements are that the vehicle:

- Be fitted with pedals by means of which it is capable of being propelled.
- Be fitted with no motor other than an electric motor, which has a maximum continuous rated power, which does not exceed 250 watts and cannot propel the vehicle when it is travelling at more than 15.5 mph. (**Note:** the official speed is 25 km/h, MSVA will accept declarations up to and including 16 mph as per low powered mopeds).

These vehicles will be required to meet the standards applied to Low Powered Mopeds except where specified.

### **Blunted Edge**

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

### **Bodied vehicles**

A bodied vehicle is defined as “a vehicle with a structure consisting/comprising of a floor plan and panels which with a roof fully encloses the vehicle occupants and without a roof encloses them other than where the roof would be.” *No 2 wheeled vehicles will be fitted with a body. As a guide if the driver sits **on or astride** the vehicle it would be classed as unbodied. If the driver sits **in** the vehicle with surrounding structure which is higher than the seat squab it would be classed as bodied.*

### **Body Plan Form**

A projection of the complete body onto a horizontal surface including all bodywork and wings but excluding wheels and suspension.

### **Brake control reserve travel**

Any brake which when fully applied has a capability for further application by the control lever before reaching the end of its travel.

### **Brake Efficiency**

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

### **Cab**

The part of the bodywork constituting the compartment reserved for driver and passenger, including its doors.

### **Corner (unbodied projections)**

Where three planes meet

### **Designated Seating Position**

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

### **Disabled Persons Belt**

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

### **Edge (unbodied projections)**

Where two planes meet.

### **External Surface**

The outward facing surface of the vehicle at any height from the floor line up to a height of 2m from the horizontal surface on which the vehicle is standing.

### **Extreme Outer Edge**

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

- a. distortion of any tyre due to the weight of the vehicle
- b. connections for tyre pressure gauges
- c. anti-skid devices mounted on the wheels
- d. rear view mirrors
- e. lamps and reflectors
- f. custom seals and devices for securing and protecting such seals
- g. special equipment
- h. in respect of Section 8/9 (Exterior Projections) only; windows, handles, hinges, push buttons and fuel tank filler caps

NOTE: In respect of item 'g' "Special Equipment" is – a movable platform fitted to a vehicle; the apparatus for moving the platform and any jacks fitted to the vehicle for stabilising it while the platform is in use.

### **Front fog lamp**

A front fog lamp is defined as a lamp used to improve the illumination of the road in case of fog, snowfall, rainstorms, etc. with a wide flat-topped beam which operates by an independent switch (irrespective of the operation of any position or head lamp).

### **Gas discharge headlamp**

A light source in which the light is produced by a gas discharge.

### **Goods Vehicle**

A vehicle with a load carrying capacity in excess of passenger and luggage capacity, having an area from the rear of the passenger seat to the rear of the load space greater than that of the passenger area. On a bodied vehicle this is measured from the most forward point under the dashboard to the rear of the seat base with the seat in the rearmost position (if adjustable). On a vehicle without a body the area is measured from the front foot pegs to the rear of the rearmost sitting position.

### **Hand Brake**

A brake system operated by a hand control, which is designed to be used as a service brake.

**Harness Belt**

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

**Load/speed index (Service Description)**

Code numbers and letters that, by referring to a chart, show the maximum weight and speed which that tyre is capable of sustaining.

**Ignition Switch**

A switch normally used to start the engine. Usually key operated but can be a coded switch, swipe card, etc.

**Insecure**

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

**Lap Belt**

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

**Longitudinal Plane**

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

**Mass in Running Order**

The weight of the vehicle without rider, with all the required equipment, fluids, and a full tank of fuel or, in the case of electrically propelled vehicles, the traction batteries. This weight is sometimes referred to as "kerb weight."

**Max power speed**

The speed (in RPM) at which the engine develops its maximum power output. If this is not known, the maximum design speed (in RPM) is required (usually the beginning of the red zone on the rev counter).

**Motorcycle quadricycle**

A quadricycle which is a saddle seat vehicle, the method of steering control for which is by handle bar. (The machine will have a sit astride seat and motorcycle style steering control).

**Motorcycle tricycle**

A tricycle which is designed and constructed with a single front wheel and motorcycle type suspension and steering.

**Park Brake**

A brake system which could be hand or foot operated, which must be capable of being sustained in the on position by purely mechanical means, and which is designed to be used as a parking, secondary or emergency brake.

**Plate (unbodied projections)**

See "stem"

**Payload**

The maximum payload of a vehicle is the difference between the vehicle maximum mass and the mass in running order plus 75 kg for the rider/driver. Passengers will be calculated as 75 kg per seat.

**Production Vehicle**

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

**Rear cab bulkhead**

The part situated furthest to the rear of the outer surface of the compartment reserved for the driver and passenger. (See Cab).

**Reciprocally incorporated**

Devices having separate light sources or a single light source operating under different conditions (for example, optical, mechanical, electrical differences), totally or partially common illuminating surfaces and a common lamp body.

**Rotary engine**

An engine in which the torque is not provided by any reciprocating pistons, and which is deemed to be a four-stroke engine.

**Side Screen**

An item of glazing, wholly or partly on either side of the driver's seat, which does not slide or move relative to the vehicle or any of its parts (including glazing) in a manner likely to cause abrasion to any glazing surface.

**Sit astride seats (Saddle seats)**

Seats designed to be sat on with the rider's legs hanging down either side, operating motorcycle type steering control. Where doubt exists, the following criteria are to be applied: Width (i.e. across the vehicle) – not more than 400 mm, Length (i.e. front to rear) equal to or more than the width.

**Stem (unbodied projections)**

A "stem" is a solid or tubular cylindrical stalk projecting outwards perpendicularly from the centre line of the vehicle. Any projection not meeting these criteria is deemed a "plate."

**Tip up (occasional) seats**

A seat that is designed to tip or fold up intended for occasional use which is normally folded out of the way.

**Twinned wheels**

Two wheels mounted on the same axle, the distance between the centres of their areas of contact with the ground being less than 460mm. Twinned wheels shall be considered as one wheel.

**Unladen weight**

The mass of the vehicle ready for use and equipped with;

- additional equipment required solely for normal use
- complete electrical equipment including lights supplied by the manufacturer
- instruments and devices required by law
- the appropriate amounts of liquids in order to ensure the proper operation of the vehicle excluding fuel
- The mass of traction batteries is not included for electrically propelled vehicles

**Upper seat belt effective anchorage**

The mounting or guide point from which the shoulder belt descends to the buckle.

**Windscreen**

A transparent screen; through which the driver must look, which extends above the 'windscreen horizontal plane,' as determined by the use of 'Nigel.'

**Windshield (does not apply to mopeds, motorcycles, or motorcycle trikes)**

A shield through which the driver **does not** have to look to gain a view of the road ahead, and which **does not** extend above the 'Windscreen horizontal plane.'

## Record of Revision

Revision	Date	Change
1	Jun 2005	Mass in Running Order and Motorcycle quadricycle added, Side Screen expanded
2	Jun 2010	Load/speed index, sit astride seats and Unladen weight expanded, Payload and Twinned wheels added
3	Jan 2019	Definition of 250W LPM added
4	Sept 2022	Definition of Reciprocally incorporated added

### 30 Amendment Record

Amendment Number	Date	Signature and Position	Amendment Number	Date	Signature and Position
1	INC		18		
2	INC		19		
3	INC		20		
4	INC		21		
5	INC		22		
6	INC		23		
7			24		
8			25		
9			26		
10			27		
11			28		
12			29		
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17			34		

### Amendment Record 30

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