

**Vehicle Standards – Specification for Vehicle Roadworthiness –
Part 1: Roadworthiness of vehicles already in use**

Version *[Insert Version Number]*

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Foreword

SADCSTAN (Southern African Development Community Cooperation in Standardization) is mandated by the SADC Council of Ministers to coordinate Standardisation activities and services in the region with the purpose of achieving harmonisation of standards in support of the objectives of the SADC protocol on trade.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. SADCSTAN shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the SADCSTAN list of patent declarations received.

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This document was prepared by *[insert name of committee or subcommittee]*.

This *[Insert edition number]* edition cancels and replaces the edition *[Insert edition number]*, which has been technically revised. It also incorporates the Amendments *[Insert edition number(s)]*.

The main changes compared to the previous edition are as follows:

— *[List changes here]*

Foreword (Cont.)

This publication has been prepared for use throughout SADC, EAC and COMESA (and in any other country if required) to promote harmonisation and the maintenance of the safety of vehicles operating within the borders of countries and across the borders of countries and is intended to be applicable to new and used vehicles.

It assumes that some countries may not have required vehicles to meet specified safety and performance design requirements as a condition of “entry into service”. Many vehicles in Africa will have been imported from various countries around the world usually having been built to the domestic standards of their source countries and sometimes built to international standards such as those of the United Nations, Economic Commission for Europe (UN ECE).

Several countries employ companies offering inspection services to check for compliance with standards and requirements laid down by the member country receiving the vehicles or laid down jointly by the inspection services and by the recipient country. Such inspection authorities normally focus on the general condition of the vehicle, rather than attempting to validate whether the vehicle model complies with vehicle design safety standards such as those of the UN ECE.

Because of the variety of design specifications resulting from the variety of sources of imported vehicles it is not possible to expect vehicles to meet many of the design requirements applied in the roadworthiness testing standards in say Europe, or in countries which have adopted and applied many of the UN ECE Regulations or other standards and regulations.

This standard has been drafted so that when it is applied it will achieve a minimum level of safety whilst being mindful that requirements are not included if there is a likelihood that they could result in some existing vehicles in service being scrapped or having to undergo expensive modifications in order to meet requirements which they were not required to meet before they entered into service.

Exceptions to this rule included for specific comment are items which can be added with minimal cost such mass data plates, reflective tape, chevrons, warning triangles, labelling of emergency exits and spring brake wind-off tool for heavy vehicles.

It is vital that this draft specification should be examined very carefully to ensure that certain vehicle types or equipment are not being unintentionally outlawed.

0 Introduction

0.1 Acknowledgements and Referrals

In the preparation of this draft specification, the assistance derived from the following sources is acknowledged with thanks:-

- 1) Driver & Vehicle Standards Agency (DVSA) – Bristol, UK – The MoT Vehicle Inspection Manual
- 2) DVSA - Heavy Goods Vehicle Inspection Manual – Consolidated Edition, 2013.
- 3) DVSA - MOT testing guide for test stations – 18 June 2018
- 4) DVSA – Set up an MoT test station
- 5) SABS 047 – The testing of motor vehicles for roadworthiness.

NOTE The DVSA MoT Vehicle Inspection Manuals contain considerable additional information and are obtainable free-of-charge from DVSA, Bristol, UK. (See Part 3, Annexures 11 and 12 for additional information.)

NOTE Part 3, Annexure 14 provides cross references to sections in the UK DVSA - Heavy Goods Vehicle Inspection Manual.

NOTE Some countries may be working with a version of SABS 047 “The Testing of Motor Vehicles for Roadworthiness” which at one stage was being considered for adoption by SADCSTAN and which has been adopted by some countries. It also follows aspects of the above DVSA publications except that it contains some unique requirements and which require specific testing infrastructure and approval systems which may not be readily available in all countries.

0.2 Simplification of Requirements.

Care has been taken to minimise the need for the development of new national and regional standards in cases where such standards can be avoided and an acceptable design and enforcement capability can be reasonably well achieved using a simple direct description in this specification. One example of such simplification is the requirement for the standard for retroreflective materials and comments on the acceptability or otherwise of such simpler approaches will be welcomed. Another reason to minimise references to specifications is that a reference to a single specification in turn usually results in further references to other specifications and so on together with the attendant costs of storing and updating many standards, staffing, testing and of quality surveillance. Such minimization of references to standards simplifies the burden of ongoing updating, amendment and revision of referenced standards.

0.3 Inspection Services – Co-ordination.

It is also important that there should be no conflict between requirements of this specification and those standards of the vehicle inspection services which certify vehicle condition before export to Africa. Thus processes will have to be introduced to develop compatibility before this subject specification is enforced so as to minimise the possibility that a vehicle certified by an inspection service might fail this roadworthy test.

0.4 Upgrading of Safety Standards.

Looking towards the future, and with a view to encouraging harmonisation and to ensure specific minimum levels of design safety standards, it is likely to be necessary to introduce some mechanisms,

procedures or regulations to provide assurances that certain design safety criteria are met before vehicles are able to be certified by an inspection authority for export to Africa, and before they are accepted for “entry into service” and for licensing or registration in a recipient country for the first time. This in future would provide for higher levels of safety design to be checked at the roadworthiness inspection or by an approval authority and would lead to improvements in safety for national vehicle fleets as time goes on. Part 2 of this specification details proposals for future requirements to ensure upgraded vehicle safety standards.

0.5 When to introduce new requirements.

If it is agreed to set targets for the future introduction of specific design safety standards and requirements as proposed in Part 2, then countries may choose to decide on a date upon which such new requirements are to be mandated, allowing sufficient time for current stocks to be exhausted, new orders to be placed, vehicles to be selected with specifications corresponding to the new requirements, and for governments to introduce systems to check whether such new requirements are complied with before being permitted to enter into service. A single target date has been proposed for consideration in Part 2 of this draft specification.

0.6 United Nations (UN) ongoing upgrading of vehicle design safety standards.

It is to be noted that certain initiatives are being progressed by the UN ECE and the FIA to encourage vehicle manufacturers to incorporate particular design safety standard requirements into all of the vehicle models they produce, no matter where they are to be marketed or whether they are intended as “low cost entry level” models. It remains to be seen whether these initiatives will be successful. However the design safety standards referred to in Part 2 Table 1 cover the majority of the requirements which the UN ECE and the FIA are promoting and accordingly will support these initiatives.

0.7 Complexity of the vehicle design safety standards (Regulations) of the UN.

These standards, known as UN ECE Regulations, are highly complex and it is extremely expensive to provide test evidence to show complete compliance to such standards. However visual inspection of a vehicle can in many cases provide indications of whether it has been designed to meet a UN ECE Regulation or a similar standard that is likely to provide a sufficient degree of safety. Extensive information on UN ECE and their Regulations is provided in Part 3, Annexes 1 to 5.

0.8 Construction of this specification.

This “Specification for Vehicle Roadworthiness” is divided into 6 Parts being:-

Part 1: Roadworthiness of vehicles already in service

Part 2: Roadworthiness of vehicles prior to entry into service and thereafter

Part 3: Roadworthiness – Supporting Information

Part 4: Roadworthiness – Requirements for vehicle examiners

Part 5: Roadworthiness - Requirements for testing equipment

Part 6: Roadworthiness – Requirements for combinations of vehicles

Part 1 is intended to ensure that vehicles are generally properly maintained to a reasonable degree of safety. Care has been taken to avoid rejecting vehicles by requiring design requirements which were

unlikely to have been incorporated in the vehicle under examination, whether by legislated requirement or on a voluntary basis, when it was permitted to “enter into service”.

Part 2 is intended to provide for the consideration and subsequent mandatory introduction of design safety standard requirements intended to ensure higher standards of safety for vehicles entering into service in the future.

Part 3 is intended to provide useful information to examiners of vehicles and to authorities especially with regard to the vehicle design safety standards of the United Nations and which are gradually being adopted by more and more countries worldwide.

Part 4 provides criteria and requirements on the selection and knowledge required of a vehicle examiner.

Part 5 provides requirements for testing equipment and testing facilities.

Part 6 is for inspection of vehicle combinations whether or not any testing facilities or equipment are available.

Mandating design safety standards for future compliance after an adequate lead time is technically the proper way to go but requires “approval systems” to provide some degree of assurance that such design requirements are being met. An alternative approach for consideration would be to prohibit entry of vehicles which are older than say 5 to 8 years. This approach assumes that the countries from which vehicles are being supplied apply similar design safety standards to those listed in Section 8 to their domestic and export markets.

There are some requirements which have been in the national legislation of some countries for several years and which are considered outdated or non-essential and which have been omitted as requirements for roadworthiness in this specification. For example under lighting the highly detailed positional requirements for lights are not considered necessary since one cannot normally alter these positions from the original vehicle design. The main requirements included for lighting are that certain lights should be present and functioning, and that the growing practice of adding additional headlights or front lights which result in dazzle should be prohibited.

Conversely there are some requirements in the national legislation of some countries which are excluded from this specification but which will continue to be applied in those countries under their domestic legislation to the vehicles registered and licensed in those countries.

Vehicle Standards – Specification for Vehicle Roadworthiness – Part 1: Roadworthiness of vehicles already in use

1 Scope

1.1 Scope of Part 1

This Part 1 of the specification covers the requirements for the examination and testing for roadworthiness of motor vehicles operating within the borders of member countries of SADC, COMESA and EAC and across the borders of member countries of these regions.

1.2 Application

This specification applies minimum safety requirements. It is not intended to cover all of the specific national safety requirements of countries for vehicles registered and operating within their borders but wherever possible countries are requested to standardise on the criteria contained in this specification.

1.3 Demarcation

Requirements are included only for items which are critical to safety and which can be assessed by a vehicle examiner with the facilities of a vehicle testing station complying with whatever appropriate requirements are laid down in legislation for vehicle examiners and vehicle testing stations.

1.4 Provision for imported vehicles

This specification takes into account that in the SADC, EAC and COMESA regions vehicles may be imported from a variety of countries or regions and such vehicles may have been designed to comply with the domestic requirements of specific source countries or regions anywhere in the world.

1.5 Scope of Part 2

Part 2 of this specification deals with methods and considerations to provide for the future introduction of more advanced safety requirements such as those detailed in Part 2, Table 1 whilst avoiding costly and burdensome technical and administrative controls and procedures. It caters for the situation where many countries or regions which supply vehicles have requirements which differ in certain detail, but which are intended and designed to afford a reasonable degree of safety to the vehicle occupants and to other road users. Examples of where differences between national or regional requirements do, or may exist, but which are considered as providing an equal or an acceptable degree of safety are given in this Part 2, Table 2 using UN ECE Regulations as the base.

1.6 Scope of Part 3

Part 3 of this specification is intended to provide assistance to examiners of vehicles and to authorities.

2 Notes to Users.

2.1 Applicability of requirements

- a) The requirements in Section 5 apply to all vehicles with 4 or more wheels; the requirements in Section 6 apply only to motorcycles, tricycles and quadrucycles; the requirements in Section 7 are

additional to those in Section 5 and apply to passenger vehicles with 10 or more seats including the driver.

- b) The requirements in Part 2 deal with design safety standards which are to be considered for future application to vehicles at some stage of procurement before entry into service and thereafter.
- c) This specification does not cover special requirements or concessions for roadworthiness certification for cross border operation, other than referring to cases where national or regional legislation may take preference over the requirements of this specification.

2.2 Abbreviations

RHD means right hand drive designed for operation in countries where traffic drives on the left.

LHD means left hand drive designed for operation in countries where traffic drives on the right.

2.3 Definitions

“Approval authority” is the authority responsible for checking design compliance of vehicles entering into service for the first time and may be a Roadworthy Testing Station.

“Approval systems” are systems operated by an approval authority intended to provide some degree of assurance that compliance with vehicle design safety standards has been achieved. (See Part 2)

“CIE” is the abbreviation for the French for the International Commission on Illumination.

“Date of entry into service” is the date on which the vehicle was licensed or registered for the first time in the country in which it is being operated.

“Vehicle design compliance” is compliance to a design standard which has been published by a national or regional body.

“FIA” is the Federation Internationale de l’Automobile being the governing body of motor sport and which promotes safe, sustainable and accessible mobility for all road users across the world.

“Legally permissible” means as limited by national or regional legislation

“Technically permissible” means as permitted and specified as such by the manufacturer.

“UN ECE” is the United Nations Economic Commission for Europe.

“Vehicle category definitions” applied by the UN ECE are included under Part 3.

2.4 Terminology

Non-specific terms such as excessive, extensive, significant, impaired, deficient and such like expressions are used where finite limits are inappropriate to apply, and the Vehicle Examiner is the final arbiter in such cases.

3 Administrative Requirements.

3.1 Application Form.

The vehicle examiner shall check that the Application Form for Roadworthiness is fully relevant to the vehicle to be examined. In particular the vehicle examiner shall inspect and record the VIN or Chassis Number and Registration Plate details by obtaining these from the vehicle itself and not from any documentation, then checking these details against the detail on the Application Form.

3.2 Evidence of Vehicle having been presented.

The vehicle examiner shall take photographs of the vehicle showing its front $\frac{3}{4}$ including its registration plate and at the same time showing the testing station in the background. Additional photographs showing the rear $\frac{3}{4}$ of the vehicle and its body together with a photograph of the VIN or chassis number shall also be taken and filed.

(Additional requirements to minimise fraud are intended to be introduced such that all documents including photographs will contain fingerprints, dates, signatures and GPS co-ordinates).

3.3 Record of the Roadworthiness Inspection.

A record of the inspection covering at least the detail shown in this Part 1 Annex 1 shall be provided to the client.

3.4 Roadworthiness Certificate.

Vehicles complying with the requirements applicable in their country of registration or licensing shall carry a Roadworthiness Certificate to this effect in cases where the country of registration or licensing issues such certification and its national or regional legislation requires it to be carried on the vehicle and shall produce this certificate for inspection by the vehicle examiner.

4 Procedural matters regarding the actual test

4.1 Circumstances where an examiner may refuse to examine a vehicle or to complete an examination

- a) If the information on the vehicle does not correspond with the information on the application
- b) if the information on the vehicle appears to have been tampered with
- c) if the vehicle is so dirty that the examiner would be unable to examine it efficiently
- d) if the vehicle cannot be started or driven
- e) if a defect is detected which renders the vehicle unsafe or otherwise presents a risk to the examiner
- f) a trailer must be connected to a suitable drawing vehicle
- g) some part which should be able to be opened cannot be opened
- h) the person who presented the vehicle for test does not remain in the vehicle or its vicinity and operate the controls, drive the vehicle or to remove, refit panels as requested or is uncooperative

- i) in cases where the vehicle has been adapted to suit a disabled driver and the examiner is unable to drive it with a reasonable degree of safety

5 Technical Requirements.

5.1 Registration Plate – Reject if

- a) a registration plate is missing or insecure or not in accordance with national legislation
- b) is not easily legible to a person standing approximately 20m from the vehicle in line with its direction

5.2 Information Display - Reject if

- a) information on vehicle identification, power and mass(es) as below, is not displayed on vehicles over 3500kg GVM.
 - 1) VIN or chassis number
 - 2) Maximum engine power output (kW)
 - 3) Gross vehicle mass – also referred to as technically permissible maximum vehicle mass (kg)
 - 4) Gross combination mass – also referred to as technically permissible maximum combination mass (kg)
 - 5) Technically permissible maximum axle masses (kg)
 - 6) Legally permissible maximum axle masses (kg) – often limited by maximum tyre capacity (kg)
 - 7) Legally permissible maximum vehicle mass (kg)
- b) vehicles entering into service from the date specified in Part 2, Clause 5.3 do not have the information as below* on a data plate:-
 - 1) for light goods vehicle up to 3 500kg GVM and passenger cars the GVM, GCM, front axle and rear axle capacity,
 - 2) for vehicles over 3 500kg GVM the manufacturers technically permissible masses and the legally permissible masses.

*Guidance on the layout and derivation of the masses is given in Part 3 Annex 6 of this specification.
- c) vehicles which are required to operate within certain speeds do not have the required sign at the rear.

5.3 Braking Equipment

5.3.1 Controls – Reject if

- a) Parts of its assembly (including anti-slip provision) or mounting are damaged or missing or have excessive play or are fouling other components,
- b) have excessive movement when braking or not releasing fully

5.3.2 Hand lever operated brake control – Reject if

- a) Parts of its assembly (including ratchet) or mounting are damaged or missing, have excessive play, are cracked, fractured, excessively corroded or are fouling other components,
- b) It cannot be operated from a normal driving position, is impeded in its travel, or has excessive movement when operating or not releasing fully, or does not readily stay in the “on” position,
- c) It is not identifiable through different actuator colours (red and yellow for USA-origin vehicles) and readable labels
- d) pivots are tight in operation or have excessive side play such that failure is likely
- e) it is excessively worn in its gate or lever locating mechanism

5.3.3 Vacuum assisted hydraulic brakes (vacuum drawn from engine) – Reject if

- a) the brake pedal creeps down when depressed
- a) sponginess can be felt when the pedal is depressed
- b) after depleting the vacuum with engine stopped, the pedal does not dip when the engine is started
- c) there are visible leaks or “sweating” on any of the pipes, pipe connections or flexible connectors or brake assemblies or wheels after tests have been made on the vehicle

5.3.4 Compressed air or vacuum assisted hydraulic brakes (fitted with air compressors or vacuum pumps)– Reject if

- a) on vehicles which are fitted with air compressors or vacuum pumps to provide energy or assistance to the braking system, there is no visual or audible warning device for inadequate pressure or vacuum, or it is not fitted or working correctly
- b) there is not enough pressure or vacuum to give at least two fully assisted brake applications after the warning device has indicated minimum effective working conditions
- c) in the case of a solo vehicle the time to reach minimum effective working pressure after the warning signal is more than 3 minutes for pressure systems and 1 minute for vacuum systems, or 6 to 9 minutes for vehicles designed and equipped to draw a trailer. (Note that USA sourced heavy vehicles have a maximum operating pressure of approximately 700kPa whereas European sources use 850kPa or more and that charging times are longer for say vehicles with additional air operated equipment such as air suspension)
- d) in the case of a trailer being coupled to the vehicle under test, the time to reach minimum effective working pressure after the warning signal is more than 6 minutes for pressure systems and 3 minutes for vacuum systems, for vehicles designed and equipped to draw a trailer.
- e) there are visible leaks or “sweating” on any of the pipes, pipe connections or flexible connectors or brake assemblies or wheels after tests have been made on the vehicle

5.3.5 Full pressure hydraulic brake systems (fitted with a hydraulic pump) - Reject if

- a) the pressure in the hydraulic system is not maintained for 10 minutes when the brakes are off and the engine is stopped

- b) there are visible leaks or “sweating” on any of the pipes, pipe connections or flexible connectors or brake assemblies or wheels after tests have been made on the vehicle

5.3.6 Trailer brakes – Reject if

- a) a trailer does not have a parking brake which acts on at least 2 wheels and an overrun or service brake, except that if it has a GVM of 750kg or less then any device which ensures safe parking is acceptable.
- b) if it entered into service after the date specified in Part 2, Clause 5.3 and the overrun or service brake in b) above does not act on all wheels
- c) the parking brake cannot be securely set
- d) the mechanism is insecure, cracked, excessively worn or badly corroded
- e) on twin-line air-braked systems the emergency brake does not apply automatically when the emergency (usually red) brake line is disconnected from the towing vehicle
- f) does not have a parking brake acting on at least 2 wheels of the trailer which can be securely set
- g) has loose, insecure, worn or damaged brake levers, chains, cables or linkages and the brakes cannot be fully applied or do not release easily
- h) if any airline is fitted with a manual shut-off, other than a valve to apply the parking brake if fitted with spring brakes
- i) a trailer over 750kg GVM but less than 3 000kg GVM does not have an inertia (overrun) brake or a service brake acting on at least 2 wheels of the trailer, except that for trailers entering into service after the date specified in Part 2 Clause 5.3 reject if they do not have brakes operating on all wheels.
- j) a trailer over 3 000kg GVM does not have a service brake acting on at least 2 wheels of the trailer, except that for trailers entering into service after the date specified in Part 2 Clause 5.3 reject if they do not have brakes operating on all wheels.

5.3.7 Braking systems with ABS or ABS/EBS or ESC systems – Reject if

- a) any warning lamps for such systems do not illuminate as required when the ignition is switched on
- b) any such warning lamps are missing or indicate a fault
- c) any visible wiring especially in the vicinity of the wheel brake assembly is loose or not present or not suitably protected against chafing or other damage
- d) if equipped to tow a trailer the electric connection between towing and towed vehicle is not of the 13-pin type or does not have a separate plug from the vehicle electric system

5.3.8 Braking components – various - Reject if any of the following can be detected

- e) brake rods, clevis joints, linkages, relays, levers, pins, pivots slack adjusters or cables are seriously weakened by excessive wear or have abnormal play or locking devices missing
- f) brake pipes and hoses contact moving parts or are excessively chafed or exposed to excessive heat

- g) brake drums, backing plates and brake shoes are seriously weakened or insecure or missing
- h) a brake pad or brake lining is less than 1.5mm thick or has been exposed to oil
- i) a brake disc or drum is excessively worn or a brake drum shows signs of fracture
- j) the brake fluid level below minimum or hydraulic fluid reservoir cap missing
- k) trailer couplings are interchangeable but have no indication of which line connects to which line
- l) an incorrectly adjusted load-sensing valve
- m) leaking air or vacuum connections
- n) an air compressor drive belt is missing or so loose that slippage is likely
- o) an air reservoir cannot be drained, either automatically or manually
- p) brake levers, slack adjusters and camshafts are not properly adjusted or aligned to give maximum force when the brakes are applied, or do not release to the fully-off position after the brakes are released
- q) the s-cam shafts can move freely and do not tend the stick when air brakes are released
- r) operating cylinders or diaphragms have excessive travel (if the manufacturer's service limits are not available, a limit of 55 mm for diaphragm types or half the length of the cylinder for piston types)
- s) spring brakes are not operating, or are wound off, or with the rewind bolt missing
- t) if fitted with spring brakes, a tool to enable spring brakes to be wound off is not carried on the vehicle

5.3.9 Alarms and warning systems – Reject if

- a) Any alarm or audible or visual warning system provided by the manufacturer is not present and functioning to warn of inadequate vacuum or air or hydraulic pressure or of insufficient brake fluid

5.4 Braking Performance

5.4.1 Braking efficiency – Reject if under any condition of loading with the engine disengaged, when

- a) road testing using a decelerometer - if from a speed of approximately 35km/h the deceleration in m/s^2 achievable on a road test using a decelerometer is less than shown in Table 1 below, or the vehicle deviates from a straight line, or
- b) road testing using markings on the road surface– if from a speed of 35km/h the vehicle can not be stopped in a distance shown in Table 2, which distance is preferably marked on the road, or the vehicle deviates from a 3.6m wide lane
- c) using a brake roller tester - the equivalent braking force in N/kg that can be developed in relation to the axle load, is less than shown in Table 1 below, calculated from the brake roller tester results according to the following procedure:-

- 1) Determine the mass (weight) of each axle in kg. Add the weights of each axle together to obtain the weight of the vehicle. (If weighing equipment is not available then note the tare (kg) as the total weight of the unladen vehicle.)
- 2) Using a brake roller tester obtain the brake force that is available for each axle by adding the brake force reading for the left hand and right hand brakes for each axle. Add the results for all axles together.
- 3) Divide the total force in Newtons obtained in 2) by the total vehicle mass (weight) in kg obtained in 1) and check that the result is greater than is shown for the equivalent braking force in N/kg in Table 1 below.

Table 1: Braking performance requirements

	Deceleration (m/s ²)	Equivalent braking force (N/kg)
Vehicles and combinations designed for or capable of exceeding 40 km/h -		
Test from 35km/h		
Service Brake	4,4	4,4
Secondary emergency brake	1,9	1,9
Vehicles and combinations NOT designed for or capable of exceeding 40 km/h -		
Test from the maximum achievable speed		
Service Brake	1,9	1,9
Secondary emergency brake	0,95	0,95

Table 2: Stopping distances* from Various Speeds at Different Decelerations

Initial speed (km/h)	Stopping distances (m)			
	Designed and capable of exceeding 40 km/h		Not designed or capable of exceeding 40 km/h	
	Service Brake 4,4 m/s ²	Secondary emergency brake 1,9 m/s ²	Service Brake 1,9 m/s ²	Secondary emergency brake 0,9 m/s ²
15	N/A	N/A	7 m	12 m
20	N/A	N/A	11 m	20 m
25	N/A	N/A	16 m	29 m
30	N/A	N/A	23 m	30 m
35	14 m for <_3500kg GVM or Tare	30 m	30 m	35 m

35	16 m for all other vehicles	30 m		
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*These distances include an allowance for response time of the pedal and brake shoe/pad movement or air or vacuum delay from the moment the pedal or lever is activated at one of the speeds in Table 2.

NOTE See section 6.0 for specifics for motorcycles, tricycles (including Tuc Tucs) and quadrucycles.

- d) the parking brake is unable to hold the vehicle stationary on a gradient of 1 in 8 (which is 0.125 or 12,5%) facing up and facing down, or the brake roller tester shows less than 1,1 N/kg when the parking brake is applied
- e) the difference between the brake forces developed on each side of an axle is more than 30% of the highest brake force,
- f) there is little or no braking force at any wheel,
- g) the brake on any wheel is binding or sticking evidenced by a time lag when increasing brake pressure
- h) the brake force indication fluctuates indicating brake drum ovality and the difference between the highest and lowest readings of brake force on the same axle is greater than 70% of the highest reading
- i) for vehicles for which the secondary brake control operates independently of the service brake the secondary brake performance is less than shown in the table above.

NOTE The preferred method of testing is to use a brake roller tester and to perform a road test.

The main benefit of a brake roller tester is that it provides indications of whether each of the wheel brakes is functioning properly and can sometimes be used to predict laden performance from unladen test results although with very limited accuracy in such “unladen to laden” predictions. Difficulties in predictions often occur especially on heavier vehicles because the wheels lock before the brakes have shown a sufficiently high capability. Such early lock-up may be caused by low friction or wet rollers, or by the axle under test being very lightly loaded, or by the position of a load sensing valve when no load is in the vehicle.

The road test on the other hand provides an overall indication of the braking performance including tendencies to pull to one side, delays in response times, noises, juddering etc.

Some authorities prefer the vehicle to be laden or even provide “pull-down” systems to apply load to the axles but each such approach introduces risks of damage to the testing equipment or even to the vehicle or personnel, and is not possible in the case of certain vehicle types -eg:- fuel tankers, pantechnicons.

5.5 Lighting and Light Signalling and Reflective Equipment

5.5.1 Front lights – Reject if

- a) headlights, dipped beam lights, direction indicator lights, stop lights, tail lights and reversing lights are not fitted or not operable or if any lens is damaged such that it is likely to deteriorate further, or missing or obscured.
- b) lighting and light signalling equipment such as, fog lights, end outline marker lights, daytime running lights are fitted but are not operable. (Courtesy lights and interior lights need not be fitted nor be operable if fitted).
- c) any of the lighting in b) is not fitted nor operable or if any lens is damaged such that it is likely to deteriorate further, or missing or obscured.
- d) headlights do not have a dipped beam function, and which will not dazzle oncoming traffic.
- e) when using a headlight beam tester, the headlight and dipped beam do not meet the intensity and the dipping requirement specified by the manufacturer of the headlamp beam tester.

If headlight testing equipment is not available establish the height of the intense part of the headlight dipped beam close to the vehicle, then again at a distance of approximately 5 to 10 metres* from the front of the vehicle establish whether the height of the dipped beam is lower. Reject if it is not lower.

*The screen method shown in Part 3 Annex 13 may also be used.

In the case of headlights designed for LHD vehicles crossing into member states with traffic driving on the left the use of blanking tape to block light which would otherwise dazzle oncoming traffic is acceptable (similarly for RHD vehicles operating in traffic driving on the right).

- f) all lights at the front of the vehicle do not emit white light.
- g) Except in the case of vehicles designed with a single rear foglamp, if there is not a matching pair of lights each positioned equidistant from the vehicle centreline, or if they are not of approximately equal intensity.
- h) if additional front lighting systems are fitted which are likely to dazzle other road users. (eg light bars) and which are not homologated or type approved for that vehicle model and designed and supplied integral by the vehicle manufacturer.

5.5.2 Rear and side lights – Reject if

- a) stop, tail and any fog lights at the rear of the vehicle do not emit red light (except the reversing light) or if any such light is inoperable or if the lights on the LH side and on the RH side are not of approximately equal intensity, except for the case of vehicles designed with a single rear fog light which is red.

5.5.3 Signalling lights – Reject if

- a) direction indicators do not emit amber or yellow light to the front or sides, and amber, yellow or red to the rear according to their designed colour and reject if all such lights cannot be brought into action by operation of a single hazard warning control.

5.5.4 Identification and end outline marker lamps – Reject if

- a) identification lamps are fitted and are not green or amber and if any lamp exceeds 21W
- b) end outline marker lamps are fitted and do not emit white light to the front and red light to the rear

5.5.5 Retro-reflective equipment – Reject if vehicles over 3500kg GVM or over 7m long

- a) are not fitted with amber retro reflectors, at 3m spacing, along the sides of vehicles or with retro-reflective yellow contour marking tape, which complies with and is marked to show compliance to UN ECE R104 Class C and which is 50mm(±5mm) wide covering as close as possible to at least 80% of the overall length of the vehicle
- b) after the date specified in Part 2, Clause 5.3, are not fitted with retro-reflective yellow contour marking tape, which complies with and is marked to show compliance to UN ECE R104 Class C and which is 50mm (±5mm) wide and fitted along the sides and rear covering as close as possible to at least 80% of the overall length and width of the vehicle. Reflective red tape may be used at the rear instead of yellow.

NOTE Yellow is generally of a higher retro-reflective performance than red.

- c) after the date specified in Part 2, Clause 5.3, are not fitted with a high intensity grade reflective chevron sign, which is 200 mm wide and long enough for the outer edges to be within 400 mm of the outer edges of the vehicle. The reflective materials, in red and yellow, shall be angled at 55 degrees and 100mm wide, as shown in Annex 2 and having the coefficient of retro-reflection in Table 3.

NOTE See Annex 2 for further information on materials.

5.5.6 Retro-reflectors – Reject if

- a) white retroreflectors are not fitted to the front of trailers, and if required by national legislation to the front of motor vehicles. (See Part 3 Annex 7)
- b) red retroreflectors are not fitted at the rear
- c) any colour other than white is fitted to the front, or other than red is fitted to the rear

5.5.7 Steadiness of light – Reject if

- a) any light is fitted which does not emit a steady light excluding :-
 - 1) direction indicating or hazard warning lights or light(s), and
 - 2) lights authorised for use by specified personnel, and
 - 3) stop lights designed and supplied as integral parts by the manufacturer of a motor vehicle to provide warning of abnormally severe braking action.

5.6 Driver's view, safety glass and mirrors– Reject if

- a) a windscreen or a window to either side of the driver is not of safety glass or if the safety glass has been damaged or discoloured or tinted to the extent that the driver's view to the front or sides is impaired, excluding cracks or damage which are not positioned in front of the driver

- b) a windscreen to the front of the driver is not of the laminated type as indicated by two parallel lines on the windscreen or the word "laminated"
- c) any glass is loose or so insecure that it is likely to become detached from the vehicle and fall onto the roadway.
- d) At least one mirror on each side is not fitted and is not securely mounted so as to avoid vibration under normal conditions of operation
- e) without moving one's body position in the driver's seat it is not possible to see on each side of the vehicle marks on the ground positioned 4m behind the driver and 1m away from the side of the vehicle, and 20m behind the driver and 3,5m away from the side of the vehicle, according to this Part 1 Annex 3 , or when standing behind the vehicle in line with the side of the vehicle, one cannot see more than 75% of the width of the mirrors.
- f) any mirror is broken or its reflectivity is impaired by corrosion or other damage
- g) on vehicles where the steering wheel is on the wrong side for the national traffic rule, additional mirrors known as wide angle and close proximity mirrors shown in Part 3 Annex 10 which were provided on more recent model heavy vehicles and buses, are missing, broken or otherwise rendered ineffective.

5.7 Windscreen washers and wipers – Reject if

- a) the wiper operation is defective or does not provide the driver with a clear view of the road ahead
- b) the wiper blade(s) has deteriorated such that it does not wipe the windscreen sufficiently cleanly to provide the driver with a clear view of the road ahead
- c) windscreen washers are ineffective
- d) wiper does not cover an adequate area or is not able to work continually.
- e) a wiper arm or blade is missing

5.8 Steering and driving controls – Reject if

- a) the free play is such that the steering wheel can be rotated in either direction by more than 45 degrees without movement of the road wheels, indicating excessive wear in the steering system
- b) end float in line with the column is excessive
- c) abnormal noise or stickiness of rotation is experienced when turning the steering wheels from side to side with the engine running
- d) the steering column or steering wheel is clearly insecure or likely to become so as a result of incorrect security such as missing clamps or locking devices or wear
- e) any power steering is clearly not producing the degree of assistance normal for that vehicle type
- f) anti-slip surfaces on brake and clutch pedals are worn, loose or missing.
- g) pedal hinges are worn giving excessive sideways free-play or pedal movement is restricted

- h) any anti-theft system has been retrofitted which could constitute a danger to an unfamiliar driver and which was not designed and supplied as an integral system by the manufacturer of the motor vehicle
- i) legislation prohibits the registration or licensing of a left-hand-drive or right-hand-drive vehicle

5.9 Size and Type of Tyres - Reject if

- a) the maximum load capacities of the tyres are less than the legally permissible axle load
- b) the maximum load capacities of the tyres are not marked in kg or coded* on the sidewalls
- c) tyres are marked “not for highway use” on vehicles designed for highway use
- d) in the case of 10 to 16 seat passenger vehicles if the tyre designation does not include a “C” which signifies “commercial radial ply” tyres – eg “195R15C”.
- e) tyres on a dual wheel are of different sizes such one tyre is clear of the ground
- f) tyres on an axle are of different sizes or one is cross ply and another is radial ply.

*International codes for maximum capacities and speeds are shown in Part 3 Annexures 8 and 9.

5.10 Condition of Tyres - Reject if

- a) tread wear is extensive such that the tyre shows smooth areas where no tread is visible such that adhesion would be reduced, or where any tread wear indicator shows the need for replacement.
- b) any cuts or bulges in sidewalls are deep enough to reach the body cords are likely to lead to deflation.
- c) in the case of dual wheels where sidewalls touch in the unladen condition
- d) in the case of dual wheels where one tyre does not touch the road surface
- e) any portion of the ply or cord structure is exposed.
- f) a tyre has been regrooved and which does not state “regrooveable” on its sidewall
- g) the sidewall of the tyre shows evidence of repair in the case of a light vehicle

5.11 Road Wheels and their connections to the vehicle - Reject if

- a) a tyre retaining ring is fractured or is lifting more than 1,5mm from the rim
- b) a nut or stud is missing, loose or for some reason is not clamping the wheel to the hub.
- c) any stud hole is excessively worn
- d) a spigot wheel nut washer cracked.
- e) a wheel is badly damaged or distorted or with a locating spigot or dowel missing.
- f) a wheel is damaged by the corners of a wheel nut cutting into the material of the wheel.
- g) the wheel fixings are not matched or compatible.

- h) a wheel made of aluminium alloy repaired by welding.
- i) a wheel has a load rating less than that required to support the legally permissible axle load
- j) any half shaft bolt, nut or stud is missing or loose
- k) any balance weights are not secure
- l) any interchangeable (quickly detachable) wheels have excessive play in their splines
- m) on visual observation, any roadwheel does not run reasonably true
- n) there is excessive play in the wheel bearings or king pins when the front wheels are lifted off the ground and rocked top and bottom
- o) control arms are damaged or show signs of repair and bushes are badly worn or missing

5.12 Suspension including shock absorbers and torsion bars- Reject if

- a) a suspension component or its attachment point is insecure, disconnected, cracked or so worn or damaged that its function is adversely affected
- b) a suspension unit so weak that there are signs of fouling when the vehicle is laden
- c) in the case of leaf springs the locating pin or any shackle or any component part is missing or clearly so badly worn that failure is probable
- d) in the case of coil springs or torsion bars there is excessive free play or components missing or signs of repair by welding
- e) in the case of air suspension there are leaks in the system or signs of fouling during displacement or parts such as check straps missing
- f) shock absorbers are present but are ineffective or mounting points are damaged or degraded
- g) shock absorbers are missing on vehicle designs which depend on the presence of shock absorbers

5.13 Wheel alignment - Reject if

- a) side slip or wheel alignment exceeds the limits specified by the manufacturer of the testing equipment
- b) the vehicle can be seen to be “crabbing”
- c) the camber is clearly excessive on one side of the vehicle compared with the other side.

5.14 Condition of chassis - Reject if

- a) any chassis or cross member is broken or is cracked or deformed and weakened to the extent that failure is likely
- b) deformation of the chassis or body is such that the vehicle can be seen to be “crabbing”

5.15 Bodywork and various equipment – Reject if

- a) the vehicle body or cab is not firmly secured to any chassis
- b) if corrosion is present to the extent that it is likely to reduce the strength of structural parts or areas which are necessary to support door pillars and hinges and mounting points for seats and safety belts and doors latches and hinges including the floor area
- c) if corrosion is present that results in sharp edges or holes in panels that are likely to cause injury to occupants, pedestrians or other road users
- d) the floor is not secure or is excessively rusted or broken
- e) any step or handrail is loose to the extent that injury could be caused
- f) any side guard, bull bar, rear underrun device, bumper bar or roof carrier is insecure or has sharp edges likely to cause injury to pedestrians
- g) in the case of a semi-trailer the landing legs do not operate correctly or are not securely mounted
- h) if any such device protrudes beyond the maximum width of the vehicle and is not rounded so as to minimise the likelihood of injury to pedestrians.
- i) doors do not latch closed securely or cannot be opened or closed easily
- j) seats are loose or the driver's seat forward or rearward adjustment does not latch securely
- k) a seat backrest does not lock in an upright position

5.16 Engine, transmission

- a) gear selection is abnormally difficult or any gear selected can disengage without action by the driver
- b) engine or transmission mountings or propshaft components are insecure, damaged, worn or produce abnormal noise
- c) engine power output is clearly below normal levels such that the vehicle would be a hazard in traffic
- d) the vehicle cannot be driven in reverse

5.17 Couplings on drawing vehicles and on trailers**5.17.1 Drawbar eye or hook – Reject if**

- a) the drawbar eye or hook or the pin, where appropriate, is not secure, or is excessively distorted or excessively worn, or
- b) the locking or safety devices are not in position or are not working correctly.

NOTE If the vehicle has a coupled trailer, do not uncouple it. An examiner may be liable for any damage.

5.17.2 Fifth wheel coupling - Reject if

- a) the fifth wheel assembly is not securely fitted to the chassis with at least 12 x grade 8.8 high tensile bolts in the case of 90mm kingpin and 8 such bolts in the case of a 50mm kingpin, or of equivalent fastening strength, or
- b) the safety locking device is missing, or is inadequate, damaged or ill-fitting, or
- c) any part is missing, broken, cracked, loose or excessively worn, or
- d) on an uncoupled drawing truck vehicle the jaws are so worn or out of adjustment that the trailer kingpin might not be securely held, which is the case if the jaws are worn in excess of 6 mm, or
- e) on a coupled drawing vehicle and trailer there is excessive movement between the drawing vehicle and a trailer when the trailer brakes are applied and the driver lightly shunts the drawing vehicle backwards and forwards.

5.17.3 Towing bracket, coupling ball, coupling socket, tow bar and drawbar - Reject if

- a) a towing bracket or towbar or drawbar is loose, badly welded or incorrectly or not securely fitted, or
- b) the coupling ball or socket is welded or shows signs of excessive wear, or
- c) the tow bar is loose, badly welded or incorrectly fitted to the drawing vehicle, or
- d) any part is cracked, broken, excessively worn or incomplete, or
- e) any safety device or locking mechanism is not present and capable of functioning correctly, or
- f) mounting bolts are missing or of the incorrect grade, size and number.

5.17.4 Semi-trailer kingpin - Reject if

- a) the kingpin is not securely attached, or
- b) mounting bolts are missing or of the incorrect grade, size and number, or
- c) wear on the kingpin is such that it exceeds:-
 - 1) 3 mm on an 89 mm diameter kingpin (2 mm on the 114 mm top part)
 - 2) 1.8 mm on a 50.8 mm diameter kingpin (2 mm on the 73 mm top part)

5.17.5 Semi-trailer suspension – Reject if

- a) on vehicles entering into service after the date specified in Part 2 , Table 1, the axle unit of a semi-trailer is fitted with more than one type of suspension whether air suspension, steel suspension or rubber suspension.

5.18 Safety belts - Reject if

- a) any safety belt is not anchored securely
- b) a safety belt of the retractable type does not retract

- c) a safety belt of the inertia locking* type does not lock when snatched
- d) a safety belt is frayed or damaged such that it is unlikely to withstand accident loading
- e) flexible stalk cable strands securing the buckle are broken
- f) the tongue does not engage properly into the buckle
- g) a webbing load limiter of the “folded type” has been deployed
- h) there are obvious signs of structural deficiency such that failure is likely
- i) a safety belt is not of an approved or normal type of fitment or design

* Inertia locking type must not be confused with reel types that lock after slow withdrawal then release

5.19 Wheel flaps or mudflaps – Reject if

- a) goods vehicles after the date specified in Part 2, Clause 5.3 in excess of 7 500 kg GVM, and trailers in excess of 3 500kg GVM excluding truck tractors, or passenger vehicles with more than 16 seats, do not have wheel flaps or mudflaps at least as wide as the tyres, or that do not extend downwards to at least the horizontal centreline of the wheels or beyond.

5.20 Rear underrun – Reject if

- a) for vehicles after the date specified in Part 2, Clause 5.3 a rear underrun protection device is not fitted in the case of a trailer of GVM exceeding 3500 kg or a goods vehicle in excess of 12 000 kg GVM
- b) the width of rear underrun device does not extend to the width measured to the outermost tyres and is not shorter than 100mm from the outermost edges of the vehicle
- c) does not present a section at least 100 mm in depth to any impact from the rear and is not farther from the rear than 450mm
- d) the ground clearance below the rear underrun is more than 550mm
- e) the lateral extremities bend towards the rear or have sharp edges with a radius of less than 2,5mm

NOTE Bodywork, chassis or other components which totally or partially fulfil the same function as the rear underrun are accepted instead of a rear underrun, and rear underrun need not be fitted if it is incompatible with the use of the vehicle.

5.21 Speedometer - Reject if

- a) a speedometer is not fitted
- b) it cannot be illuminated
- c) it is clearly inaccurate when driven even at low speeds
- d) the indication oscillates severely
- e) its speed indication does not show km/h

5.22 Hooter or audible warning device - Reject if

- a) the horn does not sound when operated
- b) cannot be reached from the driver's seat
- c) is clearly inaudible to other road users

5.23 Liquid leakage – Reject if, with or without the engine running

- a) any lubricating oil leak deposits a 75mm pool of oil within 5 minutes
- b) any hydraulic brake fluid or power steering fluid leaks are evident
- c) any fuel leaks are evident
- d) any filler cap is missing or of incorrect design for the relevant tank or reservoir
- e) fluid containers or fuel tanks are not securely mounted

5.24 Electrical wiring – Reject if

- a) battery is insecure and likely to become displaced
- b) any wiring is so positioned that it is chafing or likely to be damaged by heat
- c) wiring is clearly inadequately insulated or secured

5.25 Dimensions – Reject if

- a) the overall length exceeds 22m
- b) the wheelbase, overall length, front or rear overhang, width or height do not comply with the limits laid down in Part 1 Annex 4 for that type and mass of vehicle or combination of vehicles.

5.26 Noise Emissions – Reject if

- a) the noise emitted by the vehicle is significantly louder than would be expected from a well maintained vehicle of similar design indicating that the silencer is in need of replacement or some other maintenance action is required
- b) the exhaust system is corroded or damaged such that exhaust gas is leaking from the system
- c) in the case of heavy vehicles with engine braking system known as a Jake Brake check that its silencer is reasonably effective when the brake is operated on the overrun

5.27 Exhaust gas emissions – Reject if

- a) the extent of smoke or fumes from the vehicle is such that the driver of a following or overtaking vehicle would have some obscuration of his forward vision

5.28 Emergency warning triangle – Reject if

- a) there is no emergency warning triangle on the vehicle after the date specified in Part 2, Clause 5.3

6 Requirements for Motorcycle, Tricycle (includes Tuc, TuCs) and Quadrucycles

6.1 Identification information – Reject if

- a) The registration plate or information display does not comply with 5.1 and 5.2

6.2 Equipment for motorcycles, tricycles, or quadrucycles – Reject if

- a) any equipment normally supplied with the machine is missing, loose or damaged including, but not limited to, footrests, footrests rubbers, mudguards, support stands, fairings, saddles and pillion passenger seats, chain guards and sprocket covers
- b) a support stand is not present to be able to support a parked motorcycle
- c) the throttle and brake and clutch control levers and cables are damaged or sticky in operation such as to reduce the ability to control the machine with ease
- d) the front suspension has deteriorated such that when the front brake is applied and the machine is rocked backwards and forwards excessive play in the front forks or steering yoke is evident
- e) the front or rear suspension has deteriorated such that the damping characteristic is significantly less than standard or if excessive free-play is evident in the hinge point or bushes
- f) the handlebar width or height or the wheelbase dimension is modified extensively such that safe operation has been significantly reduced
- g) the tyres are marked off-road, or not for highway use
- h) a tyre is retreaded
- i) in the case of a passenger carrying tricycle (or Tuc Tuc) there are no features to reduce the likelihood of passengers falling out when cornering such as safety belts or side rails or grab rails.

6.3 Road test – Reject if

- a) wheel alignment is such that the handlebars have to be held at an angle to the machine
- b) the machine pulls to one side or develops steering wobble
- c) the free play in any part of the front or rear suspension or steering control is such that cornering stability or directional control is impaired
- d) the braking controls are difficult to operate
- e) the stopping distances in 5.4.1 Table 2 cannot be achieved, except that secondary brake performance shall be considered as the lower of the result using only the front or the rear brake and that a parking brake is not required on a motorcycle.

6.4 Brake roller test – May be used only if a special brake roller set for motorcycles is available - Reject if

- a) the equivalent braking force determined in accordance with 5.4.1 c) cannot be achieved in this case by adding the results the brake force obtained at each wheel.

6.5 Other equipment for motorcycles, tricycles, or quadrucycles – Reject if

- a) any equipment detailed under Section 5 is fitted and is deficient in terms of the rejection criteria given in Section 5.

7 Additional requirements for passenger vehicles with 10 or more seats including the driver

7.1 Emergency exits and windows – Reject if

- a) vehicles with 10 or more seats including the driver do not have the number of exits distributed around the vehicle to facilitate emergency exiting (including knock-out windows, doors, and any roof hatches) that can be used in an emergency and which are provided at the rates for persons including the driver given below:-
 - 1) for 9 to 16 persons
 - 2) for 17 to 30 persons
 - 3) for 31 to 45 persons
 - 4) for 46 to 60 persons
 - 5) for 61 to 75 persons
 - 6) for 76 to 90 persons
- b) emergency exits in the form of escape windows or roof hatches are not labelled as such (eg “Emergency Exit”) and are not of a dimension of at least 900mm x 450mm
- c) the emergency exits are of the type where a window must be broken but there is no instrument near the window that can be used to break the window.
- d) every alternate window on each side is not of the openable type unless the passenger compartment has forced ventilation
- e) any windows are broken or loose
- f) a seated passenger is able to risk injury by placing an elbow out of an adjacent window

NOTE Emergency exits are not required on vehicles designed to convey prisoners.

7.2 Seats, doors, and seating accommodation – Reject if

- a) the driver’s seat is no longer adjustable
- b) there is no partition, guard or rail behind the driver to reduce the possibility of a passenger bumping into the driver
- c) there is no notice inside the vehicle easily legible to passengers showing the maximum number of seated and standing passengers that the vehicle is licensed to carry, and the maximum load of goods that may be carried

- d) for the above notice the seating accommodation per person is not measured at 380mm minimum width per person
- e) there is no door on the side of the vehicle opposite to the driver's side to allow passengers to embark or to disembark
- f) any door on the driver's side is not sealed or locked and is not accessible to passengers.
- g) the width, depth, height above floor of any seat is not less than 380mm except that lower heights are permitted above wheel intrusions
- h) for forward facing seats the distance between the front of a seatback and the rear of the seat in front is less than 570mm measured at seat level
- i) a longitudinal unimpeded access gangway from the entrance to each row of seats is not provided or is not of at least 300mm width
- j) in the case of a passenger vehicle with 17 or more seats an unimpeded cross passageway is not present of 300mm width
- k) any seat adjacent to an entrance or stairway does not have a guard, a rail or partition or similar measure to reduce the risk of injury to a passenger slipping from that seat
- l) any seat or interior fitting is loose and likely to break free or cause injury in an accident
- m) the sides of the passenger compartment are less than 600mm above the level of passengers' feet.

NOTE To commentators: - Some consider that seating dimensions relate to comfort rather than to safety. Views on whether dimensions should be deleted or increased are requested.

8 Vehicle Design Safety Standards applicable on "date of entry into service"-

For vehicles entering into service for the first time and thereafter whenever a roadworthy test is required on that vehicle, the requirements of Part 2 shall be complied with before a Roadworthiness Certificate may be issued.

9 Vehicle dimensions – Reject if

- a) any of the limiting dimensions specified in this Part 1 Annex 4 for the particular type of vehicle are exceeded.

Annex 1 – Essential Contents of the Roadworthiness Test Report

Test Report Basics – Date/Vehicle Test Number/Vehicle Registration/License Plate Detail/VIN Number (or chassis number/Vehicle Make and Model/Vehicle Colour/Odometer Reading/Testing Station No/Examiner No/ Result – Pass/Fail/Retest/ Signature.

Evidence of vehicle having been presented for test – Photographs and Application Documentation with fingerprints/GPS/Signatures

Information Display - Vehicle identification/ Mass data plate

Braking Equipment – Brake pedal/ hand lever/ Vacuum Assistance/Build-up of Air or Vacuum/Sustainability of Pressure or Vacuum/Equipment on Trailers/Condition of Braking Components/ Alarms and Warnings.

Braking Performance – Readings for each wheel brake, service and parking/Calculated equivalent braking force or measured deceleration/

Electrical System – Windscreen wipers & washers/Hooter/ Electrical Wiring & equipment/Lighting

Driver's view – Safety glass/Mirrors

Steering and Driving controls – Free play/Power assistance/Pedals

Tyres and Wheels – Load capacities/Condition/Alignment

Fittings and Equipment – Suspension/Shock absorbers/Bodywork/Towing & Drawing equipment/Wheel flaps/Rear Underrun/Speedometer/Liquid leakage/

Engine and Transmission – Condition/Noise/Power

Safety belts – Condition/ Number

Dimensions – Whether exceeded

Noise emissions – Whether acceptable

Exhaust gas emissions – Whether acceptable

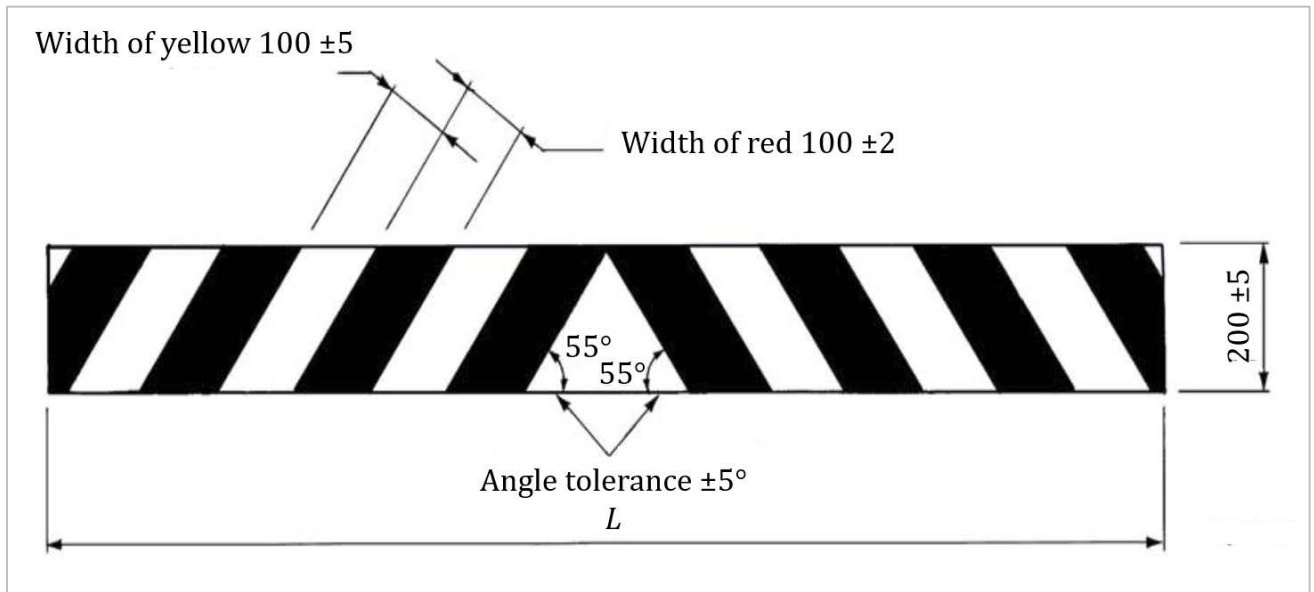
Motorcycles, Tricycles, Quadrucycles – General equipment/Suspension/Handlebars/Tyres

Additional for Passenger vehicles – Emergency exits/Seats/Doors/

Remarks -

Name and Signature of Examiner –

Annex 2 – Chevron Specification Details



For vehicles 2.5m wide the length L must be at least 1,7m and for vehicles 2,6m wide must be 1.8m and in both cases must be long enough to be within 400mm of each side of the vehicle.

Some cutting and trimming is permitted around protrusions and recesses at the rear of a vehicle.

The red and yellow retroreflective materials are commonly known as a high intensity grade and their coefficient of retro-reflection must meet the values indicated in Table 3 below:-

Table 3: Coefficient of retro-reflection (cd/lx/m^2) when tested in accordance with CIE 54*

1	2	3	4
Colour	Observation angle α	Entrance angle, β 1	
		$(\beta_2=0^\circ, \epsilon=0^\circ)$	
		5°	40°
		(cd/lx/m^2)	
Red	0,33°	36	13
Yellow	0,33°	120	60

Examples of compliant reflective materials are:

3M	3930 High Intensity Prismatic
Avery Dennison	T6500 High Intensity Prismatic
Oralite	5910 High Intensity Prismatic
Nikkalite	94000 High Intensity Prismatic

Non-compliant materials with inferior retro-reflective performance may not be used. Other brands of materials may be used only if the supplier produces evidence of compliance to the values in Table 3 from a testing authority accredited to ISO 17025.

Note that chevrons which comply with SANS 1329: Part 4 are acceptable and incorporate the above retro-reflective materials. The differences in retro reflective performance between compliant and non-compliant materials are illustrated below – the upper chevron being non-compliant and the lower chevron being compliant.



The “red only” chevron above is actually both red and yellow but the yellow is non-reflective and is almost invisible at night.

Annex 3 – Rear View from Mirrors showing ground level that must be visible through the rear view mirrors on both light and heavy vehicles at the roadworthiness test

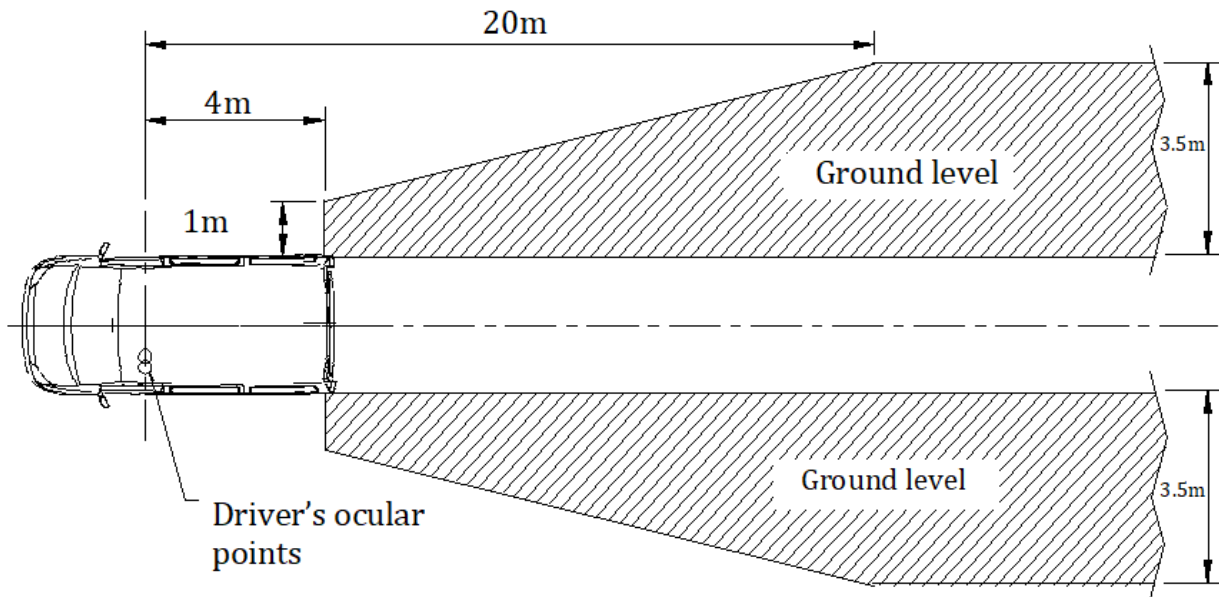


Figure 1: LHD Class III Mirrors

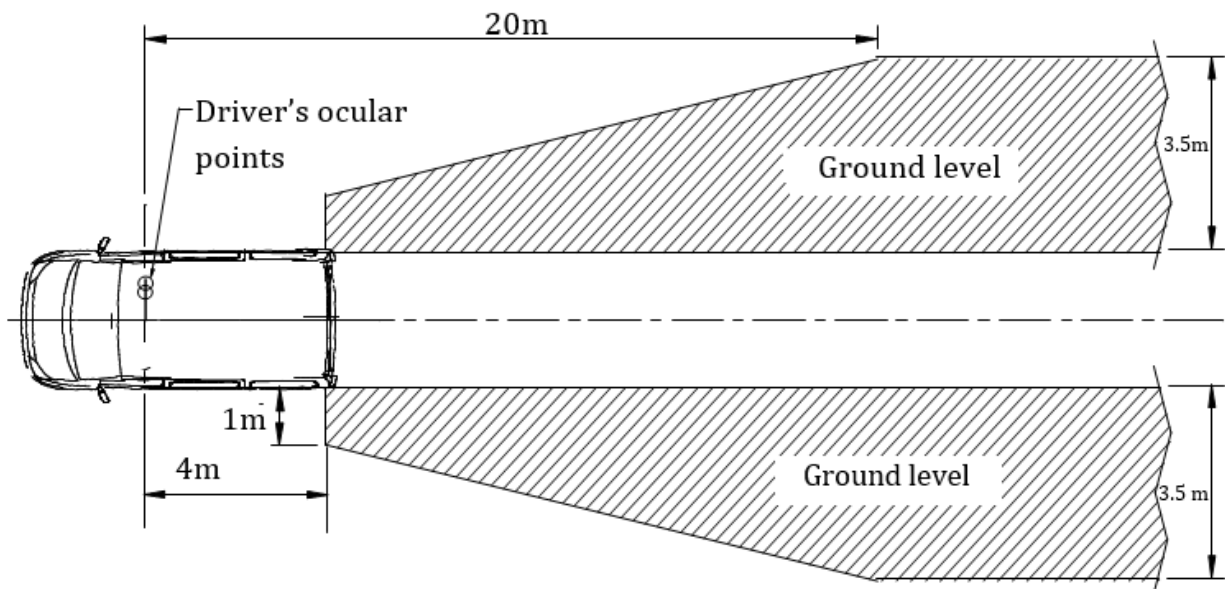


Figure 2: RHD Class III Mirrors

Annex 4 – Vehicle Maximum Dimensions

Note that this Annex does not cover combinations of vehicles since the roadworthy test is conducted on individual vehicles whether solo or drawing vehicles or trailers or semi-trailers even if such individual vehicles are part of a combination.

Overall lengths

Trailers

One axle or one axle unit:-

GVM greater than 12 000kg - Overall length excluding drawbar or coupling – 11,3m max

GVM up to and including 12 000kg – Overall length – 8,0m max

More than one axle or one axle unit:-

GVM greater than 12 000kg – Overall length – 12,5m max

Buses:-

Bus – 15m

Bus Train – 22m max

Rapid transport bus train – 26m max

Any other vehicle, excluding a semi-trailer:-

Including any drawbar or coupling – 12,5m max

Note:- Bull bars and the like are excluded from measurements of overall length provided they do not increase the overall length by more than 300mm

Overall widths

Bus:- 2,6m max if its track exceeds 1,9m. Otherwise 2,5m max.

Goods Vehicle: - 2,6m max if the GVM exceeds 12 000kg.

Any other vehicle: - 2,5m max

Overall heights

Overall height – excluding load

Double decker bus: - 4,65m max

Any other vehicle: - 4,3m max

Turning radius and wheelbase

Turning radius must not exceed 13,1m except for bus trains and twin steer 4 axle rigid goods vehicles where the max limit is 17,5m.

Wheelbase – 8,5m max except for a semi-trailer where 10m is allowed and a bus train where 8,5m is allowed measured from the front axle centreline to the centreline of the middle axle or axle unit.

Front Overhangs

Semi-trailer front overhang: 1,8m max

Any other vehicle (except a semi-trailer or a trailer with one axle or one axle unit): max front overhang 60% of wheelbase

Any other vehicle including a semi-trailer or a trailer with one axle or one axle unit): max front overhang 5,8m less half the wheelbase

Max front overhang 6,2m less half the wheelbase for vehicles where the front of the driver's seatback is not more than 1,7m from the front of the vehicle, and for a bus train the wheelbase measurement shall be from the centreline of the front axle to the centreline of the middle axle.

Rear Overhangs

Trailer, except a semi-trailer, is allowed a rear overhang of 50% max of the length of the trailer body, provided the trailer has one axle, or one axle unit, or two axles where their centrelines are less than 1,2m apart.

Refuse truck or street sweeper is allowed a rear overhang of 70% of its wheelbase.

Any other vehicle is allowed a rear overhang of only 60% of its wheelbase.

Projections

Any projection to the front which exceeds the front overhang limits specified above

Any bracket projecting more than 150mm beyond the widest part of the vehicle

Motor cycle - if some part of the motorcycle projects more than 600mm in front of the front axle centreline, or more than 900mm beyond the rear axle centreline, or more than 450mm on either side of the wheels, or more than 300mm beyond the outside of the wheel of any sidecar.