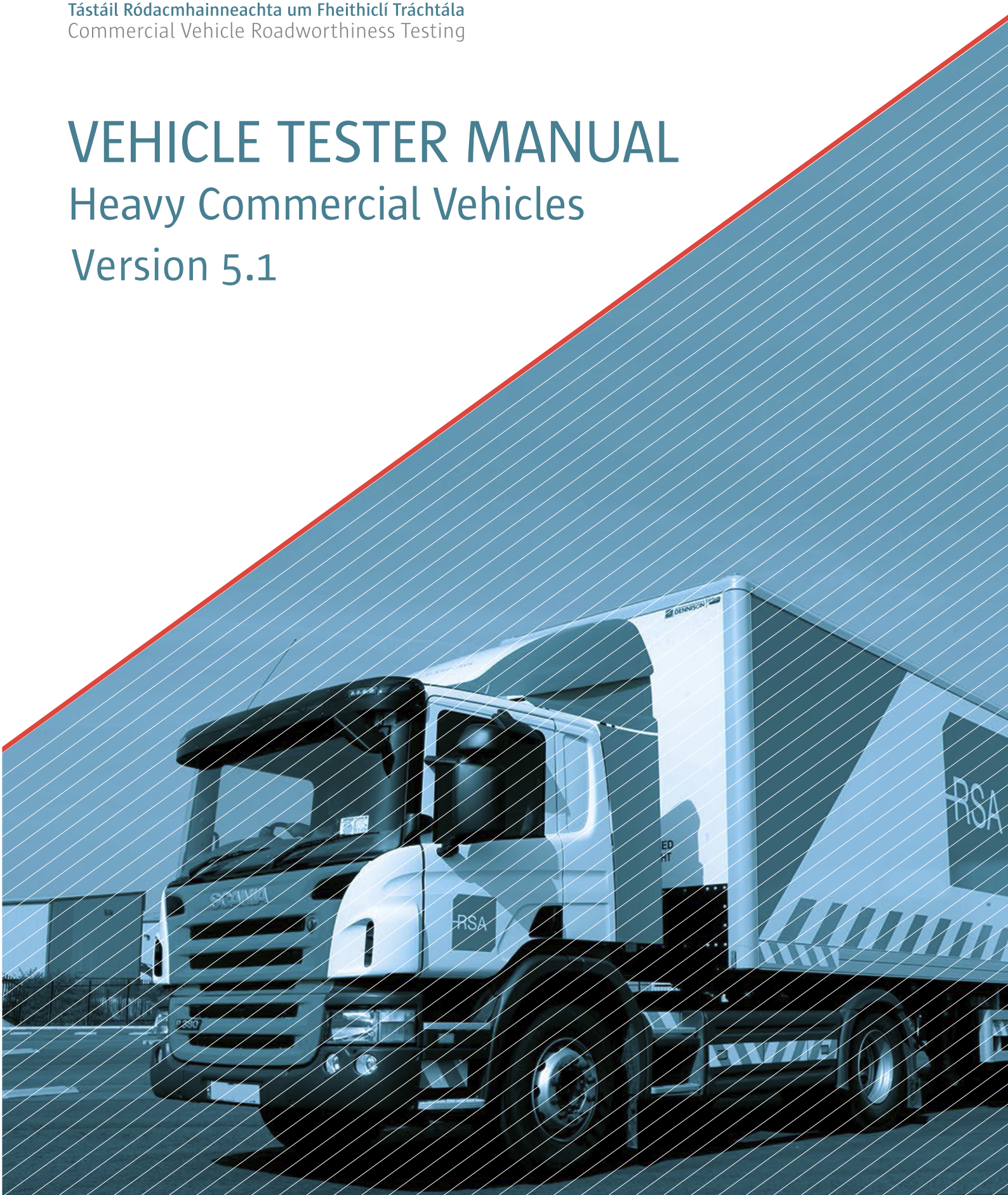
CVRT

Tástáil Ródacmhainneachta um Fheithiclí Tráchtála
Commercial Vehicle Roadworthiness Testing

VEHICLE TESTER MANUAL

Heavy Commercial Vehicles

Version 5.1



Road Safety Authority

Heavy Commercial Vehicle Testers' Manual

Applies to vehicle types;
M2, M3, N2, N3, O3, O4 and
Special Purpose M (Ambulance and Motor Caravan)

These guidelines (also referred to as the "Manual") are issued by the Road Safety Authority under section 38 of the Road Safety Authority (Commercial Vehicle Roadworthiness) Act 2012 (No. 16 of 2012). The intention behind this Manual is to set out requirements and guidance in relation to the carrying out of Commercial Vehicle Roadworthiness (CVR) tests at CVR testing centres.

This Manual is to be complied with from the effective date advised by the RSA. CVR test operators and CVR testers shall ensure that CVR testing is carried out in accordance with this Manual from that date.

This Manual sets out the testing methods to be employed by those involved in CVR testing. It also provides guidance to CVR test operators and CVR testers in relation to the reasons why a vehicle may fail a CVR test and the categorisation of defects identified in relation to a CVR vehicle.

From the effective date, this Manual replaces Version 5.0 of the Roadworthiness Testers Manual which, as of that date, is no longer in force.

Owners of CVR vehicles to which this Manual applies may also find the Manual useful in that it provides details of the inspections to which a CVR vehicle may be subjected and the reasons why it may not be issued with a pass statement following a CVR test.

REVISIONS

This manual may be revised and updated from time to time. A current version is always available on the Road Safety Authority website, www.cvrt.ie. If printing all or part of the manual, the website or CoVIS should always be checked to ensure any printed copy remains current.

Version	Date	Section Number Updated	Description
1.0	Sept 2013	All	
2.0	Dec 2014	All	
3.0	Dec 2015	All	
4.0	Nov 2016	All	
5.0	May 2018	All	Updated for Directive 2014/45 (EU)
5.1	Jan 2020	All	Updated minor revisions throughout the manual

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INTRODUCTION

1. Definitions.

"CVR" means Commercial Vehicle Roadworthiness.

"CVR Tester" means a person authorised by the Road Safety Authority to be a CVR tester in respect of a particular category of vehicles.

"CVR Test Operator" means a person authorised by the Road Safety Authority to conduct CVR tests.

"CVR Testing Centre" means a premises specified in a CVR test operator authorisation and complying with current Premises and Equipment Guidelines at which CVR tests may be carried out.

"CRW" means a Certificate of Roadworthiness.

The term CVR Test means:

- an initial CVR test;
- a periodic CVR test;
- a partial CVR test;
- an initial or periodic re-test;

An **initial CVR test** is the first roadworthiness test of a HCV and this test is due on the first anniversary of its registration. In the case of motor caravans, the initial CVR test is due on the fourth anniversary of its first registration.

A **periodic CVR test** is a subsequent annual roadworthiness test of a HCV following its initial CVR test. In the case of motor caravans, the subsequent roadworthiness is due biennially (ever second year) until the vehicle becomes ten years old after which annual testing will apply.

An **Enforcement Test** (legally called **a partial CVR test**) is conducted when a vehicle is presented to a CVR Testing Centre on foot of a direction given by a RSA Authorised Officer or CVR Inspector. This test may include one or more test items and may include all test items applicable to that vehicle. Details of the test items to be tested will be available on CoVIS or listed on the copy of the Roadside Check Inspection report as supplied to the driver of the vehicle and all items should be tested as per this manual. An Enforcement test may be conducted on any CVR Vehicle including vehicles that are registered outside of the State.

A **re-test** is a test carried out where a vehicle has failed an initial or periodic test, where:

(a). the re-test is carried out on a day which is not more than 21 calendar days after the day on which the vehicle has failed its initial or periodic test, and

(b). the reading on the vehicle's odometer at presentation for the re-test is no more than 4,000 kilometres greater than the reading at the time the vehicle failed its initial or periodic test.

A re-test can only be conducted at the CVR testing centre where the original test was failed.

In carrying out a re-test on a vehicle only those items which gave rise to the refusal of the pass statement are to be tested. The items which failed must be re-tested as per the method of testing in the relevant section of the manual.

If during a retest the CVR tester notices any other obvious defects, then the owner shall be notified and these additional items must be tested. Where a reason for failure is issued with respect to these additional test items, then this will be recorded on the test report.

Visual check is a visual inspection carried out on a vehicle where only minor defect(s) were identified on its initial or periodic test (the 21 day & 4000 kilometre rules do not apply).

A **"voluntary safety CVR test"** is a roadworthiness test, other than a CVR test, carried out in respect of one or more test items specified in this manual, which is recorded on CoVIS. Any vehicle subject to a voluntary safety CVR test, including vehicles owned by An Garda Síochána or the Defence Forces should only be issued with a **"Test report"** not a pass statement.

The term **"owner"** in the context of applying for a CVR test is taken to include the owner's agent.

"CoVIS" is the CVR computerised information system established by the Road Safety Authority. A CVR tester shall use CoVIS in order to process a CVR test on the lane equipment. CoVIS allows the tester to record defects and other standard inspection data such as mileage. The tester will also be able to record differences to Vehicle Details identified as part of the Test to the Vehicle Details on CoVIS that have come from the Driver and Vehicle Licensing Computer Services Division (DVCSD).

"Method of Testing" details the ways in which the test of items on a vehicle are to be carried out and the equipment to be used. When carrying out each test, particular attention should be paid to the information given in the "Notes" since this gives guidance on the conduct and scope of the test.

"Reasons for Failure" gives direction on the type of defects which will result in the vehicle failing. A vehicle should only be assessed against the items and reasons for failure listed in this manual and/or instructions issued by the Authority.

An **"Advisory Notice"** is used to inform the customer of an item that should be rectified but does not prevent the vehicle from achieving a minimum standard of roadworthiness. This will be included on the Test Report or Pass Statement.

"Semi-trailer" means the drawn component of an articulated vehicle, or a vehicle constructed or adapted for use as such drawn component.

"Design Gross Vehicle Weight (DGVW)", also known as the technically permissible maximum laden mass is the gross weight of a vehicle laden with the heaviest load which it can reasonably carry. This must take into consideration; the engine, brakes, tyres and general construction of such vehicle and shall, until the contrary is shown, be taken to

be its design gross weight as specified by its manufacturer or an automotive engineer.

"Gross Combination Weight", (GCW) (also known as the technically permissible maximum mass of the combination) is the maximum mass allocated to the combination of a motor vehicle and one or more trailers on the basis of its construction features and its design performances or the maximum mass allocated to the combination of a vehicle and trailer.

"Individual design axle weight", (DAW) means the mass corresponding to the maximum permissible static vertical load transmitted to the ground by the wheels of the axle, on the basis of the construction features of the axle and of the vehicle and their design performances.

"Manufacturer's plate" means a plate or label, affixed by the manufacturer on a vehicle that provides the main technical characteristics which are necessary for the identification of the vehicle and provides the competent authorities with the relevant information concerning the technically permissible maximum laden masses;

A **"living van"** is a vehicle with living accommodation and which is, or may be, also used for the carriage of goods or burden (including livestock and more than one motorcycle).

"First registered"' means the date when the vehicle was first registered with the Revenue Commissioners or the date when first registered in accordance with the laws of another country.

"First licensed" means the date a semi-trailer or trailer is first licensed with the Local Authority in whose functional area it is normally kept, irrespective of the original date of manufacture and irrespective of whether or not the semi-trailer was previously registered/licensed in another country.

"Appropriate motor vehicle" means a mechanically propelled vehicle having at least three axles, twin tyres, air suspension or an equivalent suspension on each driving axle and ABS brakes. The vehicle must also be fitted with a plate complying with the requirements of the Regulations of 2000.

"Appropriate semi-trailer" means a semi-trailer which has an air suspension or an equivalent suspension and ABS brakes. It must also be fitted with a plate complying with the requirements of the Regulations of 2000.

The 'appropriate semi-trailer' concept came into force on 1st April 2013 and applies to all semi-trailers (irrespective of when they were first licensed) operating as part of a combination of vehicles with a gross weight in excess of 40 tonnes.

"Insecure"

The term **"insecure"** is used throughout this Manual to describe a defective condition. The term should be taken by testers to mean the following:

(a) that a component on the vehicle has relative movement either at its fixing or in relation to an associated component where there should be none or

(b) that a component is not safely or completely attached either at its fixing or to an associated component.

"Obiously Worn"

A component will be considered obviously worn where the wear is to such an extent that it is either;

(a). likely to fail, or

(b). clearly not functioning effectively as designed, or

(c). visibly worn beyond manufacturer's known permitted limits, or

(d). likely to affect the operation or condition of another safety related component.

2. Scope.

This Manual applies to the following categories of vehicles;

- Category M2: Vehicles designed and constructed for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a DGVW not exceeding 5 tonnes.
- Category M3: Vehicles designed and constructed for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a DGVW exceeding 5 tonnes.
- Category N2: Vehicles designed and constructed primarily for the carriage of goods and having a DGVW exceeding 3.5 tonnes but not exceeding 12 tonnes.
- Category N3: Vehicles designed and constructed primarily for the carriage of goods and having a DGVW exceeding 12 tonnes.
- Category O3: Trailers with a DGVW exceeding 3.5 tonnes but not exceeding 10 tonnes.
- Category O4: Trailers with a DGVW exceeding 10 tonnes.
- Ambulances (special purpose vehicles, category M).
- Motor caravans with a DGVW exceeding 3.5 tonnes (special purpose vehicles in category M).

3. Making a request for a CVR Test Booking.

A request for a CVR test booking must be made to a CVR test operator in person, or by using CoVIS. An application for a booking to a CVR test operator may be made at the test centre before the test commences. Full details of how to make a request for a test booking can be found at www.cvrt.ie.

4. Presentation of ID.

A person who presents a vehicle or a trailer to be tested is required to produce a valid identification e.g. a driving licence or passport or public services card. Where a valid identification is not presented at the time of the test, the CVR test may be carried out and a test report issued. However, a pass statement will not be issued until such time as the person who presented the vehicle provides the required identification to the CVR test operator. This should be presented within 21 calendar days from the date of the CVR test.

5. CoVIS, Test Reports and Pass Statements.

The CVR tester must complete a checklist printed from CoVIS for each test conducted confirming that all required test items have been tested and these must be recorded on CoVIS. The completed checklist must be retained by the CVR Operator either by scanning it into CoVIS and saving (attaching) it to the vehicle test record or by retaining the printed checklist for a period of 3 years. Once a CVR test has been completed, the CVR tester must complete a declaration that he or she has completed the test correctly. Before a vehicle, that has been tested, leaves the test area of the CVR Test Centre, a statement of result must be issued for that vehicle giving details of the captured equipment results and any failed visual items. Where the CVR tester is satisfied that the vehicle has passed all the required test items specified in this manual, then a pass statement is issued (apart from point 4 above) and or in the case of minor only defects. Where a pass statement is not issued, the reasons for refusal will be provided to the owner in the test report. In the case of a voluntary safety test, a test report will be provided but no pass statement will be issued. If a CVR test is not completed, then the test report issued will contain the words "Not complete". An ANPR image of the vehicle being tested should be captured on CoVIS for every test apart from non-equipment re-tests (this is not a requirement for trailers or semi-trailers).

Where the test lane equipment fails to send test results automatically to CoVIS, the CVR Tester must print off the equipment results for the smoke meter, slide slip tester and Roller brake tester and manually input the test results on CoVIS. The printouts associated with these tests shall be scanned and uploaded onto the CoVIS system.

Any supplementary documentation required as part of the test (such as modification reports, safety belt documentation, tachograph declaration) shall be scanned and uploaded on CoVIS. If either the scanner or CoVIS are not operational, the documents shall be retained by the test operator and scanned when the system is back working.

If the CVR Tester needs to stop in the middle of the test they will be able to save results up to that point and resume testing later that day. Only the tester who commenced the test may resume the test. Where a tester has started a test and is not available to complete it for whatever reason, the test must be abandoned and it must be started again on the vehicle by another tester, from the beginning.

6. Deficiency Categorisation

Deficiencies found during the test shall be categorised in accordance with Directive 2014/45/EU into one of the following groups:

Minor defects (MiD); having no significant effect on the safety of the vehicle or impact on the environment and other minor non-compliances. If only minor defects are identified, the vehicle will be deemed passed **"Pending Re-Check"** .The pass statement will not issue until the vehicle is represented for a visual inspection with the deficiencies rectified.

Major defects (MaD); defects that may prejudice the safety of the vehicle, have an impact on the environment, put other road users at risk or other more significant non-compliances.

Dangerous defects (DD); defects constituting a direct and immediate risk to road safety or having an impact on the environment such that the vehicle should not be used on the road under any circumstances

The CVR tester shall use his/her experience and technical expertise when assessing a defect and determining the appropriate severity

The main criteria to be used when making such an assessment are; where the component has reached the stage where it is obviously likely to affect adversely the roadworthiness of the vehicle (dangerous) or where the condition of the component has clearly reached the stage at which replacement, repair or adjustment is necessary (major).

On completion of a CVR test, voluntary safety test or an enforcement test, and where a vehicle is failed because of a Dangerous Defect, the CVR tester shall affix a "Fail Dangerous" notice to the vehicle. For vehicles with a windscreen, a double-sided "Fail Dangerous" notice shall be affixed on the passenger side of the windscreen so as not to impair the vision of the driver. The template that this double sided notice shall take is set out in Figures 1 and 2 that follow. In the case of trailers, a "Fail Dangerous" notice as set out in Figure 3 shall be affixed to an area of the vehicle which is clearly visible and readily accessible for inspection.

Figure 1.**"Fail Dangerous"** Notice: Windscreen Front

Figure 2.**"Fail Dangerous"** Notice: Windscreen Back

Figure 3.**"Fail Dangerous"** Notice: Trailer

The driver of the vehicle must be advised not to drive the vehicle if it has dangerous defects and be advised to have it towed away or otherwise carried away.

7. Restriction on CVR Testers carrying out certain tests.

During a CVR test, a CVR tester shall not carry out any repairs/work on the vehicle. However, the headlamp aim can be adjusted in the lane if necessary. An exception is also made in the case of a blown headlamp bulbs. In this case the headlamp aim test cannot be completed and therefore CVR testers are permitted to replace blown headlamp bulbs and check the headlamp aim during the test. Where headlight adjustment is carried out, it must be noted on CoVIS. Where the vehicle fails on other items, the test must be completed and a test report issued. It shall be possible for a vehicle to be tested and retested on the same day.

A CVR tester shall not carry out a CVR test on a CVR vehicle where that CVR tester has carried out any repairs or maintenance in respect of that CVR vehicle within 3 weeks of the CVR test

A CVR tester shall not carry out a CVR test on a CVR vehicle where that CVR tester or a connected person has a legal or beneficial interest in the CVR vehicle, unless details of the proposed CVR test has been given to the RSA, using the CoVIS system, at least 2 working days prior to such CVR test being carried out.

A CVR tester can only carry out tests on the categories of vehicles to which he or she is authorised.

8. Reasons to Refuse to Carry Out a CVR Test.

A CVR tester may refuse to carry out a CVR test if

(a) in his or her opinion

(i) any part of the vehicle or any of its equipment is in such a condition that it would not be safe or practicable to carry out the CVR test or

(ii) a load on the vehicle is in such condition or is not adequately secured that it would be safe or practicable to carry out the CVR test.

(iii) The test should be abandoned where a vehicle is presented in such a condition that the tester considers it unsafe to continue because it becomes apparent during the test that certain items cannot be satisfactorily inspected (e.g. dirty).

or

(b) fee payable in respect of the CVR test has not been paid.

9. Postponing the issue of a CRW.

Where a pass statement is issued by a CVR test operator, the CVR tester shall verify with the presenter that the details of the registered owner on the pass statement are correct. Where the details differ, the presenter may request that the issuing of the CRW be postponed for a period of up to 14 days. The CVR tester shall advise the presenter to contact the DVCSD in order to have the ownership details updated as soon as possible. The presenter/owner should be advised that the CRW will issue after 14 days to the registered owner on the National Vehicle Driver File.

10. Test Equipment.

The equipment to be used for the purposes of carrying out CVR tests are those specified in The Premises and Equipment Guidelines 2013 (including any subsequent updates) issued by the Road Safety Authority. Where specific equipment is designated for a particular test, only this equipment shall be used for the test. Where the brakes cannot be tested on a roller brake tester due to the design of the vehicle, the brake test must be carried out using a decelerometer to evaluate the brake performance.

The specialised equipment used for the test should only be used by trained and experienced personnel. CVR testers should be thoroughly familiar with the manufacturer's detailed operating instructions and the procedures which must be followed to ensure the safe operation of this specialised equipment.

11. Odometer

The CVR tester must record the odometer reading at the time of the test where an odometer is fitted. When the test report or pass statement is being presented to the owner or the presenter of the vehicle, the CVR tester shall point out the odometer reading. The owner or the presenter of the vehicle must verify that the odometer reading is correct,

and if not shall immediately advise the CVR Tester. The verification on the odometer reading must be completed before the vehicle departs from the CVR testing centre.

Where an error in the odometer record is detected through the verification procedure mentioned above, the CVR test operator shall immediately record the corrected reading on the pass statement or the test report and arrange that the vehicle owner or presenter and CVR tester sign the document. This document shall be sent via email to the Authority at cvrtadmin@rsa.ie by close of business on the date the test was conducted. These are the only circumstances in which the Authority will amend the odometer reading on the CoVIS system. There will not be any exceptions to these arrangements.

12. Role of an assistant

During the course of a test it may be necessary for a CVR tester to require the use of an assistant to adequately check a component. For example, an assistant may be needed to rotate or rock the steering while a CVR tester visually inspects steering components or an assistant could raise the axles on the jack to enable the CVR tester to check wheels bearings/hubs etc.

However the CVR tester who accepts a test on CoVIS is fully responsible for the testing of that vehicle and must ensure that all items are tested by him / her as per the relevant tester manual and/or instructions issued by the Authority. Where a CVR tester is being assisted by another person during the course of a test, (even if that person is another CVR tester) that person will assume the role of an assistant and must not conduct any elements of the test.

An assistant must not conduct any visual checks on a vehicle or operate any of the test equipment, such as the smoke meter, roller brake tester or headlamp aim tester in relation to a CVR test. These functions are the responsibility of the CVR tester who accepts the test on CoVIS. All input of test results should be completed by the CVR tester, including all visual and equipment test results. Under no circumstances should any test results be entered into CoVIS by an assistant.

13. General.

The purpose of this manual is to serve as a reference and guide for CVR testers when they are conducting CVR tests on M2, M3 N2, N3 O3 & O4, Ambulances and motor caravans with a design gross vehicle weight exceeding 3500kg. While CVR testers and CVR operators are not expected to memorise all of the content in this manual, they should familiarise themselves with the method of testing and the reasons for failure to ensure testing is carried out to a consistently high standard utilising best practice.

The test is essentially a maintenance and condition check and shall be carried out using techniques and equipment currently available without the use of tools to dismantle or remove any part of the vehicle. A detailed assessment of a vehicle's design and construction is not part of the test. It should also be noted that the test can only confirm the roadworthiness condition of the vehicle at the time of the test. It is not a prediction of future vehicle roadworthiness and should not be regarded as a warranty. Since it is not practicable to lay down limits of wear and tolerance for all types of components of different models of vehicle, or to define acceptable amounts of damage deterioration and effectiveness. Where the vehicle manufacturer has provided wear tolerances these should be adhered to.

A CVR tester must not under any circumstances issue a pass statement for a vehicle that is not tested in accordance with this manual or that a pass statement is conditional upon repairs or adjustments to the vehicle being made subsequent to the test. A CVR tester shall conduct a thorough inspection of all of the test items strictly in accordance with this manual.

A HCV test must be conducted on a HCV test lane. Where a vehicle is presented which due to its construction or size (e.g. wheelbase too narrow), may make it unsafe to be placed on a HCV pit, then it is acceptable to carry out the visual inspection on a LCV lane. Equipment checks must be conducted on a HCV lane.

The Methods of Testing detailed in this Manual are designed to comply with normal workshop practice. The Road Safety Authority cannot accept responsibility for any injury to any person or any damage to any property arising from the conduct of any test described in this Manual. Nothing in this Manual may be construed as diminishing in any way the obligations on employers from health and safety regulatory acts in relation to the occupational health and safety at work of their employees.

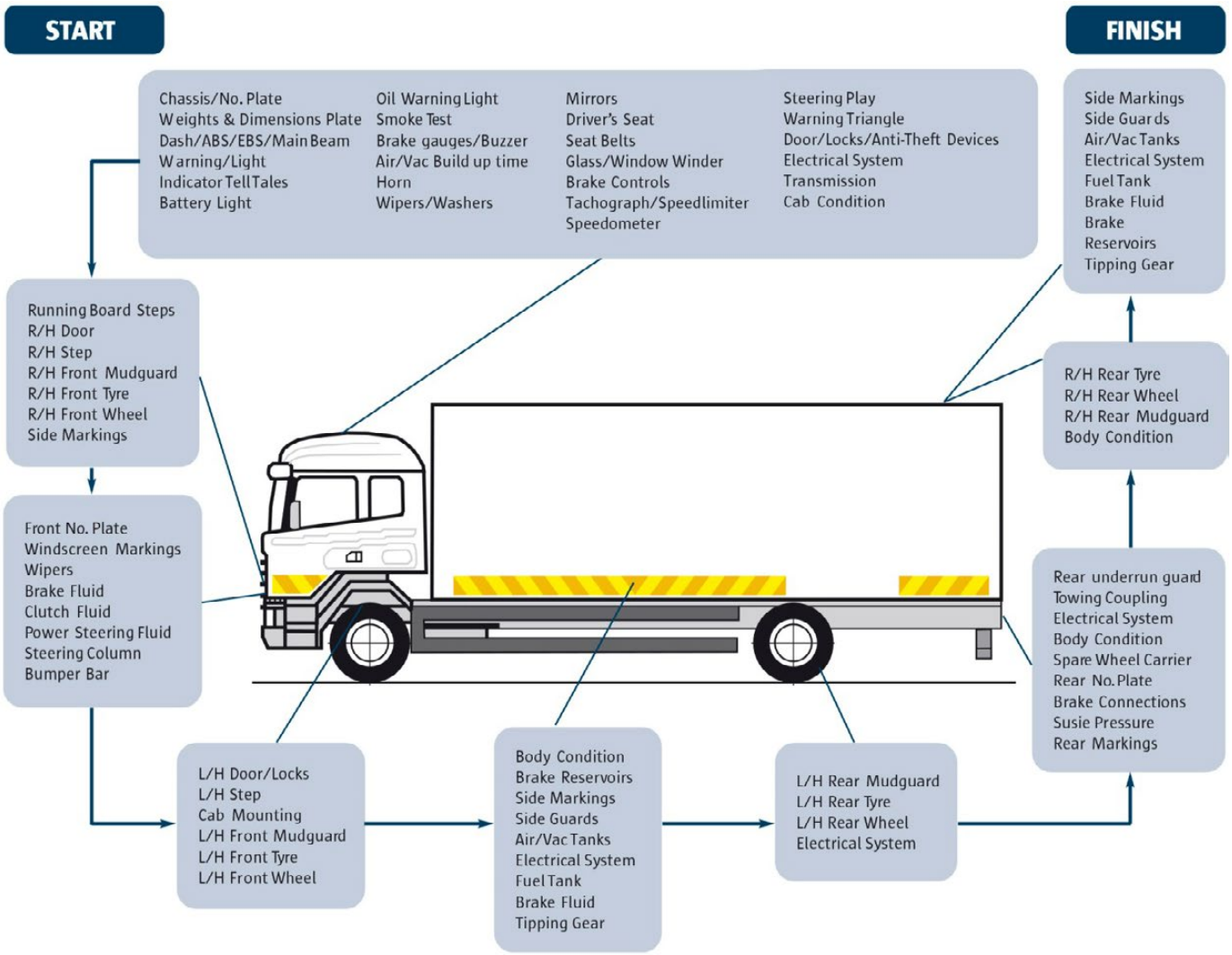
It is the responsibility of the person presenting the vehicle for test to prove exemption from any requirement listed in this manual.

14. The testing sequence.

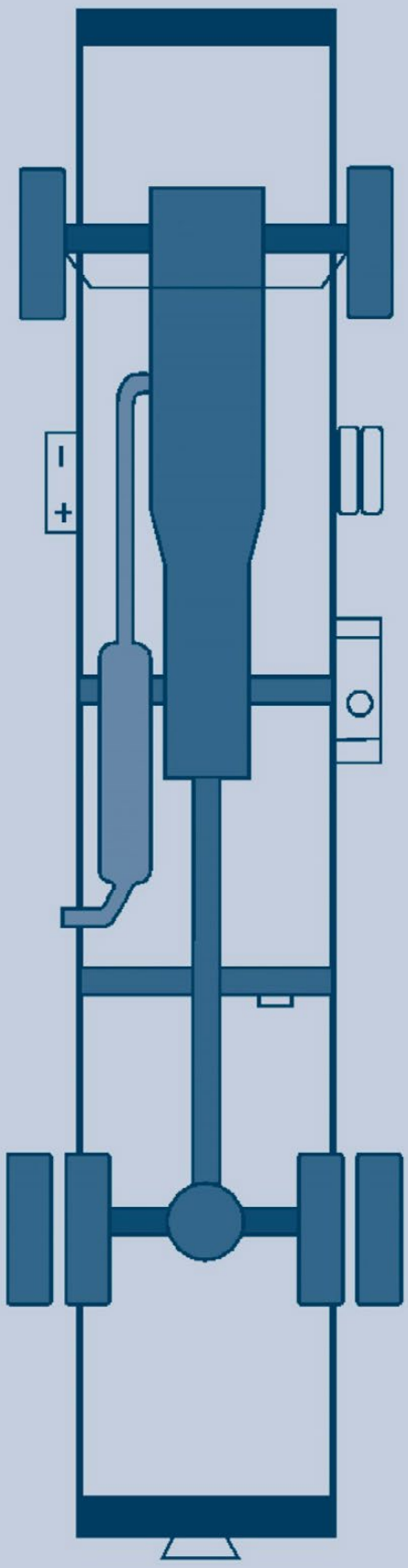
It is essential that headlamp aim tests are carried out with the vehicle on the certified level floor area only. Class V and Class VI mirrors must be checked in the dedicated area. Checks on such items as steering play, linkage wear, leaks or play in braking systems, suspension wear and brake lights may require the use of an assistant. The test sequence will of course vary with different vehicle types.

Notes: A vehicle which is presented for test that fits the description of a living van should be booked on CoVIS in the correct test category and tested as a goods vehicle and meet with all the associated test requirements.

TEST PROCEDURE TO BE FOLLOWED



PROCEDURE FOR UNDERBODY INSPECTION



Steering Linkage
Wheel Bearings
Chassis/Cross Members

Electrical System
Exhaust System
Front Axle
Brake Wheel Units

Front Axle Brake Components
Brake Pipes
Front Axle Springs
Front Axle Shock Absorbers

Front Axle Beam
Front Axle Suspension
Front Axle Tyres
Oil Leaks

Engine Mountings
Gearbox Mountings
Drivetrain

Tachograph Seals
Chassis/Cross Members

Fuel System
Exhaust System
Drive Shaft(s)
Silencer Box

Body Clamps
Brake Valves

Brake Pipes
Electrical Wiring
Brake Air/Vac Tanks

Brake Components (Mechanical)
Chassis/Cross Members

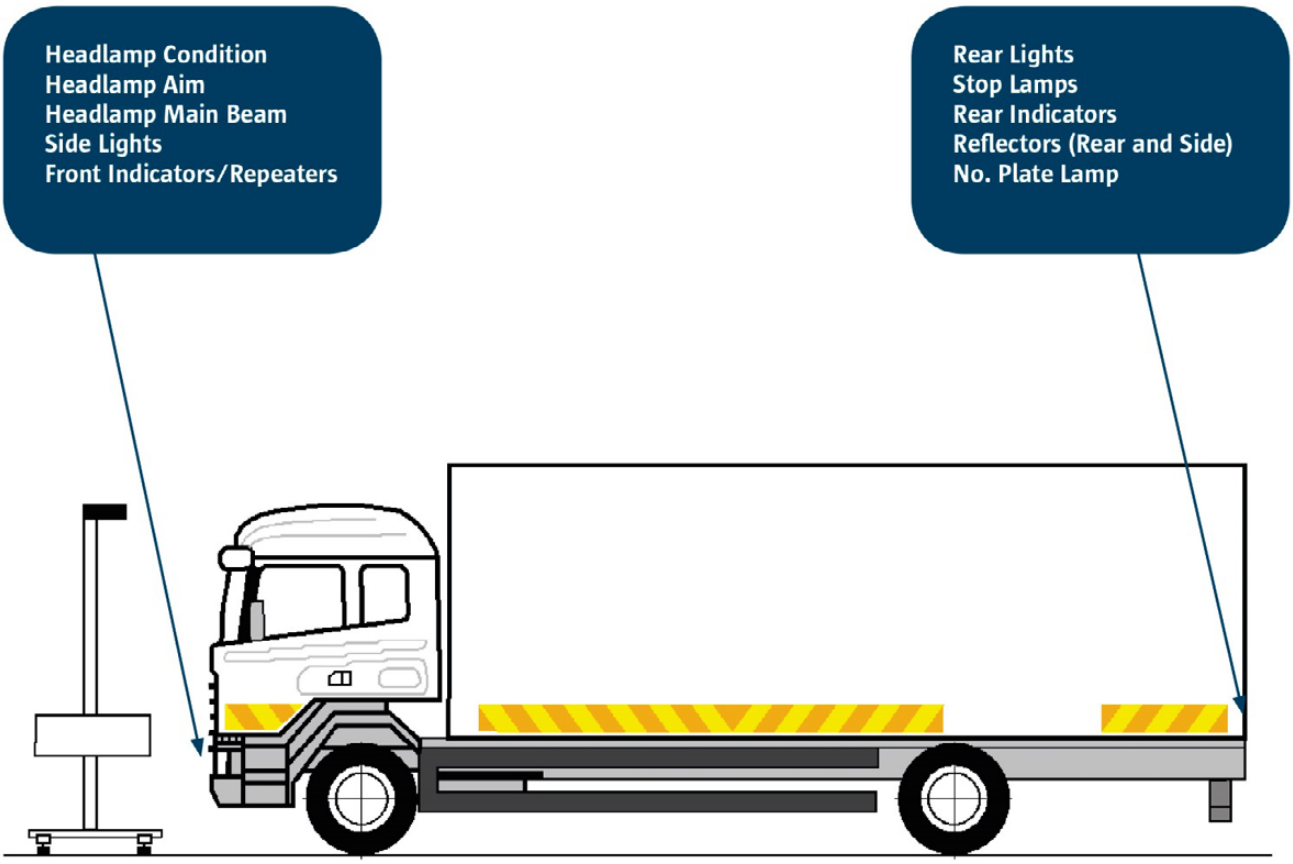
Drive Shaft(s)
Rear Axle

Rear Axle Brake Wheel Units
Rear Axle Brake Components
Brake Pipes
Rear Axle Springs
Rear Axle Shock Absorbers

Rear Suspension
Rear Axle Tyres
Electrical Wiring
Chassis/Cross Members

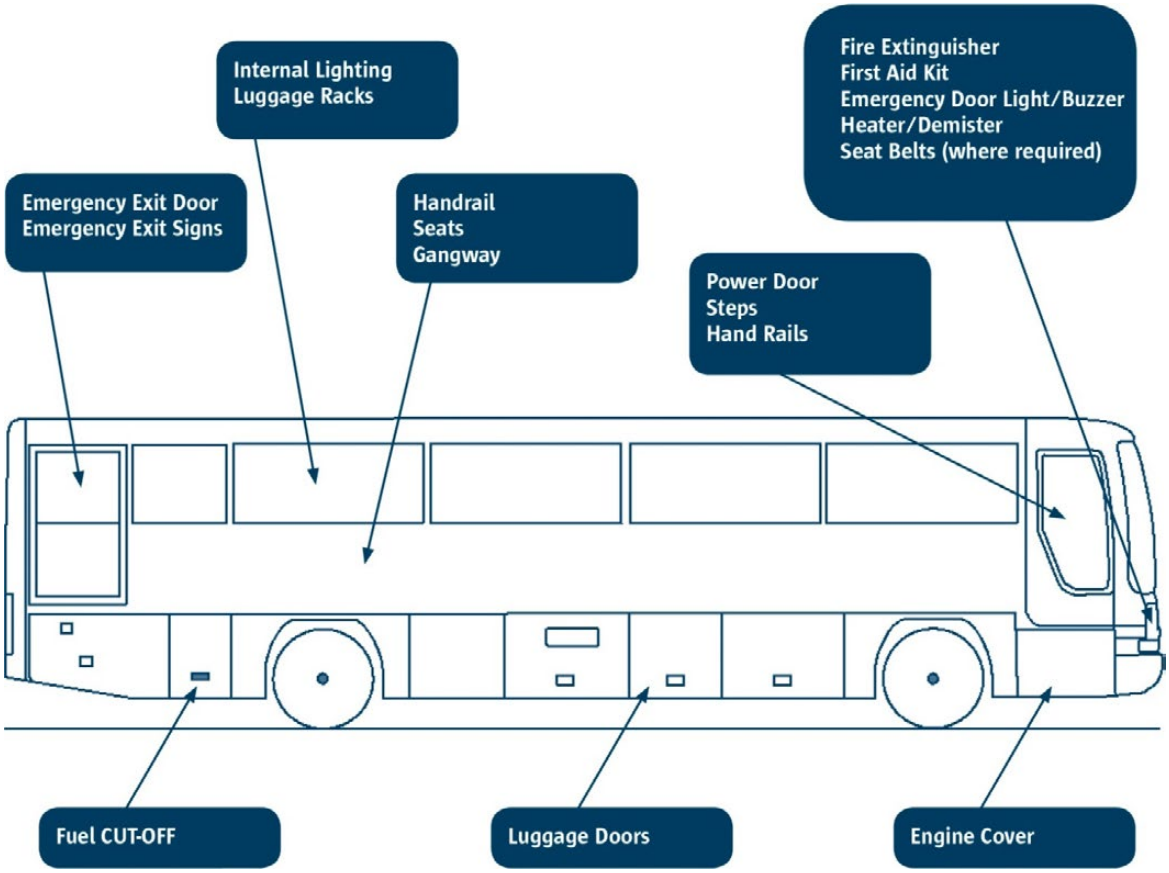
Towing Coupling

VEHICLE ON CERTIFIED AREA FOR TESTING HEADLAMP AIM

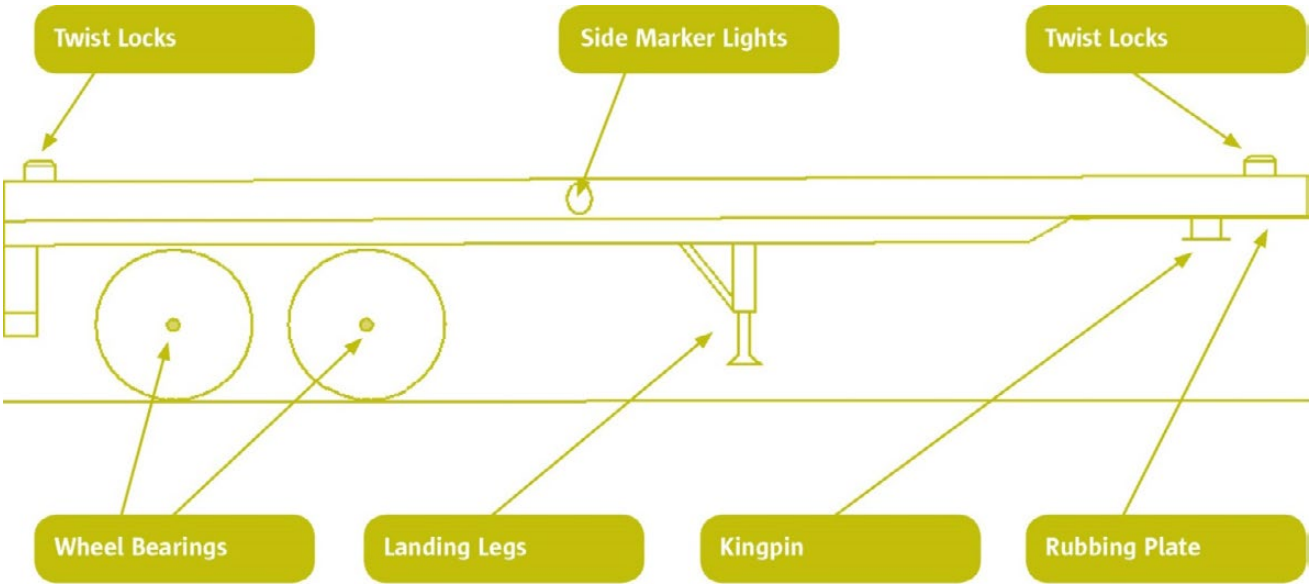


NOTE: Floor Area to be within ± 1mm of a chosen Reference Point for a distance of 10 metres before the beam setter. Rails to be within ± 0.5mm of a chosen Reference Point.

ADDITIONAL ITEMS TO BE CHECKED ON A BUS



ADDITIONAL ITEMS TO BE CHECKED ON A SEMI-TRAILER



Corrosion Assessment

Introduction

When conducting a corrosion assessment for the purposes of the CVR Test, the following inspection and guidance procedures relating to corrosion should be applied in accordance with the methods prescribed within individual sections of this manual. It is the responsibility of tester's to read and fully understand the guidance and procedures set out below before undertaking elements of the CVR Test related to corrosion assessment.

1. Corrosion

The effect of corrosion on the safety of the vehicle depends on its extent and the location where it has occurred.

A small amount of corrosion on an important part of the vehicle structure can make a vehicle unsafe where it destroys the continuity of the load bearing structure. On the other hand, heavy corrosion of unimportant sections may have no effect on the vehicle safety.

2. Detecting Corrosion in Vehicles

Since advanced corrosion is almost always associated with an eruption of oxidised metal and pitting or bubbling of paint, a visual inspection is usually adequate to determine its presence. However, this method may not be adequate in all cases. In underbody areas prone to corrosion, such as steering and suspension mounting points and major structural components which include chassis, floor, structural sills and sub frames, the presence of corrosion should be checked using thumb pressure or by tapping with a hammer or other appropriate tools. Corrosion affected heavy gauge metal may be tapped harder than light gauge, but unwarranted force and damage must be avoided. In using this technique, care should be taken to avoid damage to panels or paint work not corrosion affected in any way. When checking for advanced corrosion, particular attention should be paid to seam welds and spot welds. These frequently corrode through from the interior and can result in the eventual detachment of panels. Any panel which is made insecure by such corrosion must be repaired even if it is an area of the component where corrosion holes are not an immediate danger. For the purposes of this manual reference to **"rust"** should be interpreted as corrosion.

3. Classification of Corrosion

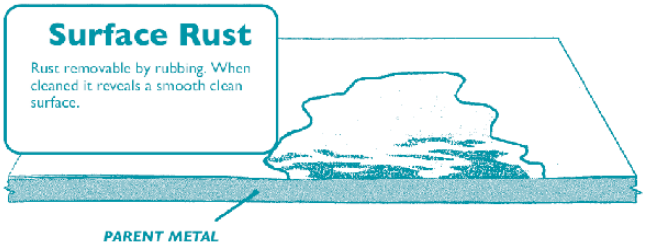
The extent of corrosion can range from light surface corrosion to the total breakdown of parent metal.

In general, the formation of corrosion and resultant loss of metal occurs in areas which retain moisture, because of a build-up of road dirt and mud etc. The extent of corrosion is classified in three stages.

Stage 1 – Surface Corrosion

Light, powdery corrosion on the surface of a section of metal is termed surface corrosion.

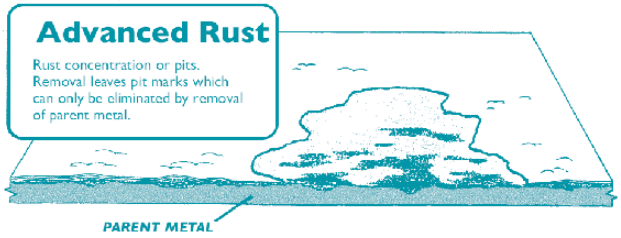
Surface corrosion can occur on or behind any body panel, particularly if the protective coating is scratched or damaged.



Stage 2 – Advanced Corrosion

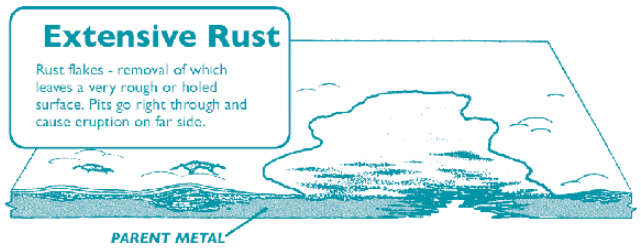
Surface corrosion, if left unattended, will develop into an advanced form of corrosion which can usually be seen as an eruption of oxidised metal, either on bare metal or under paint. This eruption occurs because the corrosion reaction involves an increase in volume which causes pitting or bubbling of paint.

An example of a section affected by advanced corrosion is illustrated on the page that follows.



Stage 3 – Extensive Corrosion

The final stage of the corrosion process is the formation of a heavy encrustation of oxidised metal which completely replaces the parent metal. This results in a hole or series of holes in the body panel or structural member of the vehicle when the corrosion is removed. This category of corrosion can usually only be rectified by replacement of the affected body panels and parts. The illustration below shows a section affected by extensive corrosion.



4. Vehicle Structures

Vehicle structural components can be categorised according to their importance to safety.

Primary Structure

The primary structure includes any structure or component which, if it collapsed, would render the vehicle uncontrollable or would considerably reduce occupant

safety in a crash/collision situation. Only surface corrosion is acceptable in primary structure components. Any part of a load bearing member or load bearing panelling should be considered a reason for failure if it is weakened by corrosion to the extent that:

- By finger and thumb pressure it does not feel rigid, or
- It crumbles to leave a hole, or
- When tapped there is penetration, or it causes the metal to crumble or disintegrate.

Typical Primary Structure Components

Certain areas of the vehicle structure are particularly important for the safety of a vehicle and particular attention must be paid to these areas during an inspection. These areas are:

- The load bearing parts/primary structure components of the vehicle which are depicted in the figures below.
- Any load bearing or supporting structure or supporting panelling within 30cm of the mounting location.

(1) Main Structural Members such as sub frames and chassis rails.

(2) Suspension mounting areas.

(3) Steering box mounting point.

(4) Door sills and pillars.

(5) Door hinge mounting areas.

(6) Seat and seat belt anchorage points.

(7) All floor panels.

(8) Bulk head.

(9) Body Structural Members.

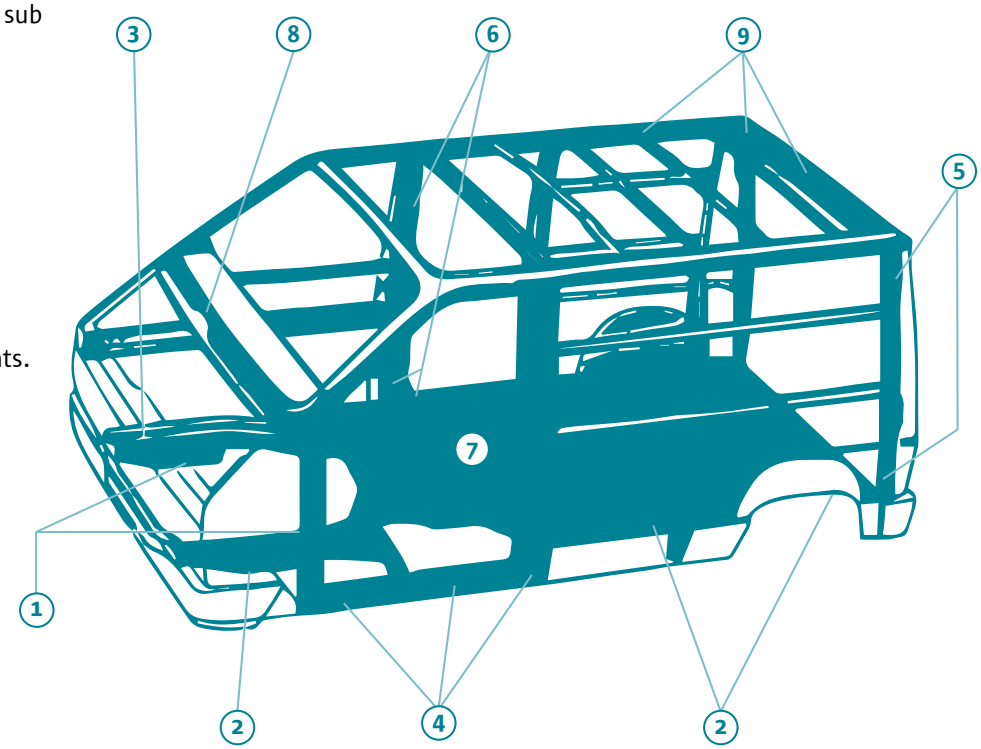


Figure 1. Primary structural components

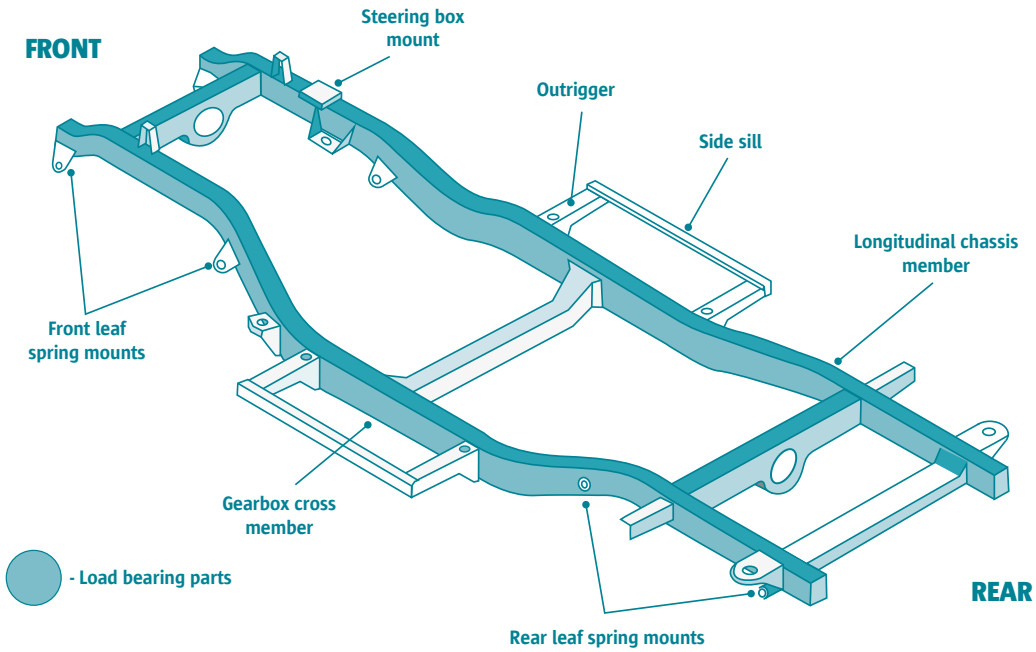


Figure 2. Chassis - Spring/leaf suspension

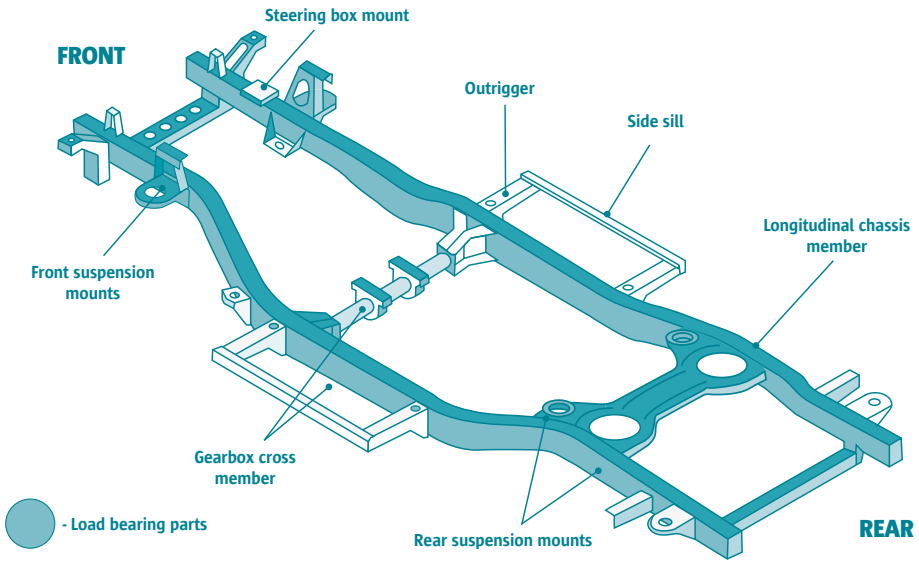


Figure 3. Chassis - Independent Suspension

Secondary Structure

The second category includes any structure or component which, if it collapsed, would not immediately affect a vehicle's controllability. Normally, surface corrosion or advanced corrosion in these structures or components would not make the vehicle unsafe. Extensive corrosion in these components is usually either hazardous to people in or near the vehicle because of its sharp edges or because exhaust fumes may enter the vehicle. In such cases, this type of corrosion would make the vehicle unsafe.

Typical Secondary Components

Extensive corrosion in these components can be hazardous to vehicle occupants and other road users.

1. Wings, bumpers or roof.
2. Boot lid, bonnet and doors (areas within 100mm of mounting and locking points are primary structures and must be free of advanced or extensive corrosion).
3. Exhaust system (vehicle may fail to meet noise emission standards if exhaust system is deteriorated due to corrosion).

Categorising Corrosion

TYPE OF CORROSION	CATEGORY OF STRUCTURE	
	Primary	Secondary
Surface Corrosion	Acceptable	Acceptable
Advanced Corrosion	Not Acceptable	Acceptable*
Extensive Corrosion	Not Acceptable	Not Acceptable**

* Areas within 100 mm of hinges and locks (e.g. boot lid, bonnet and doors), are considered primary structures and must be free of advanced and extensive corrosion.

** Extensive corrosion is not acceptable in secondary components, if it renders the component hazardous to persons in or near the vehicle e.g. sharp edges, loose panels, or in the case of exhaust fumes, leakage of exhaust gases into the passenger compartment.

6. Repairs

Repairs made to primary structure components solely by using body filling compounds are not acceptable. Repairs should be made by completely welding in new metal of the same gauge as that of the manufactured component. However, plastic filler or fibreglass can be used to cosmetically smooth a non-structural component.

Extensive corrosion in structural members can only be repaired by replacing the affected member or by completely removing all corrosioned material and reinforcing it so that the original strength of the affected structural member is re-established.

0. IDENTIFICATION OF THE VEHICLE

CONTENTS

0. IDENTIFICATION OF THE VEHICLE

0.1. Registration Plate

0.1. REGISTRATION PLATE

Method of testing

1. Check the registration number plates for security, location, format, legibility, visibility, correct colour and that the numbers are the same as that on CoVIS. No other marks may appear on the plate. Any additional tabs, etc. outside the dimensions shown for the registration plate are not considered part of the plate.
2. Check the trailer licence plate for security, location, format and legibility
3. Check in the case of a trailer that the trailer mark is indelibly marked on the offside chassis rail and are of the correct dimensions.

Notes

- **Vehicles Registered on or after 1st January, 1987**; Letters and numbers must be black, set against a white background of reflex reflective material and minimum dimensions should be as shown in the sketches below.
- **Vehicles Registered prior to 1st January, 1987**;
  - **Reflex Reflecting Registration Plates;** Front registration plates should have black numbers and letters on a white background. Rear registration plates should have black numbers and letters on a red or white background.
  - **Non-Reflex Reflecting Registration Plates;** Front and rear registration plates should have white, silver or light grey numbers and letters on a black background.
  - **Back Lit Registration Numbers and Letters;** where registration numbers and letters are back lit they should appear white in front and either white or red to the rear during lighting up hours. At all other times they should appear white on a black background.
- Owners of vehicles registered prior to 31st December, 1990, have the option of converting their registration plates to the new format.
- Vehicles Registered on or after 1st January, 1991; Letters and numbers must be black set against a white background of reflex reflective material. The flag of the European Union, the Nationality Symbol, IRL, and the Irish language name of the City/County of registration to be shown. Plate dimensions must be as shown in the sketches below.
- The trailer licence plate should consist of black numbers and letters 70mm high on a white background and should be fitted to the nearside chassis rail.
- The trailer licence plate letters and numbers must also be clearly and indelibly marked with characters at least 30mm high on the offside chassis rail.
- Where the indented space provided for the number plate is not sufficient to accommodate a standard size number plate, the registration plate and registration letters and numbers may be reduced in size relative to the space provided for the number plate.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Presence and security.	(a). One or both plates missing, so insecure that they are likely to fall off.	MaD
b. Accuracy.	(b). Numbers or letters missing, illegible or wrong size (see notes).	MaD
c. Correct format.	(c). Numbers, letter or background of incorrect colour (see notes).	MaD
d. Illegal marks.	(d). Marks, other than those prescribed, on the plate within the boundary shown in the diagram.	MaD
e. Compatibility with records.	(e). Not in accordance with vehicle documents or records.	MaD
f. Obstruction and condition.	(f). Number plate obstructed, faded, dirty, delaminated, deteriorated or obscured so that it is likely to be misread or is not easily legible.	MaD
g. Location (trailer plate).	(g). In the case of trailers and semi-trailers the trailer registration number plate is not fitted to the near side chassis rail.	MaD
h. Presence (trailer number).	(h). The trailer registration number is not indelibly marked on the offside chassis rail with characters of minimum 30mm height in an accessible position.	MaD

0.1. Registration Plate – Example Plates

Either of the example plates below are acceptable. The addition of a tab containing other information is acceptable if all detail within the specification limits meets legislative requirements (S.I. No. 287 of 1990) and no other marks appear within this area (110mm x 520mm). The same criteria should be applied to 220mm x 340mm plates.

0.2. VIN (Chassis Number)

0.2. VIN (CHASSIS NUMBER)

Method of testing

1. Check that the VIN is indelibly marked on the chassis and fully corresponds to the number on CoVIS for the vehicle. If not this is a reason for failure except in the case where at a minimum the last six digits of the VIN on CoVIS and the VIN indelibly marked on the chassis of the vehicle matches a pass. In this exception advisory shall apply.
2. Check that the vehicle meets with the description and EU category assigned to it on CoVIS.

Notes

- In the case where at a minimum the last six digits of the VIN on CoVIS and the VIN indelibly marked on the chassis of the vehicle matches, in this case the tester may select a pass advisory for this test item, the CVR testing centre should still provide the customer with the correct VIN number in writing as marked on the chassis of the vehicle; on test centre headed paper using the revised template prepared by the RSA. The customer should be advised to get their vehicle registration certificate amended as per the template provided.
- Where a new VIN plate has been fitted (e.g. conversions/modifications), then the original VIN plate should be retained alongside the new VIN plate.
- **Advisory notice applies where the vehicle presented does not match its description on CoVIS.**
- **Advisory notice applies where the VIN on the vehicle registration certificate does not exactly match the VIN indelibly marked on the vehicle chassis (but the last six digits of the VIN on the vehicle registration certificate and marked on the chassis match).**
- **Advisory notice applies where the EU category for the vehicle does not correspond with the EU category stated on the vehicle registration certificate.**

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Presence and condition.	(a). Missing or not legible on chassis/frame.	MaD
b. Legibility and falsification.	(b). Incomplete, illegible, obviously falsified, or does not match the vehicle documents/CoVIS.	MaD
c. Compatibility with vehicle documents.	(c). Illegible vehicle documents or clerical inaccuracies.	MiD

0.4. Manufacturer's Plate

0.4. MANUFACTURER'S PLATE

Method of testing

1. Check the manufacturer's plate for any alterations. In cases where the details contained on the original manufacturer's plate have been altered, then this alteration must be justified, approved and documented by the manufacturer or their authorised Irish distributor. In the absence of a manufacturer's report, then a modifications report in the format as per this manual must be provided.

Notes

- In the absence of a manufacturer's plate showing maximum permitted axle weights and design gross vehicle weight (DGVW), the owner / presenter must provide a letter from the manufacturer on headed paper showing the VIN, axle permitted weights and DGVW.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for: a. Alterations	(a). The details on the manufacturer's plate have been altered and there is no corresponding documentation from the manufacturer (or his authorised distributor) or a modifications report.	MaD

0.5. Modifications Report

0.5. MODIFICATIONS REPORT

Application

This section applies in respect of vehicles that have been modified since their last CVR Test in a manner that requires a modifications report as per the template in this manual.

1. Check that the report has been presented in the acceptable form and is complete.
2. Check that the report corresponds with the modifications identified.

0.5. MODIFICATIONS REPORT

Application

- The vehicle's owner (or the presenter on the owner's behalf) shall confirm whether any repairs or modifications have been carried out to a vehicle since its last CVR test which may adversely affect the roadworthiness of one or more of the items to be tested.
- In respect of vehicles modified since their last CVR Test, a modifications report must be provided in the following cases;
  - The fitment of an extra axle or the removal of an existing axle.
  - Chassis work, including lengthening/shortening the wheel base or the replacement of chassis rails.
  - A vehicle has been converted from M2, M3, N2 or N3 to N1 since its last CVR test. For these conversions, a letter on official headed paper from the manufacturer or his authorised distributor is required to accompany the modifications report in order to affirm the suitability of the type of modification which has been undertaken. This letter shall be uploaded to CoVIS by the CVR tester.
  - Modification to the steering system (this includes power steering and steering wheel), modification to the suspension system (including modifications to anti-roll bars), modification to the braking system including changing from disc to drum brakes (or vice versa) and the addition or removal of equipment
  - Modifications to seat belts (including anchorages), air bags or the addition of seats.
  - Major modifications to the cab or body work or modifications or repairs which may adversely affect the roadworthiness of one or more of the items to be tested as part of the test including where "unsafe repairs or modifications" is specified in this manual as a reason for failure.
- Where during the CVR test, the CVR tester notices a repair or modification which may adversely affect the roadworthiness of any of the test items including where unsafe "repairs or modifications" are specified in this manual as a reason for failure, the CVR tester shall seek a modifications report in writing substantially in the form outlined in this manual. Where a historic report is provided, the CVR tester shall determine whether this adequately addresses the issue and is in line with the form in this manual and, if not, shall seek a new modifications report. As the CVR test is essentially a maintenance and condition check, it is acknowledged that a tester will not be removing or dismantling any parts in the course of a normal roadworthiness test and that the finding of any modifications or repairs is based on a visual inspection of the vehicle only.
- In the case of vehicles requiring a modifications report (as per above), this report shall be one issued by the vehicle manufacturer (or his authorised distributor), an authorised representative of an NSAI approved test centre (ATC) or by a Suitably Qualified Individual. This report shall be on headed notepaper and include the details specified as per the template in this manual and must state;
  - Vehicle Make, Model, variant and Vehicle Registration Number (VRN) and VIN
  - Description of body-type (not code) before and after modification (in the case of a modification) e.g. flatbed to tipper, or van to motor caravan.
  - The purpose of the report and the list of modifications or repairs made to the vehicle
  - The standard of workmanship and specifications
  - DGVW, & Gross Combination Weight (the original and new, where changed), Unladen Vehicle Weight (the original and new, where changed)
  - That the vehicle is safe to use on the road and that the modification/ repair does not diminish the technical status or integrity of the vehicle or other vehicle components and safety features.
  - That the vehicle meets with the Road Traffic (Construction, Equipment and Use of Vehicles) Regulations (as amended) and the Road Traffic (Lighting of Vehicles) Regulations as amended and where applicable to the essential technical provisions of the EU Directives to which the modification relates for the year of manufacture and category of vehicle concerned.
- Details of relevant road traffic regulations, a definition of SQI and details of instances where a modifications report is not required can be found in this manual.

0.5. Modifications Report

0.5. MODIFICATIONS REPORT		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for:		
a. Presence and completeness.	(a). Not presented or incomplete.	MaD
b. Acceptable format.	(b). Not in the form (template acceptable by tester).	MaD
c. Compatibility with modifications.	(c). Does not correspond with modifications identified by tester.	MaD
d. Validity (expiry date).	(d). Not acceptable (e.g. report includes an expiry date).	MaD
e. Report presented where required.	(e). Modification report required.	MaD
f. Manufacturer approval (where necessary).	(f). Letter from manufacturer/ authorised distributor not presented where required (See notes above).	MaD

0.6. Authorisation (National Weights and Dimensions) Plate

0.6. AUTHORISATION PLATE

This section does not apply to M2, Ambulances, Motor-caravans or Fire Engines

Method of testing

1. Check in the case of a vehicle, trailer or semi-trailer with a design G.V.W. exceeding 3,500kg that a plate similar to that shown in this manual is securely fitted to the vehicle. [Where a trailer or semitrailer presented for test has valid type approval certification and a plate similar to that shown in this manual, this is acceptable in lieu of an authorisation plate, see notes]. Check that the plate shows all the required details.
2. Check in the case of a passenger vehicle with a design G.V.W. exceeding 5,000kg that a metal plate similar to that shown on page 14 is securely fitted to the vehicle.
3. Check that in the case of a plate fitted by an NSAI Authorised Plate Fitter that the plate seal is intact.

Notes

- In the case of five axle (or more) rigid vehicles these shall not be failed as per reason for failure 0.6 (e) and 0.6 (i) below provided either an acceptable modifications report or manufacturer approval is available to verify the plated weights.
- A 3-axle tractor unit plated for 44 tonnes GCW is required to have an anti-lock braking system and an air suspension system (or equivalent) as per the definition of “appropriate motor vehicle”
- A 3-axle tractor unit plated for 46 tonnes GCW first registered prior to 1st April 2013 (in addition to satisfying the definition of an “appropriate motor vehicle” is required to have an Electronic Braking System (EBS) (see note).
- A 3-axle tractor unit plated for 46 tonnes GCW first registered on or after 1st April 2013 (in addition to satisfying the definition of an “appropriate motor vehicle” is required to have an Electronic Braking System (EBS) & be fitted with a Vehicle Stability Function (VSF) (see note), which is more commonly known as Electronic Stability Control (ESC).
- A rigid truck plated for a 46 tonne GCW first registered prior to 1st June 2015 (in addition to satisfying the definition of an “appropriate motor vehicle” is required to be fitted with an Electronic Braking System (EBS).
- A 3 axle rigid truck plated for a 46 tonne GCW first registered on or after 1st June 2015 (in addition to satisfying the definition of an “appropriate motor vehicle” is required to have an Electronic Braking System (EBS) & be fitted with a Vehicle Stability Function (VSF), which is more commonly known as Electronic Stability Control (ESC). Rigid trucks having more than 3 axles first registered on or after 1st June 2015 are exempt from the requirement to be fitted with ESC.
- The only plates acceptable are those fitted by the vehicle/trailer manufacturer or an Authorised Person appointed by NSAI.
- A single plate affixed by the vehicle manufacturer which contains all of the required information as detailed on pages and 14 and 15 respectively is sufficient. The weights not to be exceeded in Ireland column may use the wording “IE”
- Where a vehicle or trailer has been plated by the manufacturer a combination of two plates is acceptable provided they contain all the required information.
- Plates fitted by an Authorised Person will bear a number issued to that person by NSAI.
- Vehicle Identification Number (VIN) is the manufacturer’s unique vehicle identification number, also known as the chassis number.
- Electronic braking system means a braking system that employs an electronic control system to control the braking function.
- Vehicle stability function (more commonly known as Electronic Stability Control) means an electronic control function for a vehicle which improves the dynamic stability of the vehicle. A vehicle stability function includes one or both of the following: (a) Directional control & (b) Roll-over control.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for: a. Presence. b. Seal. c. Sufficient information. d. VIN. e. Compatibility. f. Legibility. g. Security. h. Fitment by manufacturer / appointed person. i. Excess weights (manufacturer's design weights). j. Weights not to be exceeded in Ireland.	(a). Not fitted. (b). Seal missing. This only applies to a plate fitted by an Authorised Person appointed by NSAI. (c). Insufficient information on plate. (d). Missing or incomplete VIN. (e). Information on plate is not compatible with vehicle. (f). Information on plate not clear or easily read. (g). Plate insecure. (h). Plate has not been fitted by either the vehicle/trailer manufacturer or an Authorised Person appointed by NSAI. (i). The weights displayed (axle weights, GVW or GCW) on the NSAI Authorised weights and dimensions plate exceeds those on the manufacturer's design weights plate. (j). Authorisation plate not having a specific column displaying the weight(s) not be exceeded in Ireland or IE.	MaD MiD MaD MiD MiD MiD MiD MaD MaD MaD

WEIGHTS & DIMENSIONS PLATE - MECHANICALLY PROPELLED VEHICLE (All inscriptions 4mm in height)

Name of Manufacturer:				
Type Approval Number:				
Vehicle Identification Number:				
		Weights Not to be Exceeded in Ireland	**Maximum Weights Permitted under EU Directives**	**Design Weights (if higher than permitted in Ireland)**
Maximum permitted laden weight				
Maximum permitted laden weight of combination (if permitted to tow a trailer)				
Axle weights	Axle 1			
	Axle 2			
	Axle 3			
	Axle 4			
	Axle 5			
Vehicle Length				
Vehicle Width				
Data relating to Length of Combinations **Centre of coupling to front of vehicle (a)**		amax = amin =		

WEIGHTS & DIMENSIONS PLATE - TRAILER AND SEMI –TRAILER (All inscriptions 4mm in height)

Name of Manufacturer:				
Type Approval Number:				
Vehicle Identification Number:				
		Weights Not to be Exceeded in Ireland	**Maximum Weights Permitted under EU Directives**	**Design Weights (if higher than permitted in Ireland)**
Maximum permitted laden weight				
Axle weights	Axle 1			
	Axle 2			
	Axle 3			
	Axle 4			
Maximum kingpin load (semi-trailer)				
Vehicle Length		L=		
Vehicle Width		W=		
Data relating to Length of Combinations **Centre of coupling to front of vehicle (a)**		b_{max} = b_{min} =		

1. BRAKING EQUIPMENT

CONTENTS

1.1. Mechanical Condition & Operation

1.1.1. SERVICE BRAKE PEDAL / HAND LEVER PIVOT

Method of testing

- Check service brake pedal assembly/hand lever pivot for correct pivot operation/excessive side movement and that it releases correctly.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation (pivot).	(a). Pivot too tight so its functionality is affected.	MaD
b. Wear (mounting/bush).	(b). Excessive wear or play in mounting/bush.	MaD

1.1.2. PEDAL/HAND LEVER CONDITION AND OPERATION

Method of testing

Check the pedal/hand lever for condition and operation by moving it from side to side and depressing it fully.

1. Check the fixing of the pedal pad to the pedal and the fixing of the pedal to the operating lever.
2. Depress the pedal to check for fouling on parts of the vehicle.
3. Release the handbrake, depress the pedal fully and check the position of the back of the pedal relative to the floor.
4. For hydraulic systems, fully depress the pedal and keep it depressed under a steady pressure. Note whether the pedal tends to creep down.
5. For hydraulic systems, release the parking brake and depress the pedal and note whether there is sponginess.
6. On some vehicles the action of the brakes is assisted by vacuum from the engine. Note whether this is operating satisfactorily by partially depressing the pedal, starting the engine and noting whether the pedal can be felt to dip.

Notes

- Hand lever in this section refers to the operation of the service brake by hand.
- Brake pedals that are not equipped with a pedal rubber should not be a reason for failure if they were not designed to have one.
- On some modern vehicles when the brake pedal is pumped with heavy pedal pressure, with the engine running, the brake pedal moves towards the floor. Under these testing conditions this will cause elastic expansion of brake components (flexing of the flexible pipes). This condition is seen as normal by the manufacturer and therefore it may not be a reason for failing the test. The procedure for testing the brake operation in a stationary position on such vehicles is to switch off the engine and apply the pedal a number of times to deplete the vacuum.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Operation (pedal travel).	(a). Pedal travel is excessive, obstructed or insufficient reserve travel.	MaD
b. Condition (anti-slip provision).	(b). Service brake anti-slip provision is missing, loose, worn to the extent that it is no longer effective.	MaD
c. Operation (brake control).	(c). Brake control not releasing correctly.	MaD
d. Condition & security (mounting).	(d). Mounting is insecure, badly corroded or worn to the extent that the pedal can be moved from side to side.	MaD
e. Creep or sponginess. (hydraulic system)	(e). In hydraulic systems, the pedal tends to creep down, or is felt to be spongy when held depressed.	MaD
f. Pedal dip (vacuum system).	(f). In systems assisted by vacuum from engine, with pedal depressed and the engine started, no dip is felt in brake pedal.	MaD
g. Clearance (pedal and floor).	(g). Insufficient clearance between the back of the pedal and the floor of the vehicle.	MaD

1.1.3. VACUUM PUMP OR COMPRESSOR AND RESERVOIRS (WHERE FITTED).

Method of testing

1. Visually inspect the components at normal working pressure. Check time required for vacuum or air pressure to reach safe working value.
2. Deplete the air or vacuum system by applying the foot brake, when the warning device operates there must be four / two further assisted brake applications.
3. Fully deplete the system and run the engine and note the time for the warning device to show minimum effective working condition.
4. Where an air compressor is belt driven, check the fitment of a drive belt/pulley for presence, condition and adjustment.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation (4 applications).	(a). Insufficient pressure/vacuum to give assistance for at least four brake applications after the warning device has operated (or gauge shows an unsafe reading);	MaD
b. Operation (2 applications).	(b). Insufficient pressure/vacuum to give assistance for at least two brake applications after the warning device has operated (or gauge shows an unsafe reading).	DD
c. Build up time.	(c). Appreciably longer than maximum time allowed by the Manufacturer (in the absence of information on the above, use 3 minutes for compressed air systems, 1 minute for vacuum systems).	MaD
d. Operation (multi-circuit protection valve).	(d). Multi-circuit protection valve or pressure relief valve not working.	MaD
e. Air leaks.	(e). Air leak causing a noticeable drop in pressure or audible air leaks.	MaD
f. Condition (external damage).	(f). External damage likely to affect the function of the braking system.	MaD
g. N/A.	(g). N/A.	
h. Presence and condition (drive belt).	(h). Drive belt missing, loose or badly deteriorated.	MaD
i. Presence and condition (drive pulley).	(i). Drive pulley missing/loose or cracked.	MaD

1.1.4. LOW PRESSURE WARNING GAUGE OR INDICATOR (WHERE FITTED)

Method of testing

1. Check that either a gauge or other visual or audible warning system is fitted. (This check is not necessary where effective braking is possible without the use of stored energy such as vacuum servo or compressed air assistance).
2. By repeated application of the foot-brake (service brake) pedal gradually exhaust the braking system of air or vacuum (with engine stopped).
3. If a gauge is fitted, note that the reading on the gauge falls steadily with each application of the brake and that when the gauge needle has reached the “warning mark” there is still enough vacuum (or air pressure) in the system to allow the brake to be applied at least four more times with vacuum (or air pressure) assistance.
4. If a warning lamp or audible or mechanical warning system is fitted, note that after this has operated there is still enough vacuum (or air pressure) in the system to allow the brake to be applied at least four more applications with vacuum (or air pressure) assistance.

Notes

- Where a vehicle is fitted with more than one warning system they must all be working.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation and malfunction.	(a). Malfunctioning or defective gauge or indicator.	MiD
b. Functionality (visual/audible)	(b). Low pressure warning gauge or indicator cannot be seen/ heard when air/vacuum is depleted.	MaD
c. Presence.	(c). Missing.	MaD
d. Operation (spring brake).	(d). Spring brakes activate before warning signal.	MaD

1.1.5. HAND-OPERATED BRAKE CONTROL VALVE (AIR BRAKE SYSTEM)

Method of testing

This inspection applies to all valves fitted in the cab to control parking brakes, spring brakes or brake actuators.

1. Check all hand-operated brake control valve components while the braking system is operated.

Notes

- In some cases it may not be possible to check these items completely from the cab position, but only to obtain an indication of their condition. If a defect is suspected which cannot be verified from the cab position, the inspection must be continued from a position underneath the vehicle.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition and wear.	(a). Control cracked, damaged or excessively worn.	MaD
b. Security (valve).	(b). Control insecure on valve or valve insecure.	MaD
c. Security and leaks (connections).	(c). Loose connections or leaks in system.	MaD
d. Operation.	(d). Unsatisfactory operation.	MaD
e. Presence and travel.	(e). Missing or cannot be moved over its full travel.	MaD
f. Malfunction.	(f). Malfunction of control valve.	MaD

1.1.6. PARKING BRAKE ACTIVATOR, LEVER CONTROL, PARKING BRAKE RATCHET, ELECTRONIC PARKING BRAKE

Method of testing

The following inspections are to be completed from inside the vehicle.

Mechanical Parking Brake

1. Check the condition of the brake lever and its mounting with the brake lever in the 'off' position and note the amount of side play in the lever pivot by moving the lever from side to side.
2. Check the condition of the ratchet pawl mechanism pivots and safety guard.
3. Apply the brake slowly and check the effective operation of the pawl mechanism by listening for definite and regular clicks as the pawl moves over the ratchet teeth.
4. With the brake fully applied knock the top and each side of the lever and check that the lever is held in the 'on' position. Check that the lever is not at the end of its permitted travel and that there is no fouling of adjacent parts.

Electronic Parking Brake

5. Visually inspect the electronic parking brake controls while the braking system is operated.

Notes

- In some cases it is not possible to check these items completely from inside the vehicle, but only to obtain an indication of their condition. If a defect is suspected which cannot be verified from inside the vehicle, the inspection must be continued from a position underneath the vehicle.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Presence, security and condition.	(a). Ratchet and pawl mechanism (where fitted) is missing, insecure, damaged or sticking, not holding correctly.	MaD
b. Wear (lever pivot or in ratchet mechanism).	(b). Wear at lever pivot or in ratchet mechanism.	MaD
c. Excessive wear (lever pivot or in ratchet mechanism).	(c). Excessive wear at lever pivot or in ratchet mechanism.	MaD
d. Operation ("on" position).	(d). Knocking the top or sides of the lever releases the brake.	MaD
e. Excessive movement/ impeded travel.	(e). Excessive movement of lever indicating incorrect adjustment or movement is obstructed.	MaD
f. Presence, damage and condition (electronic).	(f). Electronic park brake activator missing, damaged or inoperative.	MaD
g. Malfunction/ warning indicator.	(g). Incorrect functioning, warning indicator shows malfunction (where fitted).	MaD
h. Presence, security, damage and condition (lever).	(h). Lever/lever mounting is missing, fractured, badly worn or corroded, insecure or mounting unsatisfactory.	MaD
i. Free movement and obstruction (lever).	(i). Seized, inoperative or obstructed.	MaD

1.1.7. BRAKING VALVES (FOOT VALVES, UNLOADERS, GOVERNORS)

Method of testing

1. Check for leaks, excessive discharge of oil and damage to valves or components while the braking system is applied.

Notes

- When assessing the significance of leaks it should be remembered that certain pneumatic components are subject to some degree of leakage.
- Slight seepage producing a thin film of oil on the component is not a deficiency but any sign of dripping is unacceptable.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Damage and leaks.	(a). Valve damaged or excessive air leak.	MaD
b. Damage and excessive leaks (functionality affected).	(b). Valve damaged or excessive air leak that its functionality is affected.	DD
c. Oil discharge.	(c). Excessive oil discharge.	MiD
d. Security and mounting.	(d). Valve insecure or inadequately mounted.	MaD
e. Hydraulic discharge/ leak.	(e). Hydraulic fluid discharge or leak.	MaD
f. Excessive hydraulic discharge/ leak (functionality affected).	(f). Excessive hydraulic fluid discharge or leak(s) that its functionality is affected.	DD
g. Condition and operation.	(g). Seized, inoperative or obstructed.	MaD

1.1.8. COUPLINGS FOR TRAILER BRAKES (ELECTRICAL & PNEUMATIC)

Method of testing

1. With the brakes fully applied check all connections for leaks.
2. If fitted, check ISO7638 connector for correct outputs.
3. Check brake hose couplings for:
   (a) Inadequate repairs and security of mounting,
   (b) Outlet pressure in line with manufacturer's recommendations (use calibrated pressure gauges),
   (c) The possibility of incorrect coupling e.g. incorrect fitting is fitted to supply and signal lines,
   (d) On trailers and semi-trailers, attach the checking tool and verify the correct functioning of the self-sealer lifter.
4. Check that a tractor unit or rigid truck plated for operation at 46 tonnes is fitted with a 7 pin ISO 7638 connector.
   - Check the trailer protection valve by venting the service line to atmosphere and applying the footbrake with the handbrake released and the ignition switched on. Under these conditions the pressure in the emergency line (red) should drop below 5 bar automatically. (if pressure does not drop sufficiently, Reason for failure for this check is located in section 1.3.1.
5. Check that the brake lines/ couplings of a drawing vehicle registered after 1st June 2011 are not fitted with a manual shut off tap.

Notes

- ISO 7638 connectors (with correct outputs) are mandatory on all trailers first licensed in the State on or after 1st June 2011 and motor vehicles authorised to tow trailers or semi-trailers registered on or after 1st June 2011.
- Palm Couplings are acceptable as suzie connections.
- Some park brake controls also deplete the air suspension systems when the red (supply) line is removed, this is acceptable provided it does not drain the air brake reservoir. If it does this is considered a reason for failure.
- The pressure at the service suzie brake line connection should be not less than 5.5 bar (c 80 psi) and not greater than 8.5 bar in the absence of manufacturer's specifications.

1.1.8. COUPLINGS FOR TRAILER BRAKES (ELECTRICAL & PNEUMATIC)

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Damage, leaks and security.	(a). Damaged, leaking or insecurely mounted.	MaD
b. Repairs and fittings.	(b). Inadequate repairs or unsuitable fittings.	MaD
c. Pressure.	(c). Pressure at suzie brake line connections not within manufacturer's specifications.	MaD
d. Fitment (air).	(d). Possibility of incorrect coupling of brake lines.	DD
e. Operation (Lifter).	(e). Trailers or semi-trailers: incorrect functioning of the self-sealer lifter.	MaD
f. Outputs (electrical).	(f). Incorrect or no outputs on ISO7638 connector.	MaD
g. Presence (trailer ISO 7638).	(g). No ISO 7638 connector fitted to trailer or semi-trailer first licensed in the State on or after 1st June 2011 or to a vehicle registered on or after 1st June 2011 that is authorised to tow trailers.	MaD
h. Presence (truck ISO 7638).	(h). No 7 pin ISO 7638 connector fitted on a tractor unit or rigid truck plated for 46 tonne operation.	MaD
i. Manual tap.	(i). Any brake line on a towing vehicle registered on or after 1st June 2011 fitted with a manual shut off tap.	MaD
j. Leaks.	(j). Excessive leaks.	MaD
k. Leaks (functionality affected).	(k). Leaks so excessive that its functionality is affected.	DD
l. Operation.	(l). Not functioning correctly.	MaD
m. Operation (safety affected).	(m). Not functioning correctly that operation of the brake is affected.	DD

1.1.9. ENERGY STORAGE RESERVOIR PRESSURE TANK (WHERE FITTED)

Method of testing

Visually inspect the energy storage reservoir pressure tank and carry out the following checks;

1. Check that the securing straps are free from cracks, fractures, excessive corrosion and do not chafe the reservoir or other fittings.
2. Check the reservoir for damage, corrosion and leaks.
3. With air pressure or vacuum built-up, check the drain device (where fitted).

Notes

- Minor damage to reservoir should not be a reason for failure where the reservoir capacity is not unduly reduced by deformation. In cases where there is damage to a tank requiring the replacement / repair by welding of the tank 1.1.9 (b) below should apply.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Damage and condition.	(a). Tank slightly damaged or slightly corroded.	MiD
b. Excessive damage or leaks.	(b). Tank excessively damaged, corroded or leaking.	MaD
c. Drain device.	(c). Drain device operation affected.	MiD
d. Drain device operation.	(d). Drain device inoperative.	MaD
e. Securing straps presence, damage and condition.	(e). Securing straps broken, damaged or corroded.	MaD
f. Oil / water contamination.	(f). Obvious evidence of excessive oil or water in air brake system.	MaD
g. Security.	(g). Tank insecure or inadequately mounted.	MaD

1.1.10. BRAKE SERVO UNITS, VALVES, MASTER CYLINDER, (HYDRAULIC SYSTEMS)

Method of testing

Carry out the following checks (where possible) with the brakes applied.

1. Check servo(s), valves and master cylinder(s) for presence, security, operation and condition.
2. Check for the presence of a cap on the master cylinder reservoir and for sufficient brake fluid level.
3. Check for any repairs or modifications.

Notes

- Applied brakes means the braking system is pressurised using either the brake tool or a tester may use an assistant to apply the brakes.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Security and condition.	(a). Servo/valve(s) is insecure or defective, damaged or badly corroded, leaking, brake performance not impaired.	MaD
b. Operation (brake performance impaired).	(b). It is non-operative, brake performance impaired.	DD
c. Operation (brake performance not impaired).	(c). Master cylinder/reservoirs defective but brake performance not impaired.	MaD
d. Defects, operation and leaks.	(d). Master cylinder/reservoirs defective and non-operative or leaking brake performance impaired.	DD
e. Security.	(e). Brake master cylinder/reservoirs are insecurely mounted or mounting panel is cracked but brake performance not impaired.	MaD
f. Security (brake performance impaired).	(f). Master cylinder insecure and brake performance impaired.	DD
g. Brake fluid level.	(g). Insufficient brake fluid below MIN mark (less than half full or is below manufacturer's "minimum" level).	MiD
h. Brake fluid level (significantly low).	(h). Brake fluid significantly below MIN mark.	MaD
i. Brake fluid level (not visible).	(i). No brake fluid visible.	DD
j. Presence and condition of reservoir cap.	(j). The reservoir cap is leaking or cap missing.	MiD
k. Warning device.	(k). Brake fluid warning light illuminated or defective.	MiD
l. Warning device function.	(l). Incorrect functioning of brake fluid level warning device.	MiD
m. Repair or modification.	(m). Any obviously unsafe repair or modification to brake master cylinder/ servo/valves/connections.	MaD
n. Adjustment.	(n). Adjusting rod indicates adjustment is required.	MaD

1.1.11. RIGID BRAKE PIPES

Method of testing

Carry out the following checks on all rigid brake pipes while the braking system is applied.

1. Check all accessible rigid brake pipes and connections for leaks, general condition and fouling by a moving part.
2. Check all accessible rigid brake pipes, to ensure that they are in serviceable condition, free from chafing and external corrosion and damage.
3. Check that rigid pipes are securely held by clips or other means and examine brake pipes for repair or use of unsuitable fittings.

Notes

- When retesting a vehicle which required the repair or replacement of any hydraulic brake pipe(s), the items which failed must be re-tested as per method of testing above, under pressure over a pit, and a full brake test must be conducted.
- To correctly assess the condition of corroded metal brake pipes, surface dirt might have to be removed. This might require light scraping with the Corrosion Assessment Tool 'spade end'. Care must be taken not to damage any protective coating. Slight surface corrosion should not be considered a reason for failure.
- A missing brake pipe clip is not necessarily a reason for failure provided the brake pipe remains adequately supported.
- Couplings in brake pipes are acceptable provided they have been fitted to a high standard of workmanship. Repairs to hydraulic lines using copper tubing is acceptable provided suitable connectors are used.
- Provided the vacuum is maintained in the servo, the engine may be stopped.
- On vehicles with full pneumatic systems, where any brake components have been replaced or dismantled (with the exception of replaced brake lines/hoses), a full brake test is required.
- Where the tester is satisfied that, since the original test, no work was carried out on a vehicle that could affect the braking performance, other than above, there is no need to perform a full brake performance test on vehicles with full pneumatic brake systems. Full brake test required for all other systems.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Risk of failure / fracture.	(a). Imminent risk of failure or fracture.	DD
b. Leaks.	(b). Leaks are present in pipes or connections.	DD
c. Condition.	(c). Are perished, kinked, damaged or rusted to the extent that the pipe is pitted.	MaD
d. Mounting / security.	(d). Are unsatisfactorily mounted (or misplaced) with the possibility of failing.	MaD
e. Fouling.	(e). A pipe is fouling moving parts.	MaD
f. Repairs.	(f). Inadequate repairs have been carried out to pipes or unsuitable fittings are present.	MaD

1.1.12. FLEXIBLE BRAKE HOSES

Method of testing

Carry out the following checks on all flexible brake hoses with the brakes applied.

1. Check all flexible hoses, to ensure that they are not constrained in tight bends, that they have adequate room to move as necessary without fouling any other parts of the vehicle, and that they are not chafed, kinked, twisted or deteriorated and that they are in serviceable condition.
2. Check all brake hoses on steered axles when the steering is placed on either full lock ensure that there is adequate length of hose / sufficient clearance of other vehicle components.
3. Check that hoses are securely held by clips or other means and examine brake hoses for repair or use of unsuitable fittings.
4. Check flexible hoses including connections for leaks or bulges.

Notes

- When retesting a vehicle which required the repair or replacement of any hydraulic brake hose, the items which failed must be re-tested as per method of testing above, under pressure over a pit, and a full brake test must be conducted.
- A missing brake hose clip is not necessarily a reason for failure provided the brake hose remains adequately supported.
- Provided the vacuum is maintained in the servo, the engine may be stopped.
- A flexible brake hose should only be considered a reason for failure when the reinforcement material / cord is exposed under examination.
- On vehicles with full pneumatic systems, where any brake components have been replaced or dismantled a full brake test is required, with the exception of replaced brake lines/hoses.
- Where the tester is satisfied that, since the original test, no work was carried out on a vehicle that could affect the braking performance, other than above, there is no need to perform a full brake performance test on vehicles with full pneumatic brake systems. Full brake test required for all other systems.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Risk of failure / fracture.	(a). Imminent risk of failure or fracture.	DD
b. Condition.	(b). Hoses perished, kinked, twisted, too short or excessively damaged or chafed.	MaD
c. Leaks.	(c). Leaks are present in hoses or connections.	DD
d. Bulging.	(d). A hose is bulging under pressure.	MaD
e. Mounting.	(e). Are unsatisfactorily mounted (or misplaced) with the possibility of failing.	MaD
f. Fouling.	(f). A hose is fouling moving parts.	MaD
g. Repairs.	(g). Inadequate repairs have been carried out to pipes or hoses or unsuitable fittings are present.	MaD

1.1.13. BRAKE LININGS AND PADS

Method of testing

1. Visually inspect the brake pads and linings which can be seen without dismantling. Check for presence, security of pads/linings, excessive wear and contamination by leaking brake fluid, oil or grease. Also check for correct mounting and adjustment of lining or pad.
2. Check if there has been any repair or modification carried out to any of the mechanical components of the brake system. An unsafe repair or modification carried out to any of the mechanical components of the brake system, may require a modifications report to be presented as per the template in this manual.

Notes

- When retesting a vehicle which required the repair or replacement of any brake linings or pads, the items which failed must be re-tested as per method of testing above, over a pit, and a full brake test must be conducted.
- In the absence of wear indicators or manufacturer's recommendations regarding brake lining or disc pad wear, a figure of 1.5mm should be taken as a minimum thickness for bonded linings/pads. Where no facility is provided for inspection of brake shoes/pads this will not apply.
- Some vehicles have a warning light on the dashboard to indicate that the brake pads are becoming excessively worn. This lamp may be a multi-function lamp which also illuminates for other reasons (e.g. handbrake applied). Before failing brake pads under the reasons for failure below relating to wear (where a lamp is illuminated), testers must first ensure that the lamp is not illuminated for any other reason.
- In the absence of a manufacturer's tolerance insufficient contact means less than three quarters of the central pad surface with the disc.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Wear (minimum mark reached).	(a). Lining or pad excessively worn (minimum mark reached).	MaD
b. Excessive wear (minimum mark not visible).	(b). Lining or pad excessively worn (minimum mark not visible).	DD
c. Contamination.	(c). Lining or pad contaminated (oil, grease etc.).	MaD
d. Excessive contamination (brake performance affected).	(d). Lining or pad contaminated that braking performance is affected.	DD
e. Presence and security.	(e). Lining or pad missing or wrongly mounted.	DD
f. Adjustment.	(f). Brake linings are incorrectly adjusted.	MaD

1.1.14. BRAKE DRUMS, BRAKE DISCS

Method of testing

1. Visually inspect brake drums / discs which can be seen without dismantling. Check for presence, security of brake drums/discs and back plates. Check for excessive wear and contamination by leaking brake fluid, oil or grease. Also check for correct mounting and adjustment of brake drums/discs.
2. Check for fractures, damage, insecurity or misalignment of brake drums or discs or any disc or drum worn beyond manufacturer's limit.
3. Check for evidence of sufficient contact between brake pad and brake disc.
4. Check dirt shield / dust cover for security and condition.

Notes

- When retesting a vehicle which required the repair or replacement of any brake drum or disc, the items which failed must be re-tested as per method of testing above, over a pit, and a full brake test must be conducted.
- In the absence of a manufacturer's tolerance insufficient contact means less than three quarters of the central pad surface with the disc.
- In the absence of a manufacturer's tolerance for excessive brake disc wear is 5mm or greater on a 45 mm thick disc.
- Drum / disc ovality should only be considered a reason for failure when it affects the brake performance on a road test i.e. the presence of brake judder or pulling to one side, or the ovality can be felt through movement in the brake pedal.
- Dust covers should not be confused as being the same as back plates on brake assemblies. Where a dust cover is missing this should not be considered a reason for failure.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Wear.	(a). Drum or disc worn beyond manufacturer's limit.	MaD
b. Excessive wear, condition and security.	(b). Drum or disc, excessively scored, cracked, insecure, fractured that failure is imminent.	DD
c. Contamination.	(c). A brake drum / disc is contaminated (oil, grease, etc.).	MaD
d. Excessive contamination (brake performance affected).	(d). A brake drum / disc is contaminated that braking performance is affected.	DD
e. Presence.	(e). Drum, disc or back plate missing.	DD
f. Security and condition.	(f). Dirt shield / dust cover loose damaged or insecure.	MaD
g. Security.	(g). Back plate insecure.	MaD
h. Sufficient contact.	(h). Insufficient contact between brake pad and brake disc or lining and drum.	MaD

1.1.15. BRAKE CABLES, RODS, LEVERS, LINKAGES

Method of testing

1. Visually check the brake cables, rods, levers, linkages which can be seen without dismantling. Check brake rods, clevis joints, linkages, relay levers, pins, pivots or cables for damage, condition and correct adjustment.
2. Check that locking device is effective, secure and present.
3. Check the condition and completeness of brake cables and condition (frayed or seized) of cable guides for chafing.

Notes

- When retesting a vehicle which required the repair or replacement of any brake cables, rods, levers or linkages, the items which failed must be re-tested as per method of testing above, over a pit, and a full brake test must be conducted.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Condition.	(a). A brake rod / lever / cable / linkage / pivot is missing, damaged, cracked, corroded, knotted, seized, obstructed or worn.	MaD
b. Condition (excessive wear).	(b). A brake rod / lever / cable / linkage / pivot is missing, damaged, cracked, corroded, knotted, seized, obstructed or worn that braking performance is affected.	DD
c. Security.	(c). Cable, rod or joint insecure.	MaD
d. Cable guide condition.	(d). Cable guide defective.	MaD
e. Free movement.	(e). Restriction to free movement of the braking system.	MaD
f. Maladjustment.	(f). Abnormal movement of the levers/linkage indicating maladjustment or excessive wear.	MaD
g. Incorrect fitment.	(g). A brake rod / lever / cable / linkage / pivot is incorrectly fitted.	MaD
h. Retaining device presence, security and wear.	(h). A bracket, mounting bolt, split pin or other retaining device is missing, loose or worn.	MaD
i. Repair or modification.	(i). Any obviously unsafe repair or modification.	MaD

1.1.16. BRAKE ACTUATORS (INCLUDING SPRING BRAKES / CALLIPERS / HYDRAULIC CYLINDERS)

Method of testing

1. Visually inspect each brake wheel unit / callipers for security, leaks, corrosion or damage. By applying the brakes check each brake operating unit for leaks and, where possible, operation. Check that all appropriate items e.g. fixing nuts, bolts and split pins are secure and locked.
2. Check Brake actuators (including spring brakes / callipers / hydraulic cylinders) for fluid discharge, dust cover presence and condition (only applicable to hydraulic brake actuators).
3. Check each brake cylinder/actuator are of the same size (where fitted to the same axle). Check for travel of operating pistons/diaphragms and mechanisms.
4. Check for any repair or modification. An unsafe repair or modification carried out to any of the mechanical components of the brake system, may require a modifications report to be presented as per the template in this manual.

Notes

- When retesting a vehicle which required the repair or replacement of any brake actuators (callipers / hydraulic cylinders), the items which failed must be re-tested as per method of testing above, under pressure over a pit, and a full brake test must be conducted.
- The parking brake should be released during this test.
- **Advisory notice applies in the case of a dust cover damaged.**

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Condition, security and adjustment.	(a). An actuator/lever is damaged, cracked insecure, inadequately mounted or is in need of adjustment.	MaD
b. Condition, security and adjustment (brake performance affected).	(b). An actuator/lever is damaged, cracked insecure, inadequately mounted or is in need of adjustment that braking performance is affected.	DD
c. Leaks.	(c). Actuator leaking.	MaD
d. Excessive leaks.	(d). Actuator leaking that braking performance is affected.	DD
e. Operation.	(e). Sluggish in operation/restricted or seized.	MaD
f. Excessive corrosion.	(f). Actuator excessively corroded.	MaD
g. Actuator compatibility.	(g). Different sized actuators fitted to the same axle.	MaD
h. Travel.	(h). Insufficient or excessive travel of operating piston or diaphragm mechanism.	MaD
i. Free movement (brake performance affected).	(i). Braking performance affected (lack of reserve movement).	DD
j. N/A.	(j). N/A.	
k. Dust cover presence and damage.	(k). Dust cover missing or excessively damaged.	MaD
l. Repair or modification.	(l). Any obviously unsafe repair or modification.	MaD
m. Maladjustment.	(m). Abnormal movement of the levers/linkage indicating maladjustment or excessive wear.	MaD
n. S-cams locking over.	(n). Danger of brakes locking. (Vehicles with air brakes: S-cams locking over).	DD

1.1.17. LOAD SENSING VALVE

Method of testing

1. Check that load sensing / brake proportioning valves are not missing, bypassed, linkage sticking, disconnected, damaged, leaking or inoperative and are correctly adjusted.
2. Visually inspect the load sensing / brake proportioning valves while the braking system is applied for signs of leaks.

Notes

- When retesting a vehicle which required the repair or replacement of any load sensing/proportioning valve, the items which failed must be re-tested as per method of testing above, under pressure over a pit, and a full brake test must be conducted.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Condition (linkage).	(a). Defective linkage.	MaD
b. Operation (ABS/EBS functioning).	(b). Seized or inoperative (ABS/EBS functioning).	MaD
c. Operation.	(c). Seized or inoperative.	DD
d. Presence or bypassed.	(d). Missing or bypassed (if required).	DD
e. N/A.	(e). N/A	
f. Security and leaks.	(f). A valve insecurely mounted, leaking or defective.	MaD
g. Condition and adjustment.	(g). The load sensing or brake proportioning valves are damaged, inoperative, obviously incorrectly adjusted or a linkage is sticking.	MaD

1.1.18. SLACK ADJUSTERS AND INDICATORS

Method of testing

1. Check for the presence, condition and operation of slack adjusters. Check for excessive wear, defects correct operation and signs that the adjusting nut torque is obviously not within the manufacturer's specification.
2. Check for the fitment of manual slack adjusters fitted in place of original automatic adjusters.
3. Check for vehicles first registered or trailers first licensed in the State on or after 1st June 2011 that they are fitted with automatic slack adjusters

Notes

- Slack adjusters may be tested by applying a small torque wrench to the adjusting nut and the value obtained compared to the manufacturer's specification.
- Automatic slack adjusters are mandatory on vehicles originally fitted with them. It is not permitted to replace automatic slack adjusters with manual slack adjusters.
- Automatic slack adjusters are mandatory on vehicles registered or trailers first licensed in the State on or after 1st June 2011 (with the exception of trailers specifically designed and constructed to be only towed by an agricultural tractor).

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Condition and operation (adjuster).	(a). Adjuster damaged, seized or having abnormal movement, excessive wear or incorrect adjustment.	MaD
b. Condition (adjuster)	(b). Adjuster defective.	MaD
c. Fitment.	(c). Incorrectly installed or replaced.	MaD
d. Presence and.	(d). Missing, excessively worn, inoperative, defective, seized or having abnormal movement or adjusting nut torque obviously not within the manufacturer's specification.	MaD
e. Presence or bypassed.	(e). Manual slack adjusters fitted in place of original automatic adjusters.	MaD
f. N/A.	(f). Automatic slack adjusters not fitted to a vehicle registered on or after 1st June 2011.	MaD
g. Security and leaks.	(g). Automatic slack adjusters not fitted to trailers first licensed in the State on or after 1st June 2011.	MaD

1.1.19. ENDURANCE BRAKING SYSTEM (WHERE FITTED)

Method of testing

1. Check the security and condition of components / connectors.

Notes

- For testing purposes these do not include engine retarders or integral gearbox retarders, simply those fitted externally that are visible during the inspection.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Security (connectors or mountings).	(a). Insecure connectors or mountings.	MiD
b. Security (connectors or mountings, functionality affected).	(b). Connectors or mountings so insecure that its functionality is affected.	MaD
c. Presence and condition	(c). System obviously defective or missing.	MaD

1.1.20. AUTOMATIC OPERATION OF TRAILER BRAKES

Method of testing

1. With the vehicle combination on hard standing disconnect the suzie brake hoses and then attempt to drive the vehicle forward.

Notes

- In some cases it may be necessary to disconnect the EBS electrical coupling for this check.
- No specific performance requirement is laid down for the automatic breakaway brake.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Operation.	(a). Trailer brake does not apply automatically when coupling disconnected.	DD

1.1.21. COMPLETE BRAKING SYSTEM

Method of testing

1. Visually check other brake system devices (where fitted) e.g. anti-freeze pump, air dryer, etc. for external damage, excessive corrosion or leakage.

- Check for any repair or modification to a braking related component that is not checked under another section of this manual. An unsafe repair or modification carried out to any of the mechanical components of the brake system, may require a modifications report to be presented as per the template in this manual.

Notes

- It is inevitable that due to changes in design, or other reasons, from time to time defects may be found which are not described in any of the reasons for failure in the other sections of this manual. Therefore this section is to be used in cases only where a particular braking related component is not checked under another section of this manual.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Condition.	(a). Other system devices damaged externally or excessively corroded in a way that adversely affects the braking system.	MaD
b. Condition (braking performance is affected).	(b). Other system devices damaged that braking performance is affected.	DD
c. Leaks.	(c). Slight leakage of air or anti-freeze.	MaD
d. Excessive leaks.	(d). Excessive leakage of air that system functionality is affected.	MaD
e. Security.	(e). Any component insecure or inadequately mounted.	MaD
f. Repair or modification.	(f). Unsafe modification to any component.	MaD
g. Repair or modification (braking performance is affected).	(g). Unsafe modification to any component that braking performance is affected.	DD

1.1.22. TEST CONNECTIONS

Method of testing

1. Visually check test connections are not missing, disconnected, damaged, leaking or unusable.
2. Visually inspect the test connections while the braking system is applied for signs of leaks.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Presence.	(a). Missing.	MaD
b. Condition and leaks.	(b). Damaged, unusable or leaking.	MaD

1.1.23. OVER RUN BRAKE

Method of testing

1. Visually check the operation of the over run brake.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Efficiency.	(b). Insufficient efficiency	MaD

1.2. Service Braking Performance & Efficiency (Roller Brake Test)

1.2.1. PERFORMANCE (IMBALANCE) & 1.2.2. EFFICIENCY

Method of testing

If the vehicle is of a type which can be tested on the roller brake tester proceed as follows:

1. Position the vehicle so that the wheels of each axle can in turn be properly placed on the roller brake tester.
2. Drive the vehicle onto the roller brake tester and following the prompts of the brake tester programme apply the service break slowly until the road wheel is just at the point of slip relative to the rollers, or until the service brake is fully applied or until sufficient braking effort is obtained whichever occurs first. Calculate the braking efficiency as per table 1.
3. For semi-trailers with more than 3 axles and where the manufacturer's plate does not include a weight at 80km/hr (or a weight at a speed above this) the sum of the maximum load index of the tyres fitted may be used as the design axle weights for the purpose of a brake test.

Service Brake Imbalance

4. With the roller brake tester driving the wheels of each axle in turn apply the service brake slowly and note the braking effort indicated from the brake on each roadwheel. Record and store the readings.

Notes

- It is not permitted to adjust brakes during a CVR test.
- Ensure that no person or persons are near to the roller brake tester or vehicle propeller shaft while they are in motion. No one should attempt to dry tyres during a roller brake test.
- It is compulsory to record and retain brake test readings and relevant axle weight specifications (if brake test results have been automatically captured by CoVIS, there is no requirement to keep a hard copy of the brake test readings).
- Where it is necessary to obtain a higher reading of the braking effort than is possible with the vehicle as presented, use the axle load simulator. Under no circumstances should an axle be subjected to a total load (i.e. simulated load plus axle loading as presented for test) beyond its design axle weight.
- Generally speaking the total axle load required considerably less than the design axle weight. It is acceptable that vehicle axles are secured using the axle load simulator to "hold" the axle will be in the brake tester during the CVR test.
- In some vehicles with EBS, the front axle may also be controlled by the load sensing valve on the rear axle. In such systems the load sensing valve may be by-passed by switching off the engine. Before switching off the engine ensure that the brake system has full air pressure.
- Where the wheels of an axle lock up or slip out of the rollers during the brake test resulting in the required overall vehicle or trailer braking efficiency not being reached, neither a pass or fail decision can be made. The brake test must continue until either the required efficiency has been reached or, with full air pressure and the brake fully applied, the efficiency cannot be reached. Only then can a pass or fail decision be made.
- Tyres must be correctly inflated and the gear selector should be in the neutral position.
- In the case of vehicle combinations each unit of the combination is considered separately.
- Some difficulty has been experienced in reaching the required brake performance on certain 3 axle tractor units fitted with air suspension when being tested on a roller brake tester. The difficulty arises where the load sensing valve is operated via the air suspension bellows. It is recommended therefore that these vehicle types be presented for test at or near the maximum gross vehicle/train weight.
- Where it is not practical to have the vehicle presented for test laden the load sensing valve may be by- passed following the vehicle manufacturer's instructions. This by-pass operation could be carried out by the CVR Tester when the vehicle arrives at the test center and must be reversed before the vehicle leaves the test area. When carrying out this operation the pressure to the load sensing valve must never be more than that stated on the load sensing valve plate for a vehicle in the fully laden condition. Under no circumstances should the vehicle be driven on the road with the load sensing valve bypassed..

1.2.1. PERFORMANCE (IMBALANCE) & 1.2.2. EFFICIENCY

Notes

- Vehicles having an automatic transmission must never be roller brake tested with the gear selector in the 'P' park position.
- Occasions will arise when the required brake efficiency is just obtained or just exceeded without lock occurring but the tester knows that a higher performance figure is normally obtainable for the type of vehicle being tested. In such cases although the vehicle has passed the brake performance test, the tester should advise the owner that the braking system appears to be in need of adjustment or repair.
- For vehicles with servo assisted or power braking systems, the engine must be running (idling) when the service brake is tested.
- In some cases it may be necessary to chock the road wheels of the vehicle during a roller brake test.
- Some roller brake testers are fitted with a means of checking ovality. For the purpose of the CVR test this should be ignored.
- In view of the tyre to road grip normally available in service it is not considered necessary to aim for maximum service brake performance figures exceeding 60% of the design gross weight of the vehicle being tested.
- Care should be taken to ensure that tyres are free from mud, stones, oil or water and that brake tester rollers are in good condition to ensure that premature wheel slip does not occur.
- Where brake test results have not been automatically captured by CoVIS, it is compulsory to print off the brake test readings and relevant axle weight from the roller brake testing equipment. These print outs shall be scanned and uploaded onto CoVIS and attached to the relevant vehicle test record.
- Where a vehicle does not achieve the minimum service braking efficiency and the owner can supply proof that the vehicle was type approved to a braking efficiency lower than that required at CVT, then an appeal by the owner may be made to the RSA. As well as braking type approval documentation, the RSA will also require the details of the Design Gross Vehicle Weight for the vehicle concerned.
- The maximum pressure to be applied to the foot control of the braking device should not exceed 45kgf (100 lbf) for vehicles with passenger accommodation for up to 14 passengers. For other vehicles the pressure should not exceed 68kgf (150 lbf).
- A CVR tester may refuse to carry out the service brake performance test on a vehicle if in his or her opinion the braking system is in such a condition that it would not be safe to carry out the test.
- A decelerometer test for service brake performance does not apply to trailers or semitrailers.
- Each hub must achieve a brake efficiency of 12.5% of its Design Axle Weight (DAW) or in the case of semi-trailers up to 3 axles, the sum of the axle weights not to be exceeded in Ireland. In the case of a motor caravan 12.5% of its presented axle weight.

1.2. Service Braking Performance & Efficiency (Decelerometer Test)

1.2.1. PERFORMANCE (IMBALANCE) & 1.2.2. EFFICIENCY

Method of testing

2. If the vehicle is of a type that cannot be tested on the roller brake tester it should be subjected to a decelerometer test as follows:
(a). With the vehicle on a reasonably level road, set the decelerometer on the vehicle in line with the manufacturer's instructions.
(b). If a road test is carried out this should be done in traffic free circumstances, have the vehicle driven at a steady speed between 32 – 48 km/h (20 – 30 M.P.H) on level ground. Have the service brake applied firmly and note the reading on the decelerometer. Note whether the vehicle pulls to one side when the brakes are applied and if there is any evidence of brake drum / disc ovality.

Notes

- A decelerometer must not be used to test the brake efficiency on a trailer or semi-trailer.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. N/A.	(a). N/A	
b. Brake wheel effort (no braking effort).	(b). No brake effort on one or more wheels.	DD
c. Brake imbalance.	(c). More than 30% difference is present in brake effort between wheels on the same axle (i.e. the braking effort on one side should not be less than 70% of the brake effort on the other side).	MaD
d. Brake imbalance (steered axles).	(d). Brake effort from any wheel is less than 50% of the maximum effort recorded from the other wheel on the same axle in the case of steered axles.	DD
e. Gradual brake effort.	(e). No gradual variation in brake effort (grabbing).	MaD
f. Brake lag.	(f). The brake shows abnormal lag when released.	MaD
g. Brake fluctuation.	(g). On an individual wheel brake effort fluctuates by more than 30%.	MaD
h. Obvious pull to one side (road test).	(h). Where a road test is carried out, obvious pull to one side is present when brakes are applied.	MaD
i. Perceptible ovality (road test).	(i). Where a road test is carried out, perceptible ovality is present in the service brake.	MaD
j. Progressive operation.	(j). The brake cannot be operated progressively.	MaD

1.2.2. EFFICIENCY

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. N/A	(a). N/A	
b. N/A	(b). N/A	
c. Efficiency (less than required).	(c). The brake effort achieved for the vehicle is less than minimum required.	MaD
d. Efficiency (less than 50% of minimum required).	(d). The brake effort achieved for the vehicle is less than 50% of minimum required.	DD
e. Efficiency (each wheel)	(e). The minimum brake effort (12.5%) for the wheel is not achieved.	MaD

1.2. Service Braking Performance & Efficiency

Table 1

Vehicle	Minimum service brake efficiency (Vehicle)	Method used to calculate efficiency	Minimum Axle Service Brake Efficiency (Per Hub)
All vehicles registered before 1st July, 1964	40%	DGVW of vehicle	12.5% (DAW)
M2, M3			
M2, M3 up to 14 passengers	55%	DGVW of vehicle	12.5% (DAW)
M2, M3 more than 14 passengers	50%	DGVW of vehicle	12.5% (DAW)
N2, N3			
N2, N3 registered from 1st June 2011	50%	DGVW of vehicle	12.5% (DAW)
N2, N3 registered up to 1st June 2011	45%	DGVW of vehicle	
O3 and O4			
Semi-trailers up to 3 axles	45%	sum of axles weights not to be exceeded for Ireland	12.5% of axle weight not to be exceeded for Ireland
Semi-trailers more than 3 axles and Trailers designed and constructed specifically to be towed by land tractors	45%	sum of design axle weights at 90km/hr (or the maximum speed rating by design), whichever is less	12.5% of DAW at 90km/hr or the maximum speed rating by design, whichever is less)
Drawbar trailers registered up to 1st June 2011	45%	DGVW of vehicle	12.5% (DAW)
Drawbar trailers registered from 1st June 2011	50%	DGVW of vehicle	12.5% (DAW)
Others			
Motor caravan (Special Purpose M)	55%	weight presented	12.5% (of Presented Axle Weight)
Ambulance (Special Purpose M) registered on or after 1st June 2011	50%	DGVW of vehicle	12.5% (DAW)
Ambulance (Special Purpose M) registered before 1st June 2011	45%	DGVW of vehicle	12.5% (DAW)

1.3. Secondary (emergency) braking performance and efficiency (if met by separate system)

1.3.1. PERFORMANCE

Only applies where the manufacturer has not designated that the secondary brake is incorporated into the service brake. The secondary brake circuit(s) must be confirmed when the brake results are being reviewed on CoVIS.

Method of testing

Roller Brake Test

1. Normally this test and the service brake test will be carried out concurrently and the same general precautions apply (see "Method of Testing" and "Notes" for Service Brake Performance). It should be ensured that the secondary braking system to be tested is the secondary braking system as defined by the vehicle manufacturer.

Notes

- If the vehicle is fitted with a transmission brake, all wheels on an axle braked by it must be driven by the roller brake tester at the same time.
- On trailers and semi-trailers fitted with ECE or EEC two line braking systems a secondary brake performance test is not required.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Brake wheel effort.	(a). Inadequate brake effort on one or more wheels.	MaD
b. Brake wheel effort (no braking effort).	(b). No brake effort on one or more wheels.	DD
c. Road test (obvious pull).	(c). Where a road test is carried out, obvious pull to one side is present when brakes are applied.	MaD
d. Efficiency (not part of service brake circuit).	(d). More than 30% difference is present in brake effort between wheels on the same axle (i.e. the braking effort on one side should not be less than 70% of the braking effort on the other side).	MaD
e. Gradual brake effort.	(e). No gradual variation in brake effort (grabbing).	MaD
f. Brake imbalance (steered axle).	(f). Brake effort from any wheel is less than 50 % of the maximum effort recorded from the other wheel on the same axle in the case of steered axles.	DD

1.3.2. EFFICIENCY

Only applies where the manufacturer has not designated that the secondary brake is incorporated into the service brake. The secondary brake circuit(s) must be confirmed when the brake results are being reviewed on CoVIS.

Method of testing

Roller Brake Test

1. Normally this test and the service brake test will be carried out concurrently and the same general precautions apply (see "Method of Testing" and "Notes" for Service Brake Performance). It should be ensured that the secondary braking system to be tested is the secondary braking system as defined by the vehicle manufacturer. Minimum Secondary Brake Efficiencies are detailed in table 2 below.

Notes

- If the vehicle is fitted with a transmission brake, all wheels on an axle braked by it must be driven by the roller brake tester at the same time.
- On trailers and semi-trailers fitted with ECE or EEC two line braking systems a secondary brake performance test is not required.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Brake efficiency.	(a). Where the minimum brake effort for the category of vehicle concerned is not achieved when performed using the method specified (see table that follows).	MaD
b. Efficiency (service brake circuit).	(b). Brake effort less than 50 % of the service brake performance.	MaD
c. Efficiency (less than 50% required).	(c). The brake effort achieved for the vehicle is less than 50% of minimum required.	DD
d. Trailer protection valve.	(d). Trailer/Semi-Trailer protection valve not working.	MaD

Table 2

VEHICLE	MINIMUM SECONDARY BRAKE EFFICIENCY	METHOD USED TO CALCULATE EFFICIENCY
All vehicles registered before 1st July, 1964	20%	DGVW of vehicle
M2, M3		
M2, M3 up to 14 passengers	27.5%	DGVW of vehicle
M2, M3 more than 14 passengers	25%	DGVW of vehicle
N2, N3		
N2, N3 registered from 1st June 2011	25%	DGVW of vehicle
N2, N3 registered up to 1st June 2011	22.5%	DGVW of vehicle
O3 and O4 (See Note 2)		
Semi-trailers up to 3 axles	22.5%	sum of axles weights not to be exceeded for Ireland
Semi-trailers more than 3 axles and Trailers designed and constructed specifically to be towed by land tractors	22.5%	sum of design axle weights at 90km/hr (or the maximum speed rating by design), whichever is less
Drawbar trailers registered up to 1st June 2011	22.5%	DGVW of vehicle
Drawbar trailers registered from 1st June 2011	25%	DGVW of vehicle
Others		
Motor caravan (Special Purpose M)	27.5%	weight presented
Ambulance (Special Purpose M) registered on or after 1st June 2011	25%	DGVW of vehicle
Ambulance (Special Purpose M) registered before 1st June 2011	22.5%	DGVW of vehicle

1.4.1. PERFORMANCE (IMBALANCE)

Method of Testing

Roller Brake Test

Normally this test and the service brake test will be carried out concurrently and the same general precautions apply (see “method of testing” and “notes” for service brake performance).

1. With the roller brake tester driving each road wheel in turn apply the parking brake slowly until each road wheel is just at the point of slip relative to the rollers, or until sufficient braking is achieved, whichever occurs first. Note the braking effort indicated from the brake at each road wheel, and calculate the total braking force available. Calculate the braking efficiency as a percentage of the test weight of the vehicle.
2. If the parking brake is a transmission brake, all wheels on the axle braked by it must be driven by the roller brake tester at the same time. It should be remembered that if a transmission brake is fully applied and the wheels of the axle being tested are still turning, then the readings obtained are the maximum that can be attributed to that transmission brake.

Decelerometer Test

3. If the vehicle is of a type which cannot be tested on the roller brake tester, it should be subject to decelerometer test as follows:
4. With the vehicle on a reasonably level road, set the decelerometer on the vehicle in accordance with the instrument manufacturer’s instructions;
5. Have the vehicle driven at a speed of approximately 32kph (20mph). Have the parking brake applied and note the reading on the decelerometer (see note).
6. For both methods above, check whether the vehicle pulls to one side when the brakes are applied.

Notes

- On certain vehicles the parking brake cannot be tested dynamically. Tester should check manufacturer’s recommendations in such cases.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Road test.	(a). Where a road test is carried out, the vehicle deviates excessively from a straight line.	MaD
a. Imbalance Brake performance.	(b). More than 50% difference is present in braking effort between wheels on the same axle.	MaD

1.4.2. EFFICIENCY

Method of Testing

1. With the roller brake tester driving the wheels of each axle in turn apply the parking brake and note the braking effort indicated from the brake at each road wheel.

Notes

- Normally this test and the parking brake performance test will be carried out concurrently and the same general precautions apply. (This test is not relevant to transmission type parking brakes).

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. N/A.	(a). N/A.	
b. Brake performance.	(b). The brake effort achieved for the vehicle is less than 50% of minimum required.	DD
c. Semi-trailer (up to 3 axles).	(c). Semi-trailer with up to 3 axles the brake effort is less than 16% of the total of the axle weights not to be exceeded in Ireland.	MaD
d. Semi-trailer (more than 3 axles).	(d). Semi-trailer with more than 3 axles the brake effort is less than 16% of the total of the sum of the design axle weights at 90km/hr (or the maximum speed rating by design), whichever is less.	MaD
e. All other vehicles.	(e). All other vehicles the brake effort is less than 16% of the design gross weight of the vehicle or trailer.	MaD
f. Semi-trailer (up to 3 axles) (individual wheels efficiency).	(f). Semi-trailer with up to 3 axles – Individual Wheels- the brake effort of any hub fitted with a parking brake is less than 8% of the individual axle weight not to be exceeded in Ireland.	MaD
g. Semi-trailer (more than 3 axles) (individual wheels efficiency).	(g). Semi-trailer with more than 3 axles - Individual Wheels- the brake effort of any hub fitted with a parking brake is less than 8% of the individual design axle weight at 90km/hr (or the maximum speed rating by design), whichever is less.	MaD
h. All other vehicles (individual wheels efficiency).	(h). All other vehicles - Individual Wheels- the brake effort of any hub fitted with a parking brake is less than 8% of the individual design axle weight.	MaD

1.5. ENDURANCE BRAKING SYSTEM PERFORMANCE

Method of Testing

1. Check the component's where visible for condition and security.
2. Check that there is no air leaks.
3. Check that the malfunction indicator does not indicate a fault.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Efficiency	(a). No gradual variation of efficiency (not applicable to exhaust brake systems).	MaD
b. Operation	(b). System not functioning.	MaD

1.6. Anti-lock braking system (ABS)

1.6. ANTI-LOCK BRAKING SYSTEM (ABS)

Method of Testing

1. If the vehicle is fitted with an Anti-Lock Braking System (ABS), check that the relevant warning lamp is fitted, and follows the correct sequence of operation (manufacturer's check sequence must be verified).
2. Visually check wheel speed sensors are not damaged or missing.
3. Check wiring or other components are not damaged or missing.

Notes

- When retesting a vehicle which required the repair or replacement of any ABS component(s) or malfunction indicator, the items which failed must be re-tested as per method of testing above, under pressure over a pit, and a full brake test must be conducted. However,when re-testing a vehicle fitted with a full pneumatic brake system and where the CVR tester is satisfied that no repairs were carried out since the original test that could affect the brake performance, there is no requirement to conduct a full brake test.
- Where the warning light sequence is not as per the light sequence chart but the owner/ presenter states that the operation is correct but different form the normal sequence, then a tester may request verification for the light sequence for that particular vehicle from an authorised dealer or from the vehicle manufacturer.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Malfunction indicator.	(a). Malfunction indicator not working or not following the correct sequence.	MaD
b. Presence and condition (speed sensors).	(b). Wheel speed sensors missing or damaged.	MaD
c. Condition (wiring).	(c). Wiring damaged.	MaD
d. Presence and condition (other components).	(d). Other components missing or damaged.	MaD
e. Presence (where mandatory).	(e). Not fitted where mandatory.	MaD
f. Removal / tampering.	(f). Removed or disabled.	MaD
g. Malfunction indicator (vehicle interface).	(g). System indicates failure via the electronic vehicle interface.	MaD

1.7. Electronic Brake System (EBS)

1.7. ELECTRONIC BRAKE SYSTEM (EBS)

Method of Testing

1. Check that the EBS malfunction indicator follows the correct sequence of operation or does not indicates a defect in the system (manufacturer's check sequence must be verified).
2. Visually check wheel speed sensors are not damaged or missing.
3. Check wiring or other components are not damaged or missing.

Notes

- When retesting a vehicle which required the repair or replacement of any EBS component(s) or malfunction indicator, the items which failed must be re-tested as per method of testing above, under pressure over a pit, and a full brake test must be conducted. However,when re-testing a vehicle fitted with a full pneumatic brake system and where the CVR tester is satisfied that no repairs were carried out since the original test that could affect the brake performance, there is no requirement to conduct a full brake test.
- Where the warning light sequence is not as per the light sequence chart but the owner/ presenter states that the operation is correct but different form the normal sequence, then a tester may request verification for the light sequence for that particular vehicle from an authorised dealer or from the vehicle manufacturer.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Malfunction indicator.	(a). Malfunction indicator not working or not following the correct sequence.	MaD
b. Presence and condition (speed sensors).	(b). Wheel speed sensors missing or damaged.	MaD
c. Condition (wiring).	(c). Wiring damaged.	MaD
d. Presence and condition (other components).	(d). Other components missing or damaged.	MaD
e. Presence (where mandatory).	(e). Not fitted where mandatory.	MaD
f. Removal / tampering.	(f). Removed or disabled.	MaD
g. Malfunction indicator (vehicle interface).	(g). System indicates failure via the electronic vehicle interface.	MaD

Vehicles and trailers on which ABS/EBS are mandatory:

TYPE OF VEHICLE	APPLICABLE DATES	TYPE OF BRAKING SYSTEM
An "appropriate motor vehicle"	All	ABS/EBS
A vehicle plated for 44 tonne GCW	All	ABS/EBS
A tractor unit or rigid truck plated for 46 tonne GCW	All	EBS
All motor vehicles with a DGVW greater than 3.5 tonnes	First registered on or after 1st June 2011.	ABS/EBS
All trailers with a DGVW greater than 3.5 tonnes	First licensed in the State on or after 1st June 2011.	ABS/EBS

1.8. Brake Fluid

1.8. BRAKE FLUID		
Method of Testing 1. Visually check the brake fluid reservoir for security and condition of fluid. **Notes** • If the brake fluid cannot be easily seen without removing the reservoir cap, then the cap must be removed for inspection.		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for:		
a. Contamination.	(a). Brake fluid contaminated or sedimented.	MaD
b. Excessive contamination.	(b). Brake fluid is excessively contaminated that there is imminent risk of failure.	DD
c. Security (reservoir).	(c). Brake fluid reservoir mounting unsatisfactory.	MaD

2. STEERING

CONTENTS

2. Steering

2.1. Mechanical Condition

2.1.1. STEERING GEAR CONDITION (RACK AND PINION, STEERING BOX)

Method of testing

1. Position the vehicle over the pit and place each steered axle in turn on the wheel play detector plates. With the brakes applied operate the plates, check the steering mechanism from the point it is secured to the chassis, to the point where the steering arms are secured to their fixings. For vehicles fitted with power steering it may be necessary to have the engine running.
2. Check for roughness or stiffness in the steering gear operation.
3. Check steering rack gaiter condition and security and check for any leaks in the system.
4. Check if there has been any obvious repair or modification carried out to any steering components. An unsafe repair or modification carried out to steering components may require a modifications report to be presented as per the template in this manual.

Notes

- Expand steering rack gaiters for proper examination.
- All steered wheels must be checked.
- Certain vehicles have a built-in play in the steering rack mounting bushes and this should be taken into consideration.
- **Advisory notice applies in the case of a slight oil weep**

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation.	(a). Roughness or stiffness in operation of gears or bearings/bushings.	MaD
b. Condition.	(b). Sector shaft twisted or splines worn or damaged.	MaD
c. Condition (function affected).	(c). Sector shaft twisted or splines so worn or damaged that functionality is affected.	DD
d. Excessive wear (shaft).	(d). Excessive wear or movement in sector shaft.	MaD
e. Excessive wear (function affected).	(e). Excessive wear or movement in sector shaft that functionality is affected.	DD
f. N/A.	(f). N/A.	
g. Continuous oil leaks.	(g). Continuous oil leak is present from steering box/rack/ or steering damper.	DD
h. Condition and security (linkage).	(h). A linkage is damaged or insecure.	MaD
i. Oil leaks.	(i). Obvious oil leak.	MaD
j. Excessive wear (bushes).	(j). Bushes/bearings are excessively worn.	MaD
k. End float.	(k). Excessive end float is present in pinion.	MaD
l. Steering gaiter.	(l). Steering rack gaiter is insecure, split or missing.	MaD
m. Condition and security (steering system).	(m). Steering system damaged, insecure or excessively worn.	DD
n. Repairs by welding.	(n). Any steering component has been repaired by welding (other than by the manufacturer).	MaD

2.1.2. STEERING GEAR CASING ATTACHMENT

Method of testing

1. Position the vehicle over the pit and place each steered axle in turn on the wheel play detector plates. With the brakes applied operate the plates and check, Check the steering gear casing attachment bolts. Visually check for relative movement between casing and chassis/bodywork.
2. Check the steering gear casing attachment bolts.
3. Check the security of any part fixed to the vehicle structure, e.g. steering box, rack housing or intermediate drop arm pivot housing and check for cracks or corrosion around attachment points.

Notes

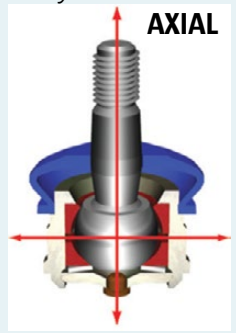
- It may be necessary to open the engine compartment to examine certain steering components on some vehicles (e.g. steering rack mounted on upper part of the bulkhead etc.).

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Attachment.	(a). Steering gear casing not properly attached.	MaD
b. Attachment (function affected).	(b). Steering attachments dangerously loose or relative movement to chassis/bodywork visible.	DD
c. Condition of fixings.	(c). Elongated fixing holes in chassis.	MaD
d. Presence of fixings.	(d). A mounting bolt for steering housing is missing, loose or fractured.	MaD
e. Attachment.	(e). Steering attachments seriously affected.	DD
f. Steering gear condition.	(f). Steering gear casing/housing is fractured/damaged or worn.	MaD
g. Steering gear condition (function affected).	(g). Steering gear casing/housing is fractured/damaged or worn that directional stability is impaired, functionality affected, insufficient clearance to other vehicle parts.	DD
h. Corrosion.	(h). Cracks or corrosion are present around attachment points for steering box, rack or idler box.	MaD
i. Security and condition.	(i). Any mounting obviously loose, damaged or deteriorated.	MaD
j. Play.	(j). Axial or radial play is present in the linkage, splines are worn or a shaft is twisted.	MaD

2.1.3. STEERING LINKAGE CONDITION (IDLER ASSEMBLY, TRACK ROD/STEERING ARM)

Method of testing

1. Position the vehicle over the pit with each steered axle in turn aligned over the wheel play detector plates. Certain vehicles will have to be jacked slightly and/or the brake applied in order to examine the steering linkage properly. Using the wheel play detector plates, examine the steering mechanism from the point it is secured to the chassis, to the point where the steering arms are secured to their fixings. During this inspection check for excessive wear at joints, drop arm, drag link, track rods and track rod ends. Check components for security, fracture and damage. Check condition of rubber gaiters and dust covers.
2. With the engine running and wheels on the ground visually check for axial and lateral movement of all ball joints while the steering is rotated from left to right (approximately one turn of the steering wheel). Where a ball joint is fitted with a spring to take up such movement, the compression of the spring must not be mistaken for excessive wear. Where lateral movement is evident in the ball joint it must be confirmed that axial movement in excess of 2mm exists before a reason for failure is justified.



With steered wheels off the ground (using the vehicle manufacturer's recommended jacking points):

3. Grasp each steered wheel at 3 o'clock and 9 o'clock, and shake vigorously to determine the condition of the outer ball joints and track control arm inner bushes.
4. Check if there has been any obvious repair or modification carried out to any steering components. An unsafe repair or modification carried out to steering components may require a modifications report to be presented as per the template in this manual.

Notes

- Relative movement due to excessive wear must be distinguished from relative movement due to built-in clearance or spring loading of a joint.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Security of components.	(a). Relative movement between components which should be fixed.	MaD
b. Security of components (failure imminent).	(b). Excessive movement or components are likely to become detached.	DD
c. Joint wear.	(c). Joint worn beyond manufacturer's limit.	MaD
d. Joint wear (failure imminent).	(d). Joint so excessively worn and likely to become detached.	DD
e. Condition and security (drag link/drop arm).	(e). A drop arm/drag link is damaged or insecure.	MaD
f. Condition and security (drag/track rod ends).	(f). A drag link or the track rod ends are obviously worn or insecure (inner and outer).	MaD
g. Condition of gaiters/ dust covers.	(g). Dust covers/gaiter split, damaged, missing or severely deteriorated/displaced.	MaD
h. Security (idler assembly).	(h). Idler assembly mounting is obviously loose, or axial or radial play is present in the assembly.	MaD
i. All components.	(i). Fractures or deformation of any component.	MaD
j. All components (safety affected).	(j). Fractures or deformation of any component that function is affected.	DD
k. Track rod and steering arm damage.	(k). Track rod/steering arm is obviously deformed, loose or cracked.	MaD
l. Retaining devices.	(l). A retaining or locking device (split pin, nut, rivet, weld, etc.) is missing, insecure, worn or broken.	MaD
m. Component alignment.	(m). Misalignment of components (e.g. track rod or drag link).	MaD
n. Repair or modifications.	(n). Any obviously unsafe repair or modification to any steering component.	MaD
o. Repair or modification (safety affected).	(o). Any steering modification affecting steering function.	DD
p. N/A.	(p). N/A	
q. N/A	(q). N/A	
r. Wear.	(r). Any component obviously worn beyond manufacturer's limit.	MaD

2.1.4. STEERING LINKAGE OPERATION

Method of testing

1. With steered wheels off the ground check for fouling of wheels, tyres and components of the steering linkage with any part of the vehicle by rotating the steering wheel through its full working range checking for fouling, presence, security and correct adjustment of lock stops if fitted.
2. Check for play in steering linkage, twisted or worn shafts.
3. Check for welding of steering linkages other than by the manufacturer.

Notes

- A missing steering lock stop should only be failed where it is known to have been fitted as standard.
- Many modern vehicles are fitted with electro hydraulic steering systems, if the wheels are rotated through their full working range without the engine running this may lead to cavitation of the system.
- Welding of steering parts other than by a manufacturer is not acceptable.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Fouling.	(a). Moving steering linkage fouling a fixed part of the chassis.	MaD
b. Operation and presence (steering stops).	(b). Steering stops not operating or missing.	MaD
c. Repairs by welding.	(c). Any steering component has been repaired by welding (other than by the manufacturer).	MaD
d. Steering operation.	(d). Steering overlocking / underlocking or fouling any other component on the vehicle.	MaD
e. Play.	(e). Axial or radial play is present in the linkage, splines are worn or a shaft is twisted.	MaD

2.1.5. POWER STEERING

Method of testing

1. Check that the power steering is operating with the steered on the ground and with the engine running, turn the steering wheel in both directions.
2. Position the vehicle over the pit with the steered axle aligned. Check fluid level and for leaks in the power steering system and fouling of fluid pipes.
3. Check for corrosion and security/damage of power steering.
4. Check for any repairs or modifications. An unsafe repair or modification carried out to steering components may require a modifications report to be presented as per the template in this manual.

Notes

- Many modern vehicles are fitted with electro hydraulic steering systems, if the wheels are rotated through their full working range without the engine running this may lead to cavitation of the system.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Intermittent operation.	(a). Power assistance is not available consistently smooth over full lock to lock range.	MaD
b. Operation.	(b). Power assistance is not operating, is disconnected or is missing where power steering is a standard fitment by the manufacturer on all vehicles of the type (make and model) of vehicle being tested.	MaD
c. Fluid level.	(c). Power steering fluid level is below minimum level.	MaD
d. Leaks.	(d). Leaks are present in power steering system.	MaD
e. Fouling of pipes.	(e). A power steering fluid pipe is fouling other components.	MaD
f. Fluid pipe condition.	(f). Fluid pipes/hoses or cables damaged, excessively corroded.	MaD
g. Fluid pipe condition (steering affected).	(g). Fluid pipes/hoses or cables so damaged that steering is affected.	DD
h. Security of components.	(h). Any power steering component not working, worn, fractured or insecure.	MaD
i. Security of components (steering affected).	(i). Any power steering component not working, fractured or insecure that steering is affected.	DD
j. Steering fouling.	(j). Steering is over or under locking or is fouling any other component on the vehicle.	MaD
k. Steering pump condition.	(k). Power steering pump is worn, noisy, leaking or has a defective drive.	MaD
l. Modifications.	(l). Unsafe modification to any component.	MaD
m. Modifications (steering affected).	(m). Unsafe modification to any component that steering is affected.	DD
n. Ram condition.	(n). Ram anchorage / bushes / assembly worn, distorted, leaking, misaligned or damaged.	MaD
o. Ram condition (steering affected).	(o). Ram anchorage / bushes / assembly worn, distorted, leaking, misaligned or damaged such that steering is affected.	DD

2.2. Steering Wheel & Column

2.2.1. STEERING WHEEL

Method of testing

1. Check the strength and condition (including any modifications) of the steering wheel by applying reasonable force.
2. Push the steering wheel rim in various directions at right angles to the column, while applying light pressure downward and upward.

Notes

- Cracks or incompleteness of the covering skin of a steering wheel or hub are not a reason for failure.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Attachment.	(a). Relative movement between steering wheel and column indicating looseness.	MaD
b. Attachment (failure imminent).	(b). Excessive movement in the steering wheel that there is a very serious risk of becoming detached.	DD
c. Condition.	(c). Fracture or looseness of steering wheel hub, rim or spokes or absence of retaining device.	MaD
d. Condition (failure imminent).	(d). Fracture or looseness of steering wheel hub, rim or spokes or absence of retaining device that there is a very serious risk of becoming detached.	DD

2.2.2. STEERING COLUMN

Method of testing

Before carrying out this inspection, make sure that any mechanism for adjusting the steering column is fully locked.

1. Rock the steering wheel from side to side and note any relative movement between the steering column and wheel. Apply slight downward and upward pressure to the rim of the steering wheel with both hands and note the condition of the steering wheel hub and rim.
2. Attempt to lift the steering wheel in line with the steering column and note any movement at the centre of the steering wheel or of the steering column.
3. Push steering wheel away and pull it towards the body, and note the movement of the steering column radially and its security of mounting.
4. Check the universal joints/flexible couplings for wear security or deterioration.
5. Check the presence and security of retaining and locking devices.
6. Check if there has been any repairs or modification carried out to the steering wheel/column/shaft or to the universal joint/clamp. An unsafe repair or modification carried out to the steering wheel/column/shaft or to the universal joint/clamp may require a modifications report to be presented as per the template in this manual.

Notes

- Where a steering mechanism is fitted with flexible couplings care must be taken to distinguish between play due to wear, and apparent play due to the construction of the mechanism.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Excessive movement (steering wheel).	(a). Excessive movement of centre of steering wheel up or down.	MaD
b. Excessive movement (column).	(b). Excessive movement of top of column radially from axis of column.	MaD
c. Security.	(c). Steering wheel / column / shaft has excessive end float, is insecure or broken.	MaD
d. Mounting brackets security.	(d). Any bush / bearings / mounting brackets for steering wheel / column / shaft is missing, worn, damaged or insecure.	MaD
e. Joints and couplings.	(e). Any universal joint / clamp/ flexible coupling damaged, worn, insecure or badly deteriorated.	MaD
f. Joints and couplings (failure imminent).	(f). Any universal joint / clamp/ flexible coupling damaged, worn, insecure or badly deteriorated that failure is imminent	DD
g. Shear pin.	(g). Shear pin in telescopic column is broken.	MaD
h. Locking device.	(h). Any retaining or locking device is missing or insecure.	MaD
i. Attachment.	(i). Steering wheel/column attachment is defective.	MaD
j. Attachment (failure imminent).	(j). Steering wheel/column attachment is so defective that there is very serious risk of detachment.	DD
k. Repairs and modifications.	(k). Unsafe repair or modification.	DD

2.3. Steering play

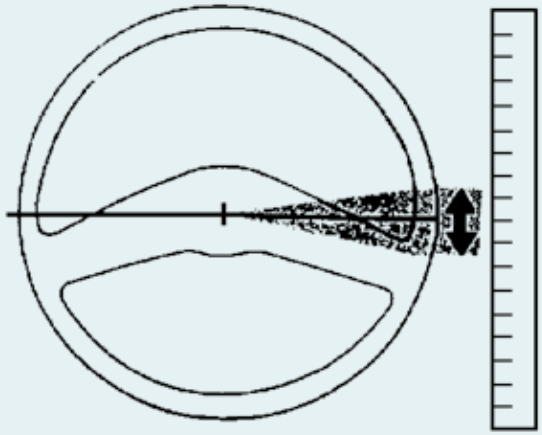
2.3. STEERING PLAY

Method of testing

1. With the road wheels on the ground and in the straight-ahead position, turn steering wheel until movement can be detected at the front road wheels. Align a reference mark on steering wheel with a mark on a ruler and slowly turn steering wheel in the opposite direction until movement can be detected at the front road wheel. Measure play at steering wheel. (Special play-checking instruments are also available, measuring free play in mm or degrees. Such instruments should always be mounted and used according to the manufacturer's instructions).

Notes

- Excessive rotational play (measured at the outer rim of the steering wheel):
  - Steering Box
    - 20° on 15" (381mm) diameter steering wheel = 69mm on rim
    - 20° on 18" (457mm) diameter steering wheel = 83mm on rim
    - 20° on 21" (533mm) diameter steering wheel = 97mm on rim
    - 20° on 24" (610mm) diameter steering wheel = 111mm on rim
  - Rack and Pinion
    - 5° on 15" (381mm) diameter steering wheel = 17mm on rim
    - 5° on 18" (457mm) diameter steering wheel = 20mm on rim
    - 5° on 21" (533mm) diameter steering wheel = 23mm on rim
    - 5° on 24" (610mm) diameter steering wheel = 27mm on rim



CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Excessive play (steering affected).	(a). Free play in steering is so excessive that safe steering is affected.	DD
b. Excessive play (steering box).	(b). Excessive rotational play (20° or more) is present in the steering box.	MaD
c. Excessive play (rack and pinion).	(c). Excessive rotational play (5° or more) is present in the rack and pinion.	MaD

2.4. Wheel Alignment

2.4. WHEEL ALIGNMENT		
Method of testing 1. Drive a wheel of each steered axle slowly and straight over the side slip plate without moving the steering wheel or applying the brakes. **Notes** • It is compulsory to record and retain side slip results (if side slip test results have been automatically captured by CoVIS, there is no requirement to keep a hard copy of the side slip results). • When explaining a reason for failure (in this section) to the vehicle owner/ presenter, side slip may be referred to as steering geometry. • Where a vehicle is refused a pass statement in relation to steering or suspension components, then it must have a steering alignment test (side slip) carried out on retest, (this does not apply to most anti-roll bar bushings or drop links). • **Advisory notice applies where the wheel alignment is between +/-7m/km to +/-14 m/km.**		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for: a. Alignment.	(a). Front wheel alignment is more than +/-14m/km.	MaD

2.5. TRAILER STEERED AXLE TURNTABLE

Method of testing

1. The turntable on a drawbar trailer should be examined for wear or fouling between the upper and lower flanges. Check the joints, components and attachments for security and condition.
2. Using the manufacturer's recommended jacking points, take the weight of the trailer off the turntable and note any excessive play.

Notes

- Certain vehicles have a built-in play in the steering rack mounting bushes and this should be taken into consideration.
- In the absence of manufacturer's wear limits wear should be considered excessive on a turntable when the upper flange is resting on the lower flange or when the lateral movement is more than 5mm.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition.	(a). Component slightly damaged.	MaD
b. Condition (excessive wear).	(b). Component heavily damaged or cracked.	DD
c. Play.	(c). Excessive play.	MaD
d. Condition (stability impaired).	(d). Straight on driving affected; directional stability impaired.	DD
e. Attachment.	(e). Attachment defective.	MaD
f. Attachment (detachment likely).	(f). Attachment seriously affected.	DD
g. Condition and fouling.	(g). Any cracks, excessive wear, damage or fouling.	MaD

2.6. Electronic Power Steering (If fitted)

2.6. ELECTRONIC POWER STEERING (IF FITTED)

Method of testing

1. Check that the steered wheels are pointing straight ahead with the steering wheel in the straight ahead position and/or using the electronic vehicle interface.
2. Check that the electronic power steering is operating, by turning the steering wheel from lock to lock with the engine running and the road wheels on the ground.
3. Check the malfunction indicators for the Electronic Power Steering (EPS), Manufacturer's check sequence must be verified.

Notes

- Manually switched Electronic Park Assist designed to be activated when parking the vehicle is not a reason for failure if the power assistance is inoperative provided the function of the steering is not adversely affected. It may be necessary to verify this by road testing.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. EPS malfunction indicator sequence.	(a). EPS malfunction indicator lamp (MIL) indicates any kind of failure of the system.	MaD
b. Steering wheel angle with road wheels in a straight line position.	(b). Inconsistency between the angle of the steering wheel and the angle of the wheels.	MaD
c. Steering wheel angle with road wheels in a straight line position (function impaired).	(c). The angle of the steering wheel in relation to the road wheels is so misaligned that the steering is affected.	DD
d. Power assistance.	(d). Power assistance not working.	MaD
e. Malfunction indicators.	(e). System indicates failure via the electronic vehicle interface.	MaD

3. VISIBILITY

CONTENTS

3. VISIBILITY

3.1. Field of Vision

3.1. FIELD OF VISION

Method of testing

1. Check that there is an adequate view from the driving seat and that it is not interfered with by objects or stickers.

Notes

- Official stickers such as tax, insurance and CVRT discs are not considered a reason for failure provided they do not seriously restrict the driver's view.
- A sun visor fitted to the driver's side, which cannot be stowed in the 'off screen' position and which drops down obstructing the view of the road through the swept area of the windscreen may be considered a reason for failure.
- Wiper blades that automatically park in a position that obscures the view through the windscreen may be considered a reason for failure.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for: a. Obstruction, objects or stickers (outside cleaning area of windscreen wipers). b. Obstruction, objects or stickers (inside cleaning area of windscreen wipers).	(a). Obstruction, objects or stickers within driver's field of view that materially affects driver's view in front or to the sides (outside cleaning area of windscreen wipers). (b). Obstruction, objects or stickers within driver's field of view that materially affects driver's view in front or to the sides, inside the cleaning area of windscreen wipers affected or outer mirrors not visible.	MiD MaD

3.2. Condition of Glass

3.2. CONDITION OF GLASS

Method of testing

1. Check the presence, condition and security of the windscreen, all side and rear windows, and roof glazing.
2. Check that the windscreen is not damaged or discoloured beyond acceptable limits (page below).
3. Check that where the windscreen and all other glazing is made of glass it is marked as safety glass, e/E-marked or to an automotive standard as per Table 1.
4. Check that in the case of vehicles first registered on or after 1st January, 1986 the windscreen is made of laminated safety glass and marked as shown or to an equivalent standard as shown in Table 1 below.
5. Check that the driver's and front passenger's window operating mechanisms are functioning properly.

Notes

- If the glazing presented is not marked or is marked to a standard not listed below, it is the responsibility of the owner/presenter to provide documentary evidence that the glazing material is not likely, if fractured, to produce fragments capable of causing severe cuts.
- If a tester deems that the windscreen or front side windows are excessively tinted, the level of light transmission of the window should be tested using a calibrated light meter capable of measuring the amount of light transmitted through the windscreen and the side windows forward of the B pillar to an accuracy of ± 3%.
- Windscreen repairs are acceptable provided they do not effect the driver's view.
- It is the responsibility of the owner/presenter to provide proof of standards equivalency if a vehicle is presented with glass marked to another standard other than one shown in Table 1 on page.
- A vehicle with an emergency windscreen fitted, should fail under Reason for Failure 3.2(e).
- Reason for failure 3.2(e) applies to side and rear glass in respect of vehicles first registered on or after 1st July 1964.
- Official stickers are permitted to encroach into zone B. These will be considered a reason for failure only where they seriously restrict the drivers view to the front or the sides.
- Light scratching which does not obscure the driver's view should be ignored. However, an area of concentrated scratching such as caused by the prolonged use of a defective wiper blade which obscures vision should be considered a reason for failure.
- Where the vehicle has been fitted with double glazed windows, both inner and outer panels must be intact.
- Zone C includes "Opaque Obscuration" (any area of the glazing preventing light transmission, including any screen-printed area, whether solid or dot-printed, but excluding any shade band).

3.2. CONDITION OF GLASS

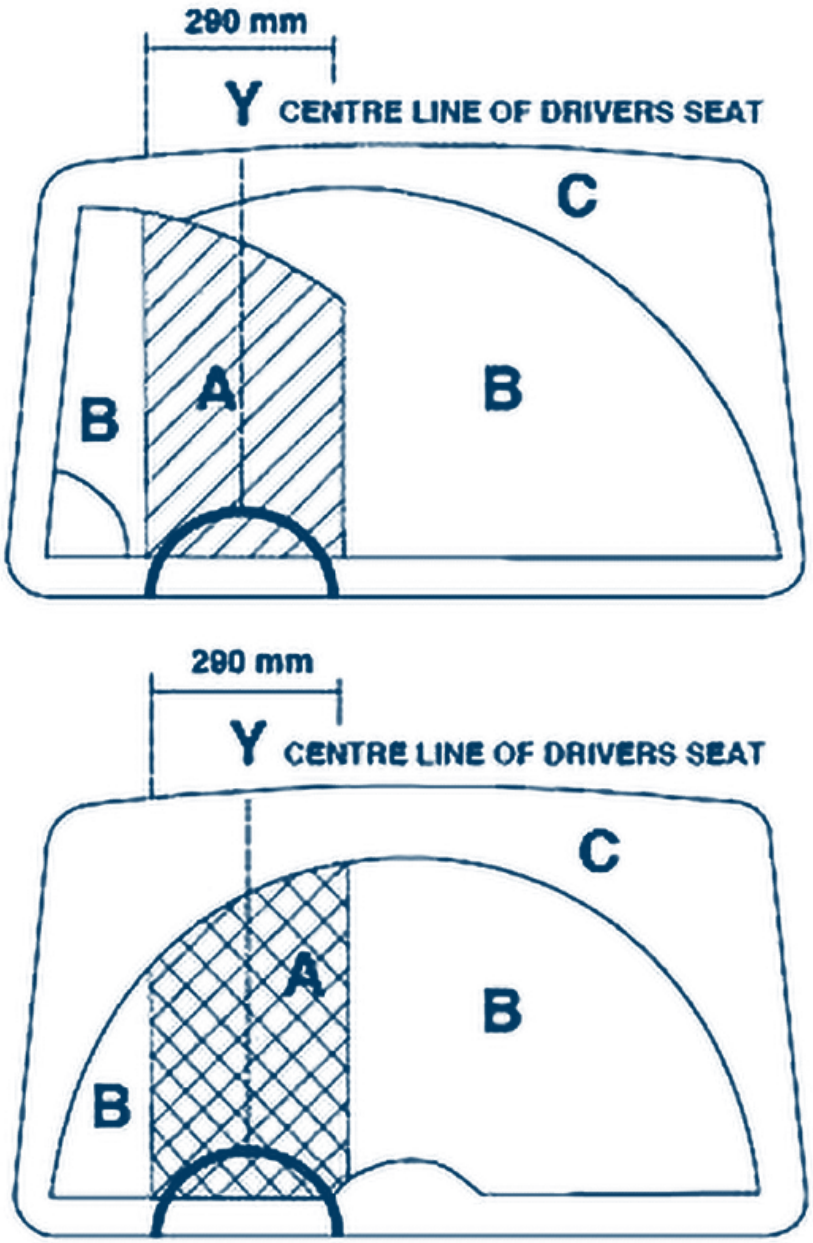
CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Presence and security of windscreen.	(a). Windscreen missing or insecure.	MaD
b. Visibility through windscreen.	(b). Visibility through inside cleaning area of windscreen wipers heavily affected.	DD
c. Windscreen damage / discolouration (outside cleaning area of windscreen wipers).	(c). Windscreen is damaged or discoloured beyond acceptable limits (outside cleaning area of windscreen wipers).	MaD
d. Windscreen damage / discolouration (inside cleaning area of windscreen wipers).	(d). Windscreen is damaged or discoloured beyond acceptable limits (inside cleaning area) of windscreen wipers affected or outer mirrors not visible.	MaD
e. Automotive safety glass (windscreen).	(e). Windscreen, side or rear glass is not marked as automotive safety glass.	MaD
f. Windscreen laminated / marked to equivalent standard.	(f). In vehicle registered on or after 1 January 1986 windscreen is not marked as laminated or marked to an equivalent certified standard (see notes).	MaD
g. Security (side and rear windows)	(g). Side or rear windows insecure.	MaD
h. Operation of opening mechanism (driver's window).	(h). Opening mechanism of driver's window not operating.	MiD
i. Non glass windows (side, rear, roof glazing).	(i). Non-glass side, rear windows and roof glazing (skylights) made of material that, if fractured is likely to produce fragments capable of causing severe cuts to a person.	MiD
j. Side / rear window damage (driver's view obstructed).	(j). Side or rear window so damaged that it obstructs the driver's view.	MaD
k. Light transmission.	(k). Glass in windscreen and front side windows has a light transmission level of less than 65%.	MaD
l. Operation of opening mechanism (front passenger's window).	(l). Opening mechanism of front passenger's window not operating.	MiD

3.2. Condition of Glass

Table 1: Acceptable safety glass standards

COUNTRY	SAFETY GLASS STANDARD
Australia:	AS/NZS 2080 AS/NZS 2080T
Canada:	CMVSS 205 (C2)
India:	IS2553 (Part 2) 1992 (Note 11)
Japan:	11-4-21 (window glass) JISR 3211
South Africa:	SABS 1191 / SABS 1193
UK:	BS AU I78 / BS 85 7-2 / BS 5282
USA:	FMVSS 205 (U) ANSI/SAE Z26.1-1996 (Section 7)
Germany:	A three-period sine wave followed by the letter D. This is an older German type approval for automotive glazing. (See image below).  Glazing marked Birkholz, Seitz, Roxite, Para Press or Bonoplex. Glazing marked PMMA (polymethylmethylacrylate) or PC (polycarbonate).

3.2. Condition of Glass



ACCEPTABLE LIMITS

- **ZONE A:** Damage that can be contained within a 10mm diameter circle (maximum of two defects provided they are more than 100mm apart).
- **ZONE B:** Damage that can be contained within a 20mm diameter circle or hairline cracks up to 30mm long (maximum of two defects provided they are more than 100mm apart).
- **ZONE C:** Damage is acceptable other than where it affects view to the front or damage which exposes the inner layer of a laminated screen, renders the screen insecure or interferes with any ADAS sensor/camera.

3.2. Condition of Glass

COUNTRY IN WHICH MARK ISSUES	APPROVED STANDARD MARKS
Any country which has subscribed to the Agreement of the United Nations Economic Commission for Europe concerning the adopting of uniform conditions of approval and reciprocal recognition of approval for motor vehicle equipment and parts. Done at Geneva on 20th March, 1958.	II E4* 43R-** * This number varies and relates to the country which issued the approval. ** In association with the standard mark a serial number assigned by the issuing country is shown in this position. **NOTE** • The absence of II or III above or beside the approved standard mark indicates that the glass is not laminated.
United Kingdom	 B.S. 857-2 or B.S. 5282 or B.S.AU 178 **NOTE** • The B.S. must be accompanied by the word laminated or the letter L.WL or WLT. The absence of these will indicate that the glass is not laminated.

Ordinary laminated glass windscreen	II e2*	001241 **
Ordinary laminated glass coated	II/P e2*	001242 **
Treated laminated glass windscreen	III e2*	001243 **
Glass-plastic windscreen	IV e1*	001244 **

* This number varies and relates to the country which issued the approval.

** In association with the standard mark a serial number assigned by the issuing country is shown in this position.

3.3. Rear-view Mirrors or Devices

3.3. REAR-VIEW MIRRORS OR DEVICES

Method of testing

1. Check the number and position of the mirrors or device(s) which afford the driver a view to the rear.
2. Check the condition of each mirror to see that the reflecting surface is not deteriorated or broken so as to impair the driver's view.
3. Check the security and condition of each mirror or device(s) mounting bracket.

A class VI mirror must be fitted to all N2 & N3 vehicles over 7.5 tonnes DGVW, regardless of year of registration:

4. Check that at least 95% of the field of vision in the designated check area in front of the vehicle as shown in Figure 2 below can be seen either by means of a Class VI mirror or mirrors, or by using other means of indirect vision (or by a combination of the two).

For N2 & N3 category vehicles with a DGVW exceeding 7,500kg and registered after 1st January 2000 the following additional tests will apply.

5. Where required check that a Class IV and a Class V mirror is fitted as per 6 & 7 below.
6. Check the required field of view of this mirror is as shown in Figure 1 by ensuring that the hatched area is visible from the driver's seat. The line A-B must be in line with the driver's "eye-line" to ensure a compliant field of view. The field of vision of the close proximity (Class V) mirror must be physically checked using the painted area on the test centre floor and NOT using the RSA approved mirror checking tool.
7. Check that the radius of curvature of the wide angle (Class IV) mirror is not less than 300mm but is less than 400mm using the RSA approved mirror checking tool.

Notes

- Vehicles of category N2 with a DGVW exceeding 3,500kg and not exceeding 7,500kg are not required to be fitted either a wide angle (Class IV) or a close proximity (Class V) mirror.
- For vehicles first registered on or after 26th January 2010, there must be two external mirrors (Class III), one each on the driver's side and passenger's side respectively of the vehicle. There should also be one internal (Class I) mirror unless an internal mirror would not provide the required rearward vision.
- The test should only be applied to the rear view mirrors required.
- Indirect vision devices (cameras) may replace mirrors on some vehicles, with the view through to the rear displayed on a screen in the driver's cabin.
- There are three acceptable positions for rear view device(s): an exterior device that provides a view along the offside of the vehicle, an exterior device that provides a view along the nearside of the vehicle, a device which provides a view to the rear of the vehicle.
- Class VI mirrors are not required where the vehicle owner can provide evidence that a supplementary device has been fitted which meets with the indirect vision requirements of Directive 2003/97/EC
- If no Close Proximity mirror is fitted but the hatched area in Figure 1 can be seen through a combination of Mirrors and/or other devices for indirect vision, a Class V mirror is not required.
- For vehicles first registered since 1st January 2000 if there is no close proximity (Class V) mirror fitted but the hatched area in Figure 1 can be seen through a combination of the Front and Wide Angle mirrors or other supplementary devices for indirect vision then there is no need for a close proximity (Class V) mirror to be fitted.
- Class IV and V mirrors are not required where the vehicle owner can provide evidence that a supplementary device has been fitted which meets with the indirect vision requirements of Directive 2007/38/EC.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Presence.	(a). Mirror or device missing or not fitted (at least two rear-view devices available).	MaD
b. Condition, operation and security.	(b). Mirror or device inoperative, heavily damaged, loose or insecure.	MaD
c. Condition of reflecting surface.	(c). Mirror reflecting surface deteriorated or broken so as to impair the driver's view.	MaD
d. N/A	(d). N/A	
e. Suitable location / risk of injury.	(e). Unsuitably placed or so designed that it may cause undue injury in accidents.	MaD
f. Mirror adjustable.	(f). Mirror not adjustable.	MiD
g. External right hand mirror.	(g). Vehicles not equipped with two rear view mirrors or one of the mirrors not fitted externally on the right hand side.	MaD
h. Class VI (N2 and N3 vehicles).	(h). N2 and N3 vehicles with a DGVW exceeding 7,500kg: Class VI mirror not fitted.	MaD
i. Class VI (field of vision).	(i). N2 and N3 vehicles with a DGVW exceeding 7,500kg: At least 95% of the field of vision in front of the vehicle as shown in Figure 2 cannot be seen by means of a Class VI mirror (or mirrors).	MaD
j. Class IV (N2 and N3 vehicles).	(j). N2 and N3 vehicles with a DGVW exceeding 7,500kg registered after 1st Jan 2000: Class IV (wide angle) mirror not fitted.	MaD
k. Class IV (dimensions).	(k). N2 and N3 vehicles with a DGVW exceeding 7,500kg registered after 1st Jan 2000: An incorrect radius of curvature of the wide angle (Class IV) mirror, i.e. the radius must be greater than or equal to 300mm and must be less than 400mm. The RSA Mirror Checking Tool must be used to perform the check.	MaD
l. Class V (N2 and N3 vehicles).	(l). N2 and N3 vehicles with a DGVW exceeding 7,500kg registered after 1st Jan 2000: Class V (close proximity) mirror not fitted.	MaD
m. Class V (field of vision).	(m). N2 and N3 vehicles with a DGVW exceeding 7,500kg registered after 1st Jan 2000: At least 85% of the Class V mirror diagram cannot be seen when seated in normal driving position	MaD

3.3. Rear-view Mirrors or Devices

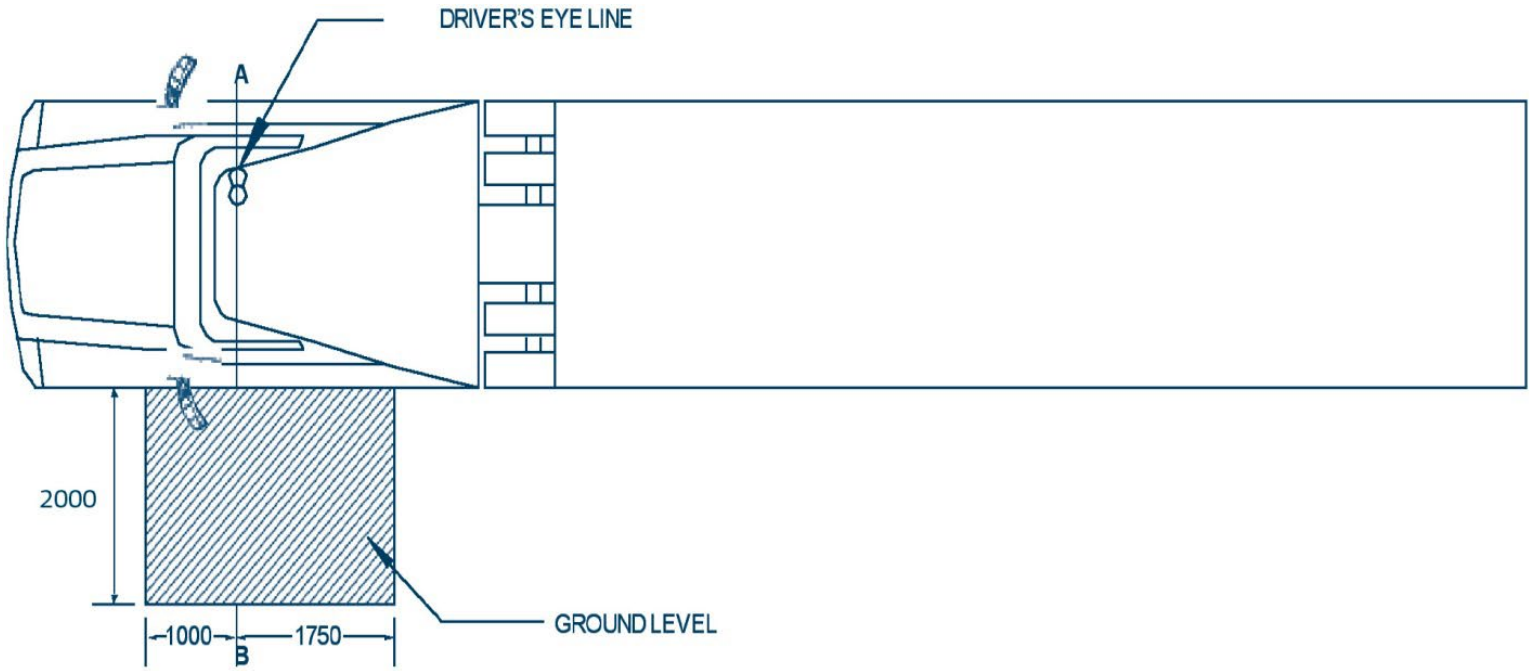


Figure 1: Field of vision of Class V close-proximity mirror. (All dimensions in millimetres).

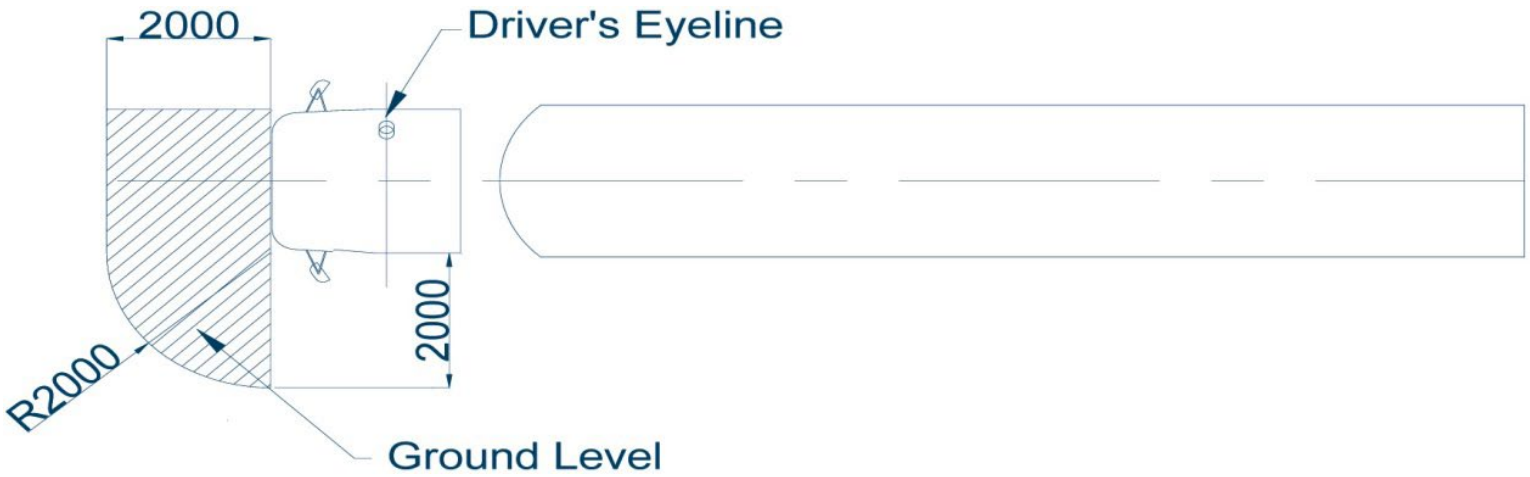


Figure 2: Field of vision of Class VI front mirror (All dimensions in millimetres)

3.3. Rear-view Mirrors or Devices

Tool for checking radius of curvature of the wide angle (Class IV) mirror for vehicles registered after 1st January 2000.

To ensure compliance for vehicles registered after 1st January 2000, these vehicles are required to be equipped with a wide angle mirror glass having a radius of curvature of approximately 300mm. Mirror glasses of 400mm and above will not be able to generate the required field of vision necessary to comply with the new requirements. The RSA approved mirror checking tool is shown in Figure 2 below and must be used to perform the check and ensure compliance with the regulations.

Figure 2: Tool for checking the radius of curvature of the wide angle (Class IV) mirror. (Dimensions shown are in millimetres)

Examples of Wide Angle (Class IV) Mirrors that are Outside Spec

Figure 3 below shows an example of where the wide angle mirror FAILS to meet the specification as the radius of curvature is less than 300mm. For example, a mirror with a radius of curvature of 250mm would NOT meet the new requirements as indicated by the presence of gaps either side of the measuring tool.

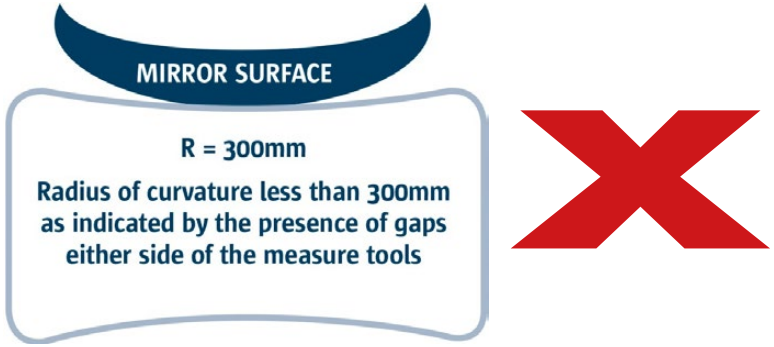


Figure 3: Image showing an incorrect radius of curvature i.e. less than 300mm.

Figure 4 below shows another example of where the wide angle mirror FAILS to meet the specification as the radius of curvature is greater than 400mm. For example, a mirror with a radius of curvature of 450mm would NOT meet the new requirements as indicated by the presence a gap in the middle of the measuring tool.

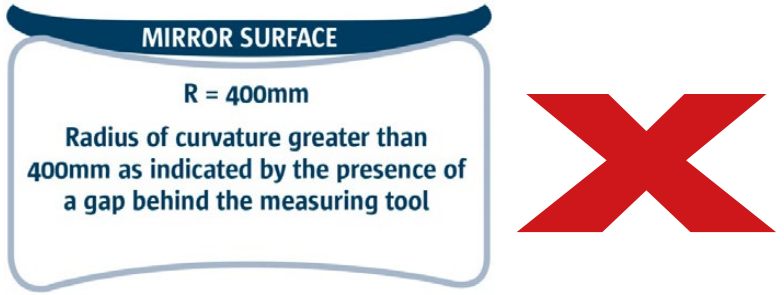


Figure 4: Image showing an incorrect radius of curvature i.e. greater than 400mm.

Example of Acceptable Wide Angle (Class IV) Mirror

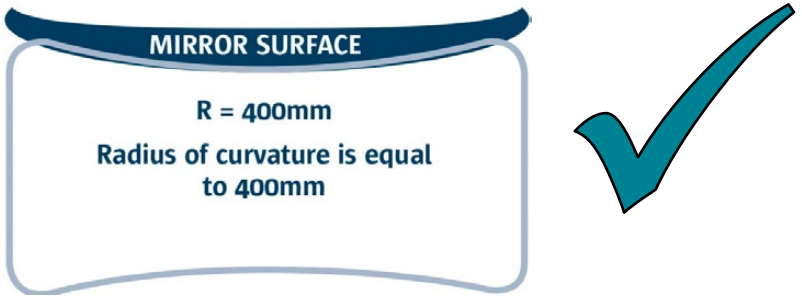


Figure 5: Image showing in the correct range of curvature i.e. more than 300mm and less than 400mm

Mirrors should be tested using both curves on the measuring tool to ensure that they fall within the limits of between 300mm and 400mm, i.e. the radius of curvature can be greater than 300mm BUT it must be less than 400mm.

3.4. Windscreen wipers

3.4. WINDSCREEN WIPERS

Method of testing

1. Switch on the windscreen wipers and check that the wipers move at an appropriate speed over an arc of the windscreen glass which is sufficient to give the driver an adequate view of the road.
2. Check the condition of any visible components for the operation of the wipers. Check the wiper controls.
3. Check the condition of the wiper arms and blades. Check that the springs on the wiper arms weak or broken.
4. Check wiper linkage for wear.

Notes

- The above methods of testing only apply to the front windscreen wipers.
- Intermittent wiper speed is not a reason for failure if not operating.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Presence and condition (wiper arms and blades).	(a). A wiper arm or blade is missing, worn or defective.	MaD
b. Effective operation.	(b). Wiper arms and blades are operating such that the wiped area is less than sufficient to give the driver an adequate view.	MaD
c. Speed control (normal speed).	(c). Wipers are not operating at normal speed.	MiD
d. Control operation.	(d). Wiper control is not working, defective, insecurely mounted or missing.	MaD
e. Linkage condition.	(e). Wiper linkage is broken, excessively worn or insecure.	MaD
f. Effective cleaning.	(f). Not cleaning windscreen effectively.	MaD

3.5. Windscreen Washers

3.5. WINDSCREEN WASHERS

Method of testing

1. Switch on the windscreen washers and check for operation and leaks.

Notes

- Washers are to be considered as being fitted if there is any part of a washer system fitted.
- The above methods of testing only apply to the front windscreen washers.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Correct operation	(a). Washers not operating adequately (lack of washing fluid but pump operating or water-jet misaligned).	MiD
b. Non operation / leaks	(b). Washers not working or leaking.	MaD

3.6. Demisting System

3.6. DEMISTING SYSTEM		
Method of testing 1. Check demisting system for operation. 2. Check the system directs air to the windscreen. **Notes** • The above methods of testing only apply to the demisting system for the front windscreen.		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for: a. Correct operation. b. Correct placement.	(a). Demisting/ventilation system (fan) inoperative. (b). Demisting/ventilation system not directing towards windscreen.	MiD MiD

4. LAMPS, REFLECTORS AND ELECTRICAL EQUIPMENT

CONTENTS

4. LAMPS, REFLECTORS AND ELECTRICAL EQUIPMENT

4.1. Headlamps

4.1.1. CONDITION & OPERATION

Method of testing

1. With the headlamps switched on main and dipped beam in turn, see that they each show as selected a light both of the same colour (white or yellow) of such intensity to illuminate sufficiently the road in front of the vehicle.
2. Check the presence, condition, colour and security of the headlamp glass and reflectors.
3. Check for the presence of water / moisture in the headlamp(s).
4. Check that where right hand dipping headlamps are fitted that these are masked/deflected to meet test pass criteria.
5. Check for defective light source(s) (in the case of LED's more than 50% not functioning is a reason for failure).
6. Check that where a High Intensity Discharge (HID) light source is fitted that it is compatible with the headlamp.

Notes

- Moisture / condensation in a lamp is not a reason for failure unless it obscures the illuminating surface of the lamp.
- Headlamps should consist of either two or four lamps, or one lamp in the case of an electric vehicle incapable of exceeding 40km/h (24mph).
- A HID light source may be recognised by the:
  - light having a bluish tinge and/or taking a few seconds to reach full intensity,
  - headlamp having an igniter module/inverter (ballast) behind the headlamp and/or having "DCR" marked on the lens.
- **Advisory notice applies in the case of LED headlamps where up to 50% are not functioning.**

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation (dipped beams).	(a). Dipped beams not working simultaneously.	MaD
b. Operation (full beams).	(b). Full beams not working simultaneously.	MaD
c. Operation (main or dipped beams).	(c). Main or dipped beams not working.	MaD
d. Light intensity.	(d). Light intensity is not acceptable.	MaD
e. Masked lights.	(e). Right hand dipping headlamps not masked/deflected to meet test pass criteria.	MaD
f. Presence and condition (glass).	(f). Glass badly cracked or missing.	MaD
g. Presence and condition (reflecting material).	(g). Reflecting material damaged/discoloured or missing.	MaD
h. Presence (headlamp).	(h). Headlamp missing.	MaD
i. Security (headlamp).	(i). A headlamp is insecurely/incorrectly mounted.	MaD
j. Water / moisture (headlamp).	(j). Headlamp contains water/moisture.	MiD
k. Colour (emitted light).	(k). All lamps not either white or yellow in colour.	MaD
l. Defective light source(s) (working).	(l). Single light/light sources; in the case of LED more than 50% not functioning, seriously affected visibility.	MaD
m. Compatibility (HID bulb and headlamp).	(m). HID bulb fitted in a non-HID headlamp (HID Light Sources).	MaD

4.1.2. ALIGNMENT

The headlamp aim test must be carried out on the certified level floor area on the HCV lane.

Method of testing

1. Check the tyre pressures and correct them if necessary.
2. Check the alignment of the headlamps by completing the following steps;
   (a). Align the headlamp aim tester (HAT) perpendicular to the front of the vehicle at the recommended distance (as per the HAT manufacturer's specifications).
   (b). Place the HAT at the centre of the vehicle and use the mirrors or laser to align the HAT perpendicular to the vehicle by locating two stable common points at opposite sides of the vehicle, such as strut mounting points or corners of the bonnet.
   (c). Rotate the HAT until the fixed points are in line with the guide line.
   (d). Check if the centre of the headlamp (or the centre of the bulb for headlamps with only one bulb fitted) is greater than or less than 850mm from the ground. The test requirements depend on the distance from the centre of the headlamp to the ground.
   (e). Switch on dipped headlight and set the headlamp adjuster inside the vehicle to its highest setting. Move the HAT in front of each headlamp and take the readings of the gradient % of the highest intensity of the beam image relative to the plane on which the vehicle is standing. Send the recorded readings to CoVI S.
3. Check and review the results on CoVIS as the system defaults to 'above 850mm'; if the centre of the headlamps (or the centre of the bulb for headlamps with only one bulb fitted) are less than 850mm from the ground, this option must be selected.

Notes

- Headlamps fall into three categories as follows:
  - European Type Headlamp - checked on dip beam (see Figure 1 below for method of test);
  - British-American Type Headlamp - checked on dip beam (see Figure 2 below for method of test);
  - British-American Type Headlamp - checked on main beam (see Figure 3below for method of test).
- Any headlamp levelling device should be in the 'O' position and suspension systems should be set in the normal road position.
- If a vehicle is presented with left hand drive headlamps and beam masks, the masks must be installed to ensure they effectively block any light projection above the 0% horizontal reference line. This would then show a pattern similar to a mirror image of figure 2 and can be checked as on that guide.
- On vehicles fitted with hydro pneumatic suspension, the engine must be idling during this test.

4.1.2. ALIGNMENT		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for:		
a. Alignment.	(a). Headlamps are dipping to the right.	MaD
b. N/A	(b). N/A.	
c. European type headlamp.	(c). European type headlamps.	
	• For headlamps whose centre is not more than 850mm above the ground the horizontal cut off line does not lie between the -0.5% and -2% horizontal lines.	MaD
	• For headlamps whose centre is more than 850mm above the ground the horizontal cut off line does not lie between the -1.25% and -2.75% horizontal lines.	MaD
	• The junction of the 15 degree cut off and horizontal cut off line does not lie between the 0% and -2% vertical lines.	MaD
d. N/A	(d). N/A	
e. British American Type Headlamp (checked on dip beam).	(e). British American Type Headlamp (checked on dip beam)	
	• The upper edge of the hot spot does not lie between the 0% and -2.75% horizontal lines.	MaD
	• The right hand edge of the hot spot does not lie between the 0% and -2% vertical lines.	MaD
f. British American Type Headlamp (checked on main beam).	(f). British American Type Headlamp (checked on main beam)	
	• For headlamps whose centre is not more than 850mm above the ground the hot spot centre does not lie between the 0% and -2% horizontal lines.	MaD
	• For headlamps whose centre is more than 850mm above the ground the hot spot centre does not lie between the 0% and - 2.75% horizontal lines.	MaD
	• The centre of the hot spot does not lie between the 0% and -2% vertical lines.	MaD

Figure 1. European Type Headlamp – checked on Dipped Beam

For all two or three axle rigid vehicles with a wheelbase of 5m or less and all two or three axle tractor units in either case not fitted with air suspension on the rear axle, self-levelling headlamps or a driver's headlamp aim adjustment control the horizontal cut off line must be between:

(a). -0.5% and -3.25% boundary lines for headlamps whose centre is not more than 850mm above the ground.

(i) -1.25% and -4.00% boundary lines for headlamps whose centre is more than 850mm above the ground.

For vehicles other than those specified above the horizontal cut off line must be between:

(b). -0.5% and -2% for headlamps whose centre is not more than 850mm above the ground.

(i) -1.25% and -2.75% for headlamps whose centre is more than 850mm above the ground.

The junction of the 1 5 degree cut off and the horizontal cut off line must be between the 0% and -2% vertical lines.

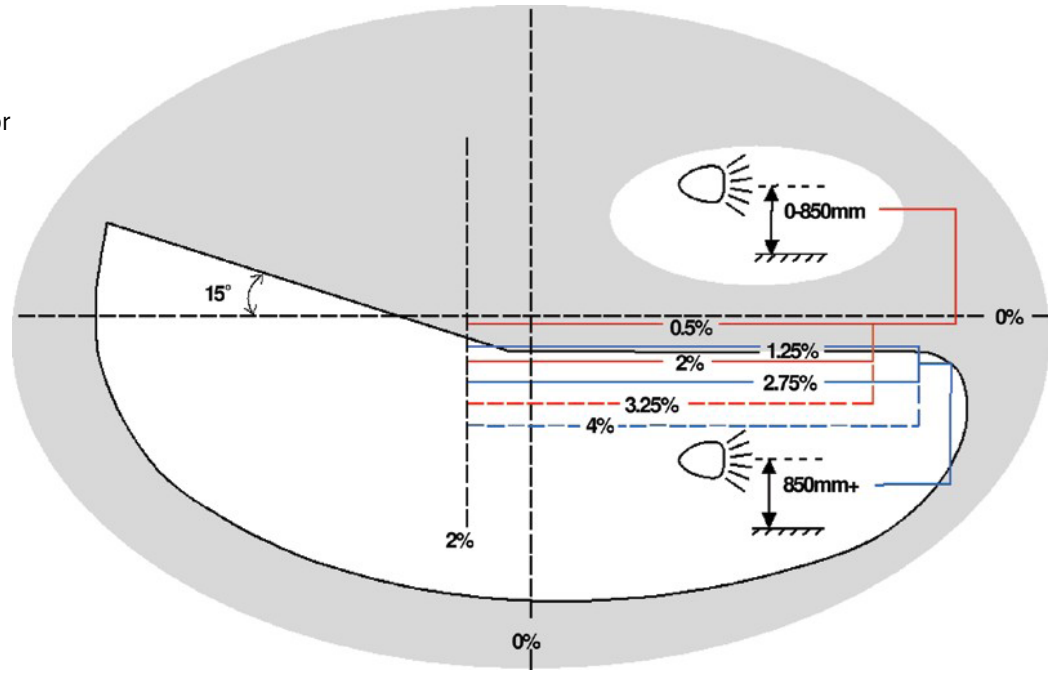


Figure 2 British-American Type Headlamp – checked on Dipped Beam

For all two or three axle rigid vehicles with a wheelbase of 5m or less and all two or three axle tractor units in wither case not fitted with air suspension, self-levelling headlamps aim adjustment control the upper edge of the hot spot must be between 0% and -4%. For vehicles other than those above the upper edge of the hot spot must be between 0% and -2.75%.

The right edge of the hot spot must be between the 0% and -2% vertical lines

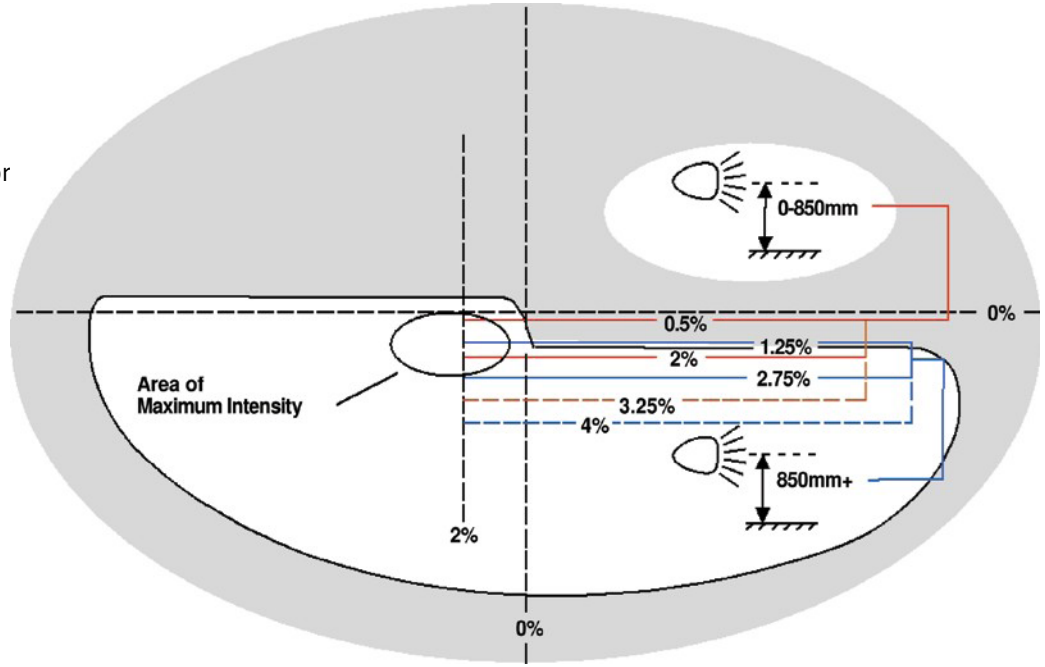
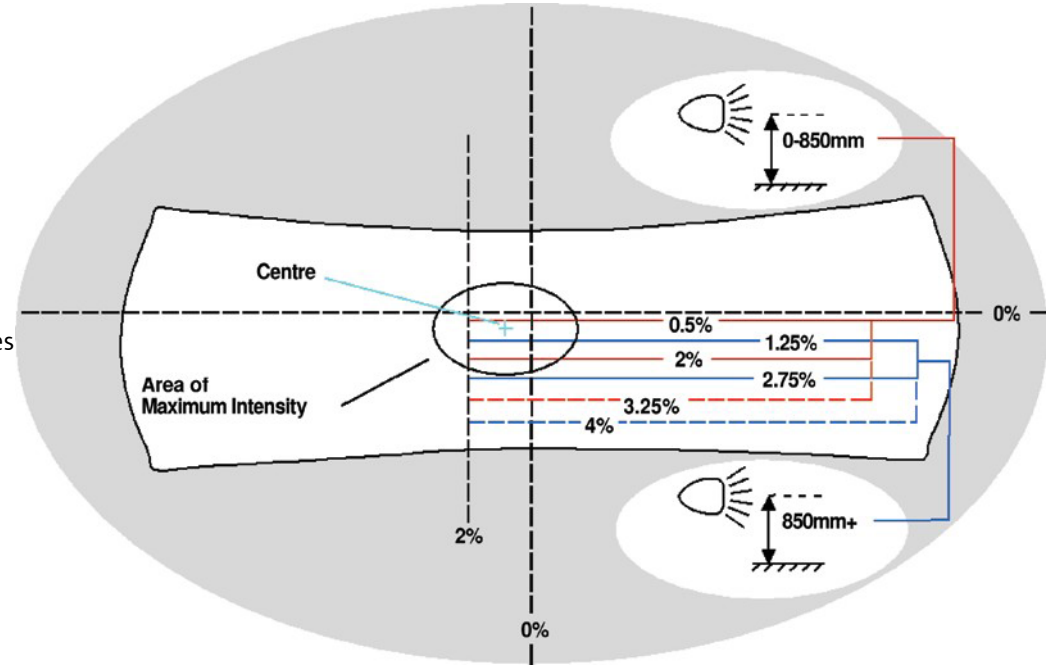


Figure 3 British-American Type Headlamp – checked on Main Beam

The lens of this type of headlamp is circular and likely to be of the sealed beam construction. It may be marked with a '1' and an arrow. It will not have a C above either an 'E' or e. The dipped beam pattern will not match either of the figures shown on the previous pages but the main beam will be similar to Fig. 3 beside.



Check on main beam and determine that:

(a). The centre of the hot spot lies between the 0% and -2% vertical lines;

(b). For headlamps whose centres is not more than 850mm above the ground, the hot spot centre lies between the 0% and -2% horizontal lines;

(c). For headlamps whose centre is more than 850mm above the ground, the hot spot centre lies between the 0% and -2.75% horizontal lines.

4.1.3. SWITCHING

Method of testing

1. Check the presence, security and operation of the headlamp and dip switch.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation (switch).	(a). Dip or headlamp switch does not operate.	MiD
b. Light intensity.	(b). Maximum permitted light brightness to the front exceeded (where measured).	MaD
c. Operation (device/switch).	(c). Function of control device/switch impaired or defective.	MaD
d. Operation (dip switch).	(d). The dip or headlamp switch defective.	MaD
e. Security (switch).	(e). The dip or headlamp switch is insecurely mounted or missing.	MaD
f. Malfunction indicator.	(f). System indicates failure via the electronic vehicle interface.	MaD

4.1.4. COMPLIANCE WITH REQUIREMENTS

Method of testing

1. Check that the vehicle is fitted with obligatory headlamps, as follows:
   - a matched pair of main beam headlamps show light of the same emitted colour, position, brightness or marking.
   - a matched pair of dipped-beam headlamp show light of the same emitted colour, position, brightness or marking.
2. Check that there are no products on the lens or light source that reduce light brightness or change the emitted colour.
3. Check that the light source and lamp are compatible with each other.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Consistency (matched pairs).	(a). Lamp of a matched pair does not show a light of the same, emitted colour, position, brightness or marking.	MaD
b. Condition (lens / light source).	(b). Products on lens or light source which obviously reduce light brightness or change emitted colour.	MaD
c. Compatibility (light source & lamp).	(c). Light source and lamp not compatible.	MaD

4.1.5. LEVELLING DEVICES

Method of testing

1. Check that headlamp levelling devices (where mandatory) are operating correctly and that manual headlamp levelling devices can be operated from the driver's seat.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation (levelling).	(a). Where mandatory an automatic headlamp levelling device or manual headlamp levelling device not operating.	MaD
b. Operation (manual levelling).	(b). Manual headlamp levelling device cannot be operated from driver's seat.	MaD
c. Malfunction indicator.	(c). System indicates failure via the electronic vehicle interface.	MaD

4.1.6. CLEANING DEVICES

Method of testing

1. Check for the presence and correct operation of a headlamp cleaning device where HID dipped beam headlamps are fitted.

Notes

- Any bulb producing more than 2000 lumens is officially categorised as HID.
- Headlamp cleaning devices are mandatory to be fitted with HID lamps with the exception of bulbs specified to produce 2000 lumens or less, retrofitted systems and vehicles which were not originally manufactured (type approved) for Europe.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Presence and operation.	(a). Where a headlamp cleaning device is mandatory (HID), the cleaning device is not present or operating correctly.	MaD

4.2. Front and rear position lamps, side marker lamps and daytime running lamps

4.2.1. CONDITION & OPERATION

Method of testing

The following checks apply to front and rear position lamps, side marker lamps, end outline marker lamps and daytime running lamps (where fitted).

1. Check that there are two position lamps (side lamps) showing a white light fitted to the front of the vehicle and two position lamps (rear lamps) showing a red light fitted to the rear of the vehicle, one on each side of the centre line of the vehicle and clearly visible at a reasonable distance when illuminated.
2. Check that no part of the vehicle or trailer extends laterally more than 406mm beyond the lamp and that they are fitted at the same height and not more than 2100mm from the ground.
3. Check for defective light sources, security of mounting, damage to any lens and for the presence of water/moisture.

Side Marker Lamps (Irish)

4. In the case of trailers or semi-trailers in combinations exceeding 12.2m in length, check that a side marker lamp is fitted midway on the right hand side and the illuminated surface of the lamp shows a white light and is facing outwards and to the front at an angle of 45° to the longitudinal axis of the trailer/semitrailer. The illuminated surface should not be higher than 1.52m from the ground. Any marker lamps fitted should be in working order.

Side Marker Lamps (EC type accepted as an alternative to the Irish side marker lamps as above)

5. On each side of the trailer/semi-trailer, check that at least one side-marker lamp is fitted to the middle third of the vehicle, the foremost side-marker lamp being not further than 3m from the front and distance between two adjacent side-marker lamps not exceeding 3m (if the structure of the vehicle makes it impossible to comply with such a requirement, this distance may be increased to 4m).
6. Check that the distance between the rearmost side-marker lamp and the rear of the vehicle does not exceed 1m.
7. Check that the lamps are positioned not less than 350mm and not more than 1,500mm from the ground (if the structure of the vehicle does not allow for compliance with the maximum height, this limit may be raised to 2,100mm).
8. Check that the side-marker lamps are amber in colour (the rearmost side-marker lamp may be red if grouped or combined or reciprocally incorporated with the rear position lamp) and are visible from a 45 degree angle from the front and rear of the vehicle.

Notes

- Two front position lamps must be fitted, one on each side and show a steady white light to the front (or yellow if incorporated in a yellow headlamp).
- Two rear position lamps must also be fitted, one on each side, showing a steady red light to the rear.
- When a side lamp is incorporated in a yellow headlamp, effectively producing a yellow side lamp, this is acceptable. In this case, the lamps on both sides of the vehicle must be the same colour.
- Moisture in a lamp is not a reason for failure unless it obscure's the illuminating surface of the lamp.
- Where there are more than two rear position lamps, each must be in working order.
- For LED matrix lamps fitted, fail for reason 4.2.1 (a) or (k) as appropriate if less than 50% of LEDs are working in any single unit matrix.
- Daytime running lamps are not testable unless they replace the front position lamps. Where this is the case, they should dim when the position lamps are switched on and may extinguish when the headlamps are switched on.
- Where fitted the front and rear end outline marker lamps may be combined into one lamp.
- Repairs to lenses (e.g. lens repair tape etc.) must be assessed on their merits, considering security, colour, light output and durability.
- **Advisory notice applies in the case of an LED or multi-bulb lamp where up to 50% of the LED's or bulbs are not functioning.**

4.2.1. CONDITION & OPERATION		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for:		
a. Operation.	(a). Not working or defective light source.	MaD
b. Presence and condition.	(b). Lens is missing, broken or badly cracked.	MaD
c. Position and security.	(c). A lamp is incorrectly positioned or insecurely mounted.	MiD
d. Security (detachment likely).	(d). A lamp so insecurely mounted that there is a very serious risk of falling off.	MaD
e. Presence and visibility.	(e). A lamp is missing or is not clearly visible.	MaD
f. Dimensions and intensity.	(f). Lamps are not of the same dimensions and intensity.	MaD
g. Symmetrical fitment.	(g). Lamps are not fitted symmetrically.	MaD
h. Water / moisture.	(h). Contains water/moisture.	MiD
i. Intensity (side lamps).	(i). For any side lamp the power exceeds 7 watts.	MiD
j. Colour (side lamps).	(j). Side marker lamp not correct colour.	MaD
k. Defective light source(s) (working).	(k). For rear lamps – less than 50% of LED's operating on any lamp unit.	MaD

4.2.2. SWITCHING

Method of testing

The following checks apply to front and rear position lamps, side marker lamps, end outline marker lamps (where fitted) and daytime running lamps (where fitted).

1. Check the presence and security of the switch.
2. Check that the front and rear position lamps and side marker lamps (where fitted) illuminate with a single operation of the switch.
3. It must be possible to turn on the front and rear position lamps independent of the ignition switch.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation.	(a). For lights other than daytime running lights, switch does not operate correctly.	MaD
b. Correct operation.	(b). Rear position lamps and side marker lamps can be switched off when headlamps are on.	MaD
c. Function (device/switch).	(c). Function of control device/switch impaired or defective.	MaD
d. Presence and security.	(d). Switch insecurely mounted or missing.	MaD

4.2.3. COMPLIANCE WITH REQUIREMENTS

Method of testing

1. Check that forward facing lamps do not emit a colour other than white and that a rearward facing lamp does not emit a colour other than red.
2. Check for products on lenses or the light source itself that reduce light, brightness or change the emitted colour.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Colour (lamps).	(a). A front lamp(s) showing a colour other than white or a rear lamp(s) showing a colour other than red.	MaD
b. Condition (lens / light source).	(b). Products on lens or light source which reduce light, brightness or change emitted colour.	MiD
c. Colour (front and rear).	(c). Red light to the front or white light to the rear; heavily reduced light brightness.	MaD

4.3. Stop lamps

4.3.1. CONDITION & OPERATION

Method of testing

With the ignition and rear lights switched on and the service brake applied, complete the following checks;

1. Check that the stop lamps are correctly positioned and secure.
2. Check that the lamps are working correctly, are not obscured, emit a steady red light and are not adversely affected by the operation of any other lamp.

Notes

- Moisture/ condensation in a lamp is not a reason for failure unless it obscures the illuminating surface of the lamp.
- For the third (high) brake lamp, reason for failure 4.3.1 (k) does not apply.
- Additional stop lamps (other than those fitted by the vehicle manufacturer) are not part of the test.
- LED matrix lamps should incur a fail for reason 4.3.1 (j) if less than 50% of LEDs are working in any single unit matrix.
- The precise position of obligatory lamps is not part of the test, but check visually that the lamps are at about the same height and the same distance from each side of the vehicle.
- Repairs to lenses (e.g. lens repair tape etc.) must be assessed on their merits, considering security, colour, light output and durability.
- **Advisory notice applies in the case of an LED lamp where up to 50% of the LED's are not functioning.**

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation (all lamps).	(a). All stop lamps or light sources not functioning.	DD
b. Condition (lens).	(b). Slightly defective lens (no influence on emitted light).	MiD
c. Security.	(c). Any lamp is insecurely mounted.	MiD
d. Security (detachment likely).	(d). A lamp so insecurely mounted that there is a very serious risk of falling off.	MaD
e. Presence and visibility.	(e). Any lamp is missing or not clearly visible.	MaD
f. Operation.	(f). A stop lamp is not working or defective but at least one is still functioning.	MaD
g. Presence and condition.	(g). Any lens missing or broken.	MaD
h. Water / moisture.	(h). Contains water/moisture.	MiD
i. Defective light source(s) (working).	(i). Defective light source.	MaD
j. Defective light source(s) (single).	(j). Single light sources; in the case of LED less than 50% functioning.	MaD
k. Dimensions and power.	(k). Not of the same dimensions and power.	MaD
l. Symmetrical fitment.	(l). Incorrectly positioned, not symmetrically located.	MaD

4.3.2. SWITCHING

Method of testing

1. With the ignition and rear lights switched on and the brake pedal applied, check that the stop lamps illuminate.
2. Check that the stop lamps extinguish without delay once the brake pedal is released.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation.	(a). Delay in the operation of stop lamps.	MaD
b. Operation (device/switch).	(b). Function of control device/switch impaired or defective or missing.	MaD
c. Malfunction indicator.	(c). System indicates failure via the electronic vehicle interface.	MaD
d. Emergency brake light functions	(d). Emergency brake light functions fail to operate, or do not operate correctly.	MaD

4.3.3. COMPLIANCE WITH REQUIREMENTS

Method of testing

With the ignition and rear lights switched on and the brake pedal applied, complete the following checks;

1. Check that the stop lamps are brighter than the rear position lamps when illuminated and are red in colour.
2. Check that both stop lamps are of the same dimensions and light intensity.

Notes

- Requirements relating to dimensions and intensity do not apply to the third (high) brake lamp.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Intensity.	(a). Any lamp is not brighter than tail lights.	MaD
b. Colour.	(b). Any lamp is not red in colour.	MaD
c. Dimensions and intensity	(c). All lamps are not of same dimensions and intensity (this does not apply to third (high) brake lamp).	MaD
d. Colour (stop lamps).	(d). White light showing to the rear.	MaD

4.4. Direction indicator and hazard warning lamps

4.4.1. CONDITION & OPERATION

Method of testing

Operate the left and right direction indicators and hazard warning lamps in turn and complete the following checks;

1. Check that each indicator is working correctly, is clearly visible, is in good condition, is the correct colour and is securely mounted.
2. Check that hazard warning lights are working correctly by checking that they operate all the direction indicators simultaneously with the ignition switched both on and off.

Notes

- Checking the operation of hazard warning lights alone is not a substitute for checking the operation of directional indicators operation.
- Where “repeater” indicators are fitted these must be working.
- **Advisory notice applies in the case of LED’s where up to 50% of the LED’s are not functioning.**

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Defective lens (slightly defective).	(a). Slightly defective lens (no influence on emitted light).	MiD
b. Defective lens (heavily defective).	(b). Heavily defective lens (emitted light affected).	MaD
c. Security.	(c). Any indicator lamp is insecurely mounted.	MiD
d. Security (risk of falling off).	(d). An indicator lamp so insecurely mounted that there is a very serious risk of falling off.	MaD
e. Water / moisture.	(e). Contains water or moisture.	MiD
f. Presence and visibility.	(f). Any indicator lamp is missing, not fitted symmetrically or is not clearly visible.	MaD
g. Operation.	(g). Any indicator lamp is not working or is faulty.	MaD
h. Presence and condition (lens).	(h). A lens is broken or is missing.	MiD
i. Defective light source.	(i). Defective light source.	MaD
j. Defective light source (LED source).	(j). Single light sources; in the case of LED less than 50% functioning.	MaD

4.4.2. SWITCHING

Method of testing

1. Check the presence, security and operation of the selector switch by operating the left and right direction indicators and hazard warning lamps in turn.

Notes

- An indicator switch that does not self-cancel is not a reason for failure.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation (switch).	(a). Indicator switch is faulty.	MiD
b. Presence and condition.	(b). Indicator switch not working or missing.	MaD

4.4.3. COMPLIANCE WITH REQUIREMENTS

Method of testing

1. Check visually that every direction indicator emits amber light (other than vehicles pre July 1964).
2. Check visually that every direction indicator is of the same dimensions and power and are positioned correctly, symmetrically located and securely mounted.

Notes

- For vehicles registered before July 1964 front indicators may be white or amber in colour.
- For vehicles registered before July 1964 rear indicators may be red or amber in colour.
- An indicator lamp may not be amber in colour, this is not a reason for failure provided the emitted light is amber in colour.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Dimensions and intensity.	(a). Not of the same dimensions and power.	MaD
b. Position and security.	(b). Incorrectly positioned, not symmetrically located or insecurely mounted (Note that there is no specified lateral clearance for indicators).	MaD
c. Colour (post July 1964).	(c). Not amber in colour – Post - July 1964.	MaD
d. Colour (fronts, pre July 1964).	(d). Pre-July 1964, Fronts – both not amber or white in colour.	MaD
e. Colour (rears, pre July 1964).	(e). Pre-July 1964, Rears – both not amber or red in colour.	MaD
f. Colour (single lamp).	(f). Not amber in colour where only one indicator (on each side) used for front and rear.	MaD
g. Semaphore type.	(g). Does not extend six inches beyond the outline of the vehicle (semaphore type only) where only one indicator (on each side) used for front and rear.	MaD

4.4.4. FLASHING FREQUENCY

Method of testing

1. Check that the indicators fitted to the vehicle flashing constantly between 60 and 120 flashes per minute (flashing type).

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for: a. Flashing frequency	(a). Any indicator is not flashing constantly between 60 and 120 flashes per minute (flashing type).	MiD

4.5. Front and Rear Fog Lamps

4.5.1. CONDITION & OPERATION (WHERE FITTED)

Method of testing

1. With the rear fog lamp(s) and front fog lamp(s) switched on check that the lamp(s); are securely fitted to the vehicle,
2. Check that the fog lamp(s) are working, are not obscured, are in good condition and are not adversely affected by the operation of any other lamp.
3. Check the presence and operation of the rear 'tell-tale'.

Notes

- Moisture / condensation in a lamp is not a reason for failure unless it obscures the illuminating surface of the lamp.
- Where a vehicle is originally fitted with only one fog lamp (to the centre or offside of the vehicle) this is acceptable i.e. it should not be failed for not having two rear fog lamps.
- Rear Fog lamps removed from a vehicle originally fitted with fog lamps is a reason for failure.
- Where front fog lamps are fitted they must be in working order and be tested as per the applicable methods of testing above.
- Some 'tell-tales' may be in the form of a coloured tag on a switch.
- Repairs to lenses (e.g. lens repair tape etc.) must be assessed on their merits, considering security, colour, light output and durability.
- **Advisory notice applies in the case of LED lamps, where up to 50% of the LED's are not functioning.**

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition.	(a). Slightly defective lens (no influence on emitted light).	MiD
b. Condition (light affected).	(b). Heavily defective lens (emitted light affected).	MaD
c. Security.	(c). Fog lamp not securely attached.	MiD
d. Security (detachment likely).	(d). Fog lamp so insecurely mounted that there is a very serious risk of falling off or dazzling oncoming traffic.	MaD
e. Position (front fog lamp).	(e). Front fog lamp is incorrectly positioned.	MaD
f. Presence and visibility (rear fog lamp).	(f). Rear fog lamp missing or not clearly visible.	MaD
g. Condition (rear lens).	(g). Rear fog lamp lens broken or missing.	MaD
h. Water / moisture.	(h). Front or rear fog lamp contains water/moisture.	MiD
i. Indicator (rear fog lamp).	(i). Rear fog lamp indicator not working correctly.	MaD
j. Defective light source (working).	(j). Defective light source.	MiD
k. Defective light source (single).	(k). Single light sources; in the case of LED less than 50% functioning.	MaD

4.5.3. SWITCHING

Method of testing

With dipped head lamps and the ignition switched on,

1. Check that the front fog lamp(s) (where fitted) can be operated independently of the side lights.
2. Check that the rear fog lamp(s) switch works correctly.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation (front lamp).	(a). Front fog lamp switch is defective or does not operate independently of side light.	MaD
b. Operation (rear lamp).	(b). Rear fog lamp switch is not working or defective.	MaD

4.5.4. COMPLIANCE WITH REQUIREMENTS

Method of testing

With the rear and front fog lamps turned on;

1. Check that;

(a). Front fog lamps (where fitted) are white or yellow in colour.

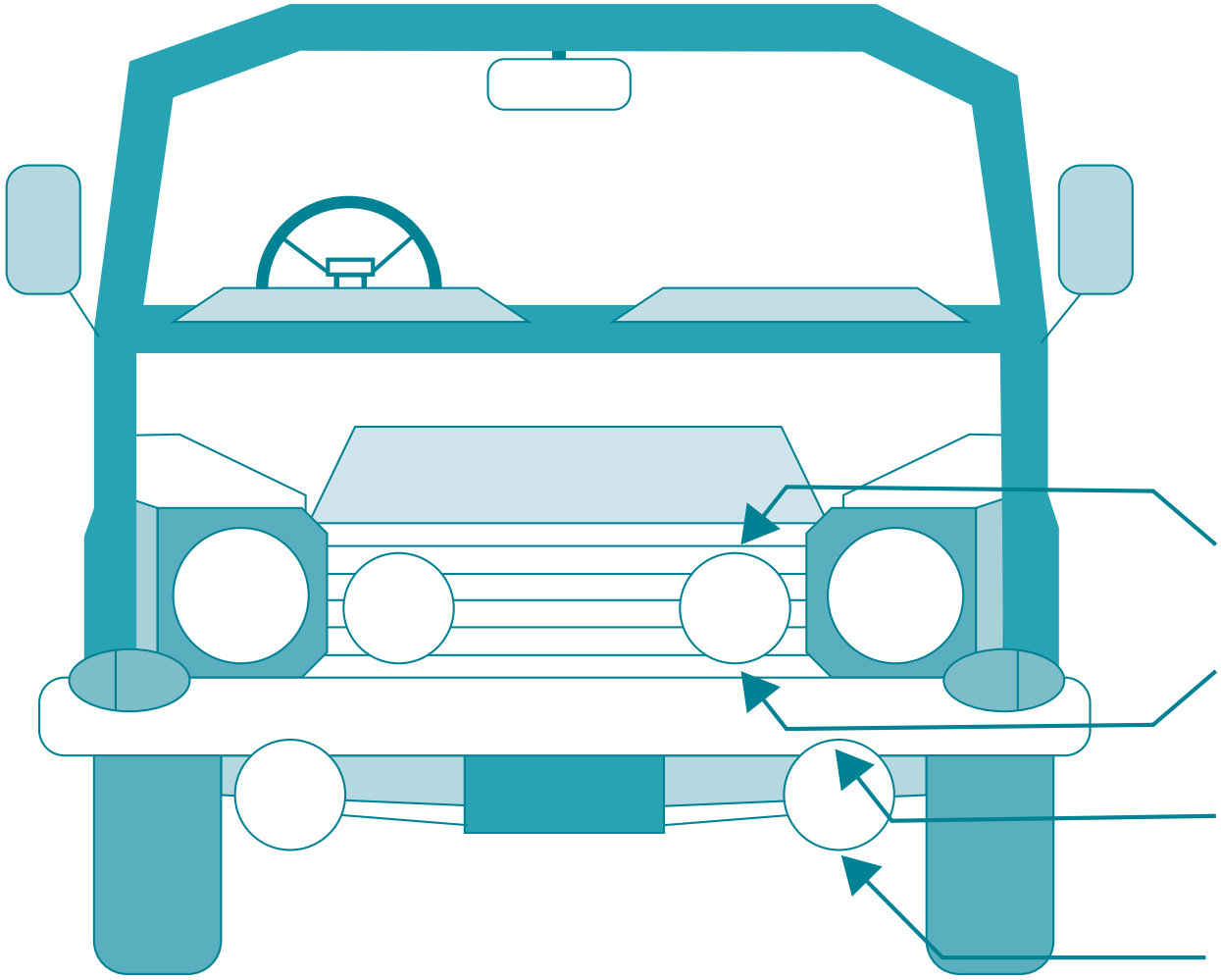
(b). Rear fog lamps are red in colour.

(c). Fog lamps are positioned correctly as acceptable intensity.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Colour (front fog lamp).	(a). Front fog lamp is not showing white or yellow light.	MaD
b. Colour (rear fog lamp).	(b). Rear fog lamp not red in colour.	MaD
c. Position, intensity and markings.	(c). Position, brightness or marking incorrect (see figure 4).	MaD

Figure 4 Fog Lamp(s) – Positioning

Lamps, Reflectors and Electrical Equipment



HEIGHT

Auxilary Headlamp:
(Long range driving lamp)

Maximum height: 1200 mm

Minimum height: 500 mm

Fog Lamp:
Maximum height: 800 mm

Minimum height: 250 mm

4.6. Reversing lamps (where fitted)

4.6.1. CONDITION & OPERATION

Method of testing

1. Check the presence, condition and security of the reverse lamp and lens.
2. With the ignition on and reverse gear engaged check that lamp is white in colour when operational.

Notes

- Moisture/ condensation in a lamp is not a reason for failure unless it obscures the illuminating surface of the lamp.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition and security (lamp).	(a). Defective light source/lens or lamp insecurely mounted.	MiD
b. Presence and condition (lens).	(b). Lens broken or missing.	MaD
c. Security (detachment likely).	(c). Lamp so insecurely mounted that there is a very serious risk of it falling off.	MaD
d. Operation.	(d). Not working or faulty.	MaD
e. Presence and visibility (lamp).	(e). Lamp missing or not clearly visible.	MaD
f. Water / moisture.	(f). Contains water or moisture.	MiD
g. Colour.	(g). Lamp not white in colour when operational.	MaD

4.6.3. SWITCHING

Method of testing

1. With the ignition switched on engage and disengage reverse gear in turn to check the operation of the reverse switch.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation.	(a). Reversing lamp can be switched on with gear not in reverse position.	MaD
b. Correct operation (gear disengaged).	(b). Reversing lamp remains illuminated after reversing gear has been disengaged.	MaD

4.7. Rear registration plate lamp

4.7.1. CONDITION & OPERATION

Method of testing

1. With the rear registration lamp(s) illuminated check that the lamp(s); are securely fitted to the vehicle, are not obscured and are in good condition.
2. Check that the rear registration lamp(s) are working, do not throw direct white light to the rear, and are not adversely affected by the operation of any other lamp.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation (direct white light to the rear).	(a). Lamp showing direct (not reflected) white light to rear.	MiD
b. Defective light source (working).	(b). Defective light source. (Multiple light source).	MiD
c. Defective light source (single).	(c). Defective light source. (Single light source).	MaD
d. Presence and security.	(d). Lamp is missing or is not securely attached.	MiD
e. Security (detachment likely).	(e). Lamp is so insecurely mounted that there is a very serious risk of it falling off.	MaD

4.7.2. COMPLIANCE WITH REQUIREMENTS

Method of testing

1. With the rear registration lamp(s) illuminated check that the lamp(s) is white in colour when operational.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Colour.	(a). Lamp is not white in colour when operational.	MiD

4.8. Retro-reflectors

4.8.1. CONDITION

Method of testing

Refer to the diagrams at the back of this section for relevant illustrations.

Rear Reflectors (required on all vehicles)

1. Check that two red reflectors are fitted and correctly positioned to the rear of the vehicle with one on each side of the centre line of the vehicle and that on combinations over 12.19m (40') they are triangular in shape.
2. Check that no part of the vehicle extends laterally more than 16" beyond the reflector and that the reflector is not more than 762mm (2' 6") from the extreme rear of the vehicle.
3. Check that no part of the reflecting area of one reflector is less than 533mm (21") from any part of the reflecting area of the other reflector and that it is at the same height as the reflector on the other side of the vehicle.

Side Reflectors (if fitted)

4. Check that where side reflectors these are amber in colour.

Rear and Side Markings (Irish Type) (does not apply to motor caravans, fire engines, ambulances or buses)

(Applies to commercial vehicles and trailers having a design gross vehicle weight exceeding 3,500kg and any trailer in combination of vehicles where such combination or such combination and its load exceeds 11 metres in overall length.

5. Check that sufficient rear and side markings are securely attached to the vehicle (see diagram) and are fitted so that every part is clearly visible when viewed from the rear or side respectively.
6. Check every part is facing substantially square to the rear or side as the case may be and forms a V at the centre (unless fitted in two halves).
7. Check that no part of a rear marking extends beyond the outermost part of the vehicle on either side and the marking is symmetrical about the longitudinal axis of the vehicle. Check the spacing, area and positioning of the markings are correct.
8. The side marking must be displayed over not less than 75% of the length of a vehicle exclusive of the sum of the diameters of wheels on the same side and in the case of a trailer, the sum of the diameter of wheels on the same side and the length of the draw bar.
9. The side marking must also be displayed over not less than 75% of any distances between wheels on the same side of a vehicle the centres of which are 2.2 metres or more apart.

Rear and Side Markings (UN ECE 104 Type)

10. Check that the markings are made of strips of retro-reflective material. The width of a side and/or rear marking material must be 50mm +10/-0mm (i.e. 50 - 60mm). The minimum length of an element of a retro-reflective marking material shall be such that at least one approval mark is visible.
11. Check that the markings identify as close as possible the entire length and width of the vehicle. "Entire" means at least 80 per cent of the length and/or width.
12. Check in the case of non-continuous strips that the distance between single elements is as small as possible and does not exceed 50 per cent of the shortest element length.
13. Check that the markings have a minimum height above the ground of at least 250mm and a maximum height of 1,500mm. However, 2,100mm may be accepted in cases where technical conditions prevents compliance with the maximum value of 1,500mm.
14. Check that the markings identify as close as possible the overall shape of the vehicle to the side and rear (full contour marking mandatory on the rear of vehicles over 2.1 Metres wide). Side markings may be fitted as a full contour or as a partial contour.

Long Vehicle Signs

15. Check that either a "Long Vehicle" sign or alternatively two signs of the type shown in diagrams at the back of this section are fitted to the rear of combinations over 13 metres in length and are clearly visible. Rear trailer or semi-trailer markings to UNECE 70 with the words "LONG VEHICLE" are also acceptable.

4.8.1. CONDITION

Notes

- For method of testing point 5 above: Either Irish markings UN ECE Regulation 104 markings are acceptable and tape used for retro-reflective marking to UN ECE 104 must be type approved and carry E markings at least every 50cm.
- Retro-reflective marking materials installed on vehicles may be made up of an element or several elements preferably continuously, parallel or as close as possible parallel to the ground. The same rule applies for tractor units, semi-trailers and other vehicle combinations.
- The rearmost side retro-reflector can be red. This applies in cases where it is part of a multifunctional lamp.
- Where more than 50% of a rear reflector is damaged or discoloured this is considered a reason for failure.
- Where UNECE and Irish markings are mixed on the side or rear of a vehicle this is acceptable provided at least one type meets the full requirements.
- For UNECE markings, either yellow or white is acceptable for side markings. Rear markings must be red.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition (rear reflector).	(a). A rear reflector is so damaged that effectiveness is seriously reduced.	MaD
b. Security (rear reflector).	(b). A rear reflector is insecurely or incorrectly mounted.	MiD
c. Security (detachment likely) (rear reflector).	(c). A rear reflector is so insecurely mounted that it is likely to fall off.	MaD
	(d). One or both rear reflectors are missing.	MaD
d. Presence (rear reflector).	(e). Rear reflectors are not matching in size and appearance.	MaD
e. Size and appearance (rear reflector).	(f). Rear reflectors are not fitted symmetrically.	MiD
f. Symmetrical fitment (rear reflector).	(g). **Rear or side markings.**	
g. Rear or side markings.	i. Rear or side markings not fitted.	MaD
	ii. Rear or side markings damaged, incorrect colour or in such condition that effectiveness is seriously reduced.	MaD
	iii. Rear or side markings insecurely fitted.	MaD
	iv. Rear or side markings do not lie mainly in a horizontal plane.	MaD
h. Long vehicle sign (over 13 metres long).	(h). **Vehicle Combination over 13 metres long.**	
	i. For Irish spec signs, the “Long Vehicle” sign or signs of one of the types shown in the diagram are not fitted.	MaD
	ii. A “Long Vehicle” sign is damaged or in such condition that its effectiveness is seriously reduced.	MaD
i. Rear reflectors.	(i). **Rear reflectors**	
	i. Rear reflectors more than 762mm (2’6”) from the extreme rear of vehicle.	MaD
	ii. N/A.	
	iii. Rear reflectors: triangular reflectors fitted other than to a trailer.	MaD
	iv. Rear reflectors not red in colour.	MaD
j. Side reflectors.	(j). Side reflectors (if fitted); Not amber in colour.	MaD

4.8.1. CONDITION

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
k. Rear or side markings – Irish type.	(k). **Rear or side markings – Irish type:**	
	i. Lower edge of marking is less than 600mm above the ground.	MaD
	ii. Lower edge of marking is more than 2m above the ground.	MaD
	iii. Marking is less than 150mm in height.	MaD
	iv. Retro-reflective or fluorescent material obviously not used.	MaD
l. Rear markings – Irish type.	(l). **Rear markings – Irish type:**	
	i. Fitted more than 600mm from the extreme rear of the vehicle (except in the case of the drawing component of an articulated vehicle).	MaD
	ii. Fitted more than 300mm in from the outer edge of the vehicle.	MaD
	iii. If fitted in two parts, the two parts are not at the same height or the space between them is more than 650mm.	MaD
	iv. Area less than 3000 cm^2.	MaD
m.Side markings – Irish type.	(m).**Side markings – Irish type:**	
	i. Marking is fitted more than 450mm from the front or rear of the vehicle (except in the case of the rear of the drawing component of an articulated vehicle).	MaD
	ii. If fitted in sections, any section is less than 450mm in length.	MaD
	iii. Displayed over less than three quarters of the overall length of the vehicle less the sum of the diameters the wheels (disregarding also the length of the drawbar in the case of a trailer).	MaD
	iv. Displayed over less than three quarters of distance between two adjacent wheels (unless wheels are less than 2.2m apart).	MaD
	v. Side conspicuity markings – Irish type located more than 450mm in from the side of the vehicle.	MaD
n. Rear or side conspicuity markings – UNECE Type.	(n). **Rear or side conspicuity markings – UNECE Type:**	
	i. For UNECE markings, material is not type approved to Regulation 104 (not E-marked).	MaD
	ii. For UNECE markings, marking material is less than 50mm or more than 60mm wide.	MaD
o. Rear conspicuity markings – UNECE Type.	(o). **Rear conspicuity markings – UNECE Type:**	
	i. For UNECE 104 markings, the cumulative length is less than 80% of the vehicle width and as close to the edges of the vehicle as is practical.	MaD
	ii. UNECE rear markings not full contour marking for vehicle more than 2.1 metres wide.	MaD
	iii. For UNECE markings, lower element is less than 250mm or greater than 1500mm above the ground.	MaD
	iv. For UNECE markings, the upper element is more than 400mm lower than the top of the vehicle.	MaD
p. Side conspicuity markings – UNECE Type.	(p). **Side conspicuity markings – UNECE Type:**	
	i. For UNECE side markings, is not contour marked (partial or full) on vehicles over 6m in total length. Trailer length includes drawbar.	MaD
	ii. For UNECE markings, lower element is less than 250mm or greater than 1500mm above the ground.	MaD
	iii. For UNECE Contour markings upper element is more than 400mm lower than the top of the vehicle.	MaD
	iv. For UNECE 104 markings, the cumulative length is less than 80% of the vehicle overall length.	MaD
	v. For UNECE markings is not within 600mm of each end of the vehicle.	MaD

4.8.1. CONDITION		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for: q. Long vehicle sign (fitment).	(q). **Vehicle Combination over 13 metres long:** i. The "Long Vehicle" sign is not fitted horizontally and/ or between 350mm and 2 metres above the ground. ii. In a case where there are two "Long Vehicle" signs they are not at the same height and as near as practicable to the outermost edges of the vehicle. iii. Retro-reflective or fluorescent material is obviously not used.	 MaD MaD MaD

4.8.2. COMPLIANCE WITH REQUIREMENTS		
Method of testing 1. Check that a rear reflector is red in colour and that a side reflector (where fitted) is amber in colour.		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for: a. Colour (rear). b. Colour (side).	 (a). A rear reflector is not red in colour. (b). A side reflector is not amber in colour.	 MaD MaD

4.9. Tell Tales

4.9.1. CONDITION AND OPERATION		
Method of testing 1. Switch on the main beam headlamp and check that the main beam warning light is working correctly. 2. Turn on the direction indicators (left and right) and rear fog lamps in turn, checking that the tell tales for each function correctly.		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for: a. Operation (indicator). b. Operation (main beam and rear fog warning lights).	 (a). Indicator tell-tale is not working or is faulty. (b). Tell-tale not operating for main beam headlamp or rear fog lamp.	 MaD MaD

4.9.2. COMPLIANCE WITH REQUIREMENTS		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for: a. Presence	(a). Tell-tale is missing	MaD

4.10. Electrical connections between towing vehicle and trailer (where towing coupling is fitted)

4.10. ELECTRICAL CONNECTIONS BETWEEN TOWING VEHICLE

Method of testing

In cases where a towing coupling is fitted to a vehicle an electrical socket must be fitted, carry out the following checks:

1. Check trailer electrical sockets (24N & 24S) for presence, security, damage or deteriorated insulation.
2. Check the outputs from the socket (24N).

Notes

- There is no requirement to check the outputs from the 24S socket.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Security.	(a). Socket missing or components not securely attached.	MiD
b. Security (detachment likely).	(b). Socket/components so insecurely mounted that it is likely to fall off.	MaD
c. Condition.	(c). Damaged or deteriorated insulation.	MiD
d. Condition (failure imminent).	(d). Damaged or deteriorated insulation that it's likely to cause a short-circuit fault.	MaD
e. Operation (electrical connections).	(e). Trailer or towing vehicle electrical connections not functioning correctly.	MaD
f. Outputs.	(f). Incorrect or no outputs from socket	MaD

4.11. Electrical wiring

4.11 ELECTRICAL WIRING

Method of testing

1. Visually check all visible electrical wiring connections and components for condition, security and position.
2. Check for damage to insulation or deterioration to the extent that bare wiring or connectors are exposed (in the case of fully electric or Hybrid Electric vehicles care should be taken as per note below).
3. Check the positioning of wires and connections so that they are unlikely to be chafed or damaged by heat or fouled by moving parts.
4. Check for the use of unsuitable wiring/electrical connections e.g. household wiring/bell wiring etc.
5. Check where possible that after-market items with the exceptions of anti-theft systems and light failure indicators are wired through ignition switch or a fuse.
6. Check for the presence and condition of the ignition switch.

Notes

- When checking the condition and security of the wiring, care needs to be taken when inspecting the high voltage systems of fully electric or Hybrid Electric vehicles. These high voltage wires are colour coded orange.
- Additional care should be taken when testing electric and hybrid vehicles as there may be high voltage present at any one of several points around the vehicle, including storage capacitors and batteries.
- On hybrid vehicles, the engine may start without warning when electrical equipment is operated or if the battery voltage drops.
- There is no need to remove destination box panels, as a matter of course. The inspection requires a check on all visible wiring for condition, position and security. The test is generally limited to those parts which can be seen without dismantling and is based on the assumption that panels will only be removed where it is not possible to inspect safety critical items. It wouldn't normally be considered that this would apply to wiring contained in destination box panels unless there was reason to suspect seriously defective wiring.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition.	(a). Wiring/insulation deteriorated.	MaD
b. Condition (safety critical).	(b). Wiring extremely deteriorated (relevant parts for braking, steering).	DD
c. Position (control affected).	(c). Wiring is liable to interfere with the driver's control of the vehicle.	MaD
d. Security (electrical wiring).	(d). Dislocated or insecure electrical wiring.	MaD
e. Security (connections).	(e). Fixings loose, touching sharp edges, connectors likely to be disconnected.	MaD
f. Fouling.	(f). Wiring likely to touch hot parts, rotating parts or the ground, connectors disconnected (relevant parts for braking, steering).	DD
g. After market items.	(g). After-market items with the exceptions of anti-theft systems and light failure indicators not being wired through ignition switch or a fuse.	MaD
h. Suitability (Connections / wiring).	(h). Use of unsuitable wiring/electrical connections, e.g. household wiring/bell wiring etc.	MaD
i. Ignition switch.	(i). Ignition switch is missing or faulty.	MaD

4.12 NON OBLIGATORY LAMPS AND RETRO-REFLECTORS (AUXILIARY LAMPS)

Method of testing

1. Check that each auxiliary lamp fitted is securely fixed to the vehicle.
2. Check that the switching mechanism is functioning correctly and where auxiliary lamps are set in the head lamp main beam position, they are extinguished when the headlamp dipped beams are brought into operation.
3. Check that any auxiliary lamp fitted is showing white or yellow light to the front and red light to the rear.

Notes

- Where auxiliary lamps are found to be inoperative, this should not be considered a reason for failure.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Position.	(a). An auxiliary lamp is incorrectly positioned.	MaD
b. Security.	(b). An auxiliary lamp is insecurely mounted.	MiD
c. Security (detachment likely).	(c). An auxiliary lamp is so insecurely mounted that there is a very serious risk of falling off.	MaD
d. Operation (independent of side light).	(d). An auxiliary lamp switch is defective or does not operate independently of side light.	MaD
e. Colour.	(e). An auxiliary lamp is not showing white or yellow light to the front.	MaD
f. Colour (white light to the rear).	(f). An auxiliary lamp is showing white light to the rear.	MaD
g. Operation (with main beam).	(g). An auxiliary lamp is set in main beam position and does not extinguish when dipped beams are brought into operation.	MaD
h. Intensity.	(h). Number of headlights simultaneously operating exceeding permitted light brightness (where measured).	MaD

4.13. Battery(ies)

4.13 BATTERY(IES)

Method of testing

1. Check the condition and security of the battery and carrier and check for security and leaks.
2. Check for risks of short circuiting with other components.
3. Check that where switches and or fuses are present that these are in good condition.
4. Check that there is adequate ventilation if required (e.g. a hybrid vehicle or fully electric vehicle).

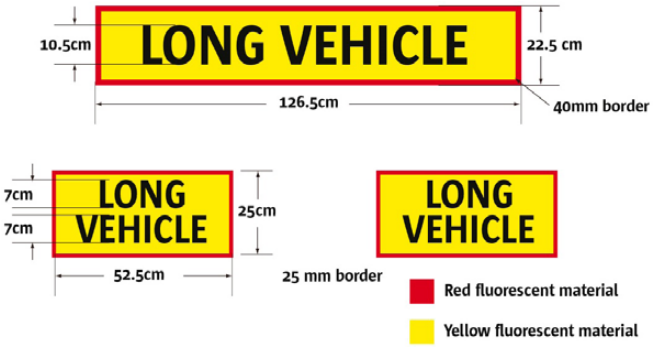
Notes

- If the battery is only held in place by the cables and by a lip on the carrier this cannot be considered to be secure.
- Where it is not possible to inspect batteries for condition and leaks every effort should be made to inspect the area where the batteries are installed to confirm there are no signs of leakage.
- When checking the condition and security of the wiring, care needs to be taken when inspecting the high voltage systems of fully electric or Hybrid Electric Vehicles. These high voltage wires are colour coded orange.

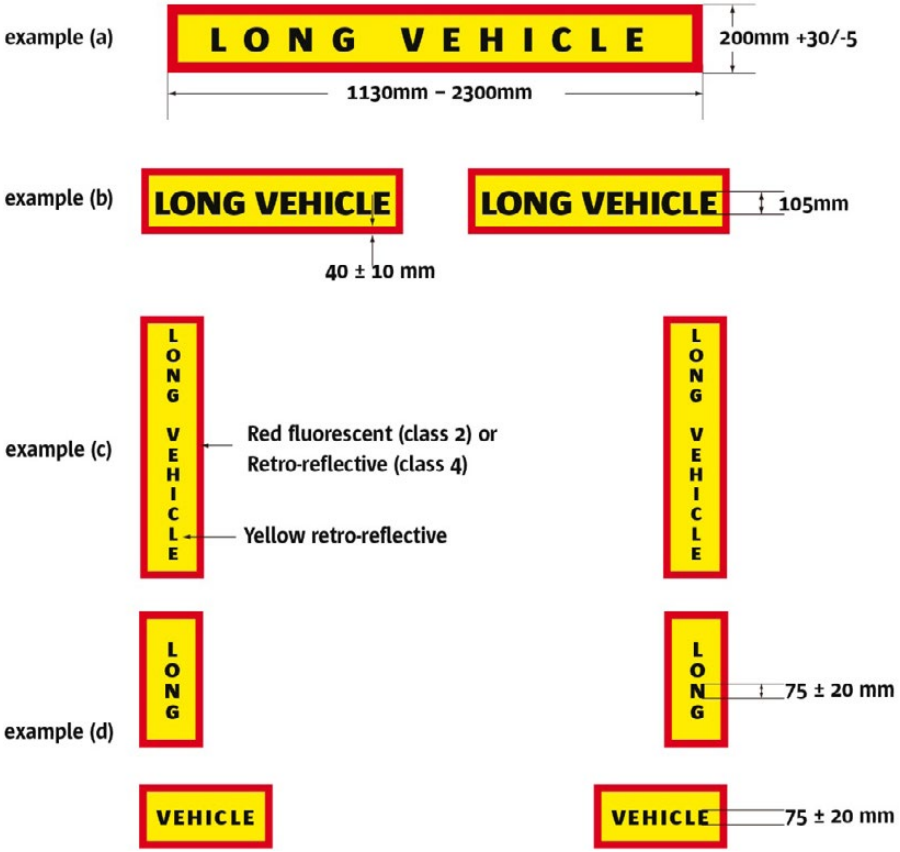
CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Security.	(a). Battery mounting insecure or not properly attached.	MiD
b. Risk of short circuiting.	(b). Risk of battery short-circuiting with other components.	MaD
c. Leaks.	(c). Leakages of hazardous substances from battery are evident.	MaD
d. Condition (switch).	(d). Switch (if required) defective.	MaD
e. Condition (fuses).	(e). Fuses (if required) defective.	MaD
f. Ventilation (if required).	(f). Inappropriate (if required) ventilation.	MaD

REFLECTORS AND REAR AND SIDE MARKINGS

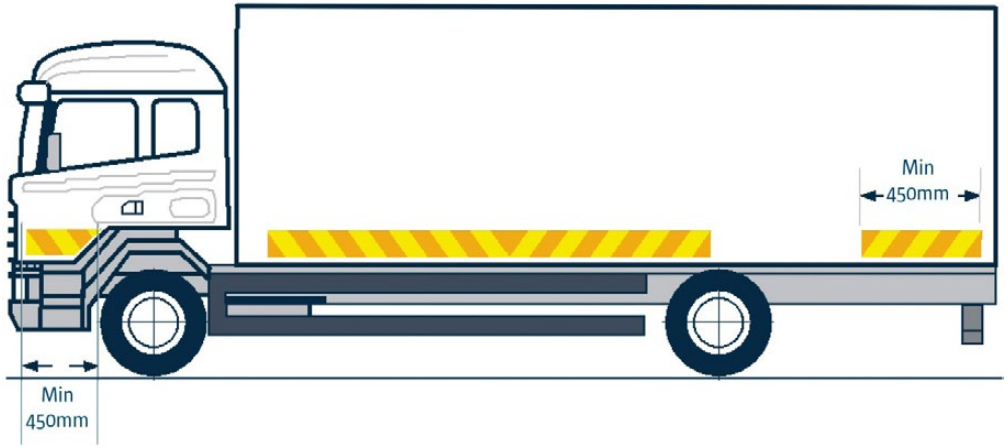
Size, colour and wording of rear marking signs



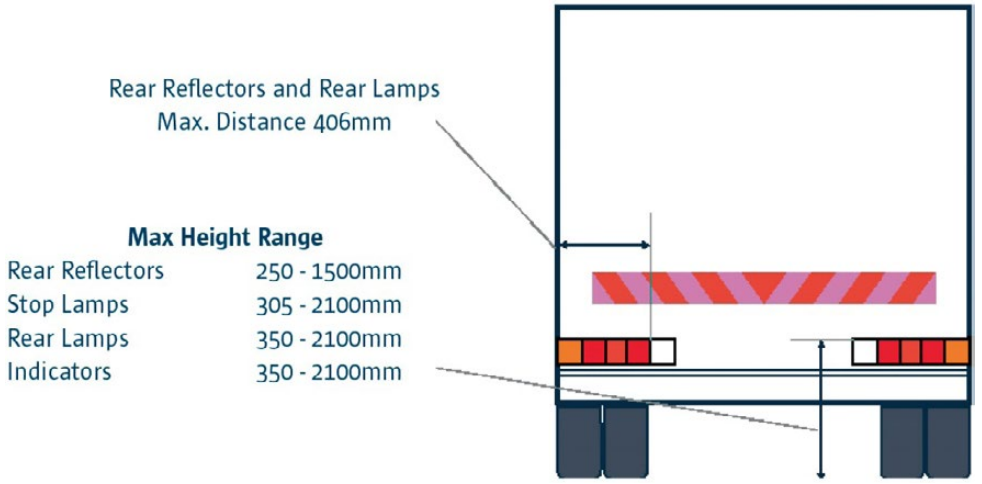
Rear Marking Plates for Trailers & Semi-trailers To UNECE Regulation 70



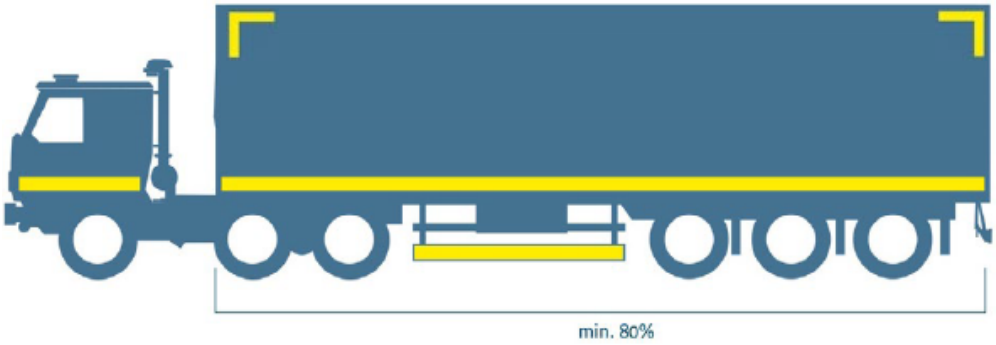
Extent of Display of Side Markings (Irish)

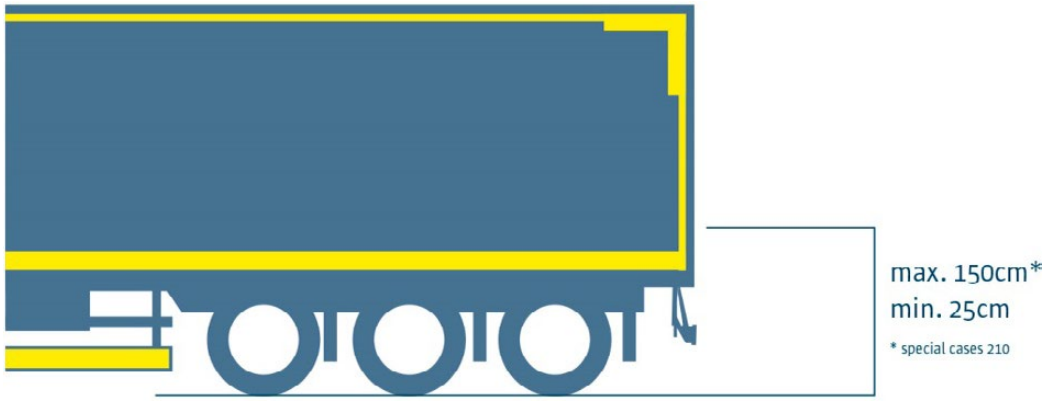


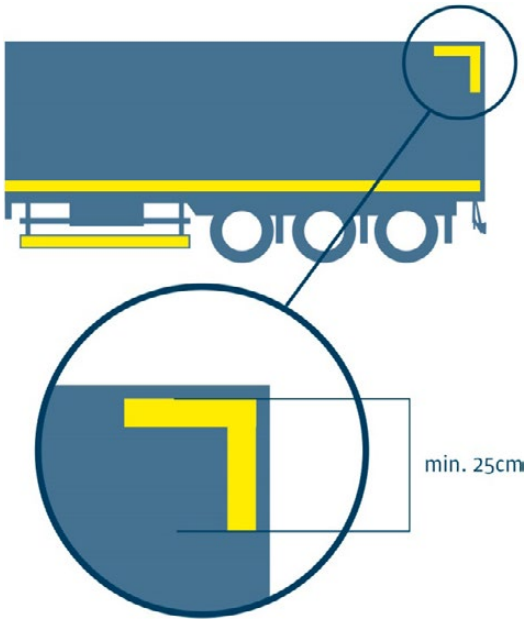
Position of rear lamps on HCV's, trailers, semi-trailers, and buses

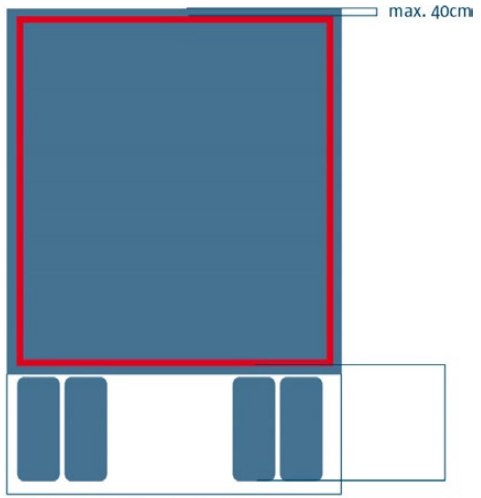


Reflectors and rear and side markings UNECE markings









5. AXLES, WHEELS, TYRES AND SUSPENSION

CONTENTS

5. Axles, Wheels, Tyres and Suspension

5.1. Axles

5.1.1. AXLES

Method of testing

With the vehicle over a pit, carry out the following checks. Wheel play detectors must be used and with the brakes applied, operate the plates and observe suspension/ spring attachment points.

1. Check axle beams for damage, distortion or excessive corrosion. Particular attention should be paid to vehicles where additional axles have been fitted. There must be an effective load compensating system between all the axles of a bogie or tri-axle.
2. Check condition of mounting bushings/joints and attachments for security.
3. Check vehicle presented weight and or axle weights do not exceed manufacturer's design weights (no authorisation plate fitted).
4. Check vehicle presented weight and or axle weights do not exceed "the weights not to be exceeded in Ireland" (authorisation plate fitted).
5. Check if there has been any obvious unsafe repair or modification carried out. An unsafe repair or modification carried out may require a modifications report to be presented as per the template in this manual.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Axle for cracks or deformation.	(a). Axle fractured or deformed.	DD
b. Axle security.	(b). Axle fixing to vehicle insecure.	MaD
c. Axle security.	(c). Axle stability impaired, functionality affected: Extensive movement relative to its fixtures.	DD
d. Axle positioning.	(d). Axle is obviously out of line.	MaD
e. Modifications.	(e). Unsafe modification.	MaD
f. Modifications.	(f). Unsafe modification that stability is impaired, functionality affected, insufficient clearance to other vehicle parts or to the ground.	DD
g. Axle mounting for wear and security.	(g). Mounting bushes, bearing or bearing carrier, shafts, ball joints, obviously loose, worn or insecure.	MaD
h. Presented axle weight.	(h). Presented axle weight exceeds manufacturer's permissible gross axle weight.	MaD
i. Presented vehicle weight.	(i). Presented vehicle weight exceeds manufacturer's Design Gross Vehicle Weight.	MaD
j. Presented axle weight (authorisation plate)	(j). Presented axle weight exceeds the weight not to be exceeded in Ireland (Vehicles fitted with an authorisation plate).	MaD
k. Presented vehicle weight (authorisation plate).	(k). Presented vehicle weight exceeds the weight not to be exceeded in Ireland (Vehicles fitted with an authorisation plate).	MaD

5.1.2. STUB AXLES

Method of testing

With steered wheels off the ground (using the vehicle manufacturer's recommended jacking points);

1. Check for excessive wear between the axle beam and the stub axle/kingpin whilst each wheel in turn is rocked with a bar, (approximately one metre long) one end inserted in the wheel disc and the other end lifted.
2. Check for excessive upward movement of the stub axle, whilst each wheel in turn is lifted with a bar placed underneath it.
3. Check visible parts of the stub axle for condition and security and where possible examine the king pin retaining device.

Notes

- In the absence of manufacturer's wear tolerance kingpin(s) should be considered excessively worn where there is 5mm (or greater) play on 20" wheel rim, others pro-rata.
- In the absence of manufacturer's wear tolerance lift between a stub axle and axle beam should be considered excessive where there is 1.6mm (or greater) for a hive type and 1mm for other types.
- Self-steered axles manufactured by BPW have a maximum clearance of 12 mm between the axle beam and upper yoke.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Stub axles for cracks or deformation.	(a). Stub axle fractured/damaged or bent.	DD
b. Swivel pin and/or bushes/bearings for wear.	(b). Excessive wear in the swivel pin and/or bushes/bearings	MaD
c. Security of stub axle components.	(c). A component is insecure - Likelihood of loosening; directional stability impaired	DD
d. Lift between stub axle and axle beam.	(d). Excessive lift between stub axle and axle beam (Hive type 1.6mm, others 1mm).	MaD
e. Lift between stub axle and axle beam.	(e). Excessive lift between stub axle and axle beam that directional stability is impaired.	DD
f. Kingpin security.	(f). Kingpin loose in axle	MaD
g. Stub axle pin security.	(g). Stub axle pin so loose in axle that directional stability is impaired	DD
h. Retaining device for presence, wear and fractures.	(h). Kingpin retaining or locking device absent, insecure, worn or broken	MaD
i. Kingpin / Bushes / Bearings for wear.	(i). Kingpin / Bushes / Bearings; excessively worn – 5mm play (3/16") on 20" wheel rim, others pro-rata.	MaD

5.1.3. WHEEL BEARINGS

Method of testing

With wheels off the ground (using the vehicle manufacturer's recommended jacking points);

1. Check the steered wheels of all vehicles and all the wheels of trailers. Raise the axle(s) of the wheels being examined so that they are clear of the ground and note the movement of the wheel relative to the axle or stub axle in order to assess the play in the wheel bearings, whilst each wheel in turn is rocked with a bar.
2. Spin each wheel rapidly and listen for any roughness or harshness in the bearings, if a distinctive rumble or growl is heard that indicates the bearing is damaged this should be considered a reason for failure.

Notes

- It may be necessary where a vehicle is fitted with ABS/EBS that the wheel bearings should not be checked while the ignition switch is turned on as this can affect the ABS/EBS warning light.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Wheel bearing(s) for play.	(a). Excessive play in a wheel bearing.	MaD
b. Wheel bearing(s) for play.	(b). Excessive play in a wheel bearing that directional stability is impaired.	DD
c. Wheel bearing(s) condition.	(c). Wheel bearing is so tight that there is a danger of overheating or seizing	DD
d. Wheel bearing(s) condition.	(d). Bearing(s) or hub are worn or damaged.	MaD

5.2. Wheels and Tyres

5.2.1. ROAD WHEEL HUB

(This inspection applies to all road wheels and hubs apart from spare wheels).

Method of testing

1. Check that the hub is not worn or damaged and that the hub spigot make sufficient contact with the wheel rim.
2. Check where twin wheels are fitted that the spigots extend to the outer wheel.
3. Check for the presence, security and condition of wheel nuts/studs and for elongated holes.

Notes

- It is not always possible to see the complete road wheels on a vehicle from ground level, especially on twin wheels and on vehicles where the body shrouds part of the wheels. In such cases the vehicle should be moved to expose the hidden parts of wheels or the examination should be completed from a position under the vehicle.
- Some wheel nut studs do not protrude all the way through the wheel nut this is acceptable provided there is no sign of insecurity.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Studs or nuts for presence and security.	(a). Any wheel nuts or studs missing or loose.	MaD
b. Studs and nuts condition.	(b). Any stud or nut is in such a condition that there is an obvious danger that the wheel(s) will come loose.	DD
c. Stud hole for elongation.	(c). Any stud hole is elongated or damaged.	MaD
d. Studs or nuts for damage.	(d). Any studs or nuts are damaged or threads stripped or crossed.	MaD
e. Stud or nut fitment.	(e). Any wheel nut is incorrectly fitted.	MaD
f. Studs or nuts compatibility.	(f). An incorrect wheel nut is fitted.	MaD
g. Hub for damage and wear.	(g). Hub worn or damaged.	MaD
h. Hub damage and wear.	(h). Hub worn or damaged in such a way that secure fixing of wheels is affected.	DD
i. Hub spigot contact with wheel rim.	(i). Hub Spigot does not make sufficient contact with wheel rim.	MaD

5.2.2. WHEELS

Method of testing

1. Check each part of the road wheel, paying particular attention to whether there is any: fractures, distortion, wear, defective weld/repairs or incompatibility.
2. Check the condition and security of tyre retaining rings.

Notes

- Where wheel embellishers or hub caps are fitted they must be removed prior to the test. Where they are not removed a CVR test may be carried out but reason for failure (k) should apply and a pass statement must not be issued.
- The fitment of a steel wheel and an alloy wheel to a twin wheel hub should not be considered a reason for failure.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Cracks, fractures and defective weld/repair.	(a). Any crack, fractures or defective weld present in a wheel.	DD
b. Retaining rings.	(b). Tyre retaining rings not properly fitted.	MaD
c. Retaining rings.	(c). Tyre retaining rings likely to come off.	DD
d. Distortion.	(d). Wheel badly distorted (more than 13mm (1/2”) askew or buckled) or worn.	MaD
e. Distortion.	(e). Wheel so badly distorted that secure fixing to hub is affected or the secure fixing of the tyre is affected.	DD
f. Fitment/compatibility.	(f). A wheel is incorrectly fitted - wheel size, technical design, compatibility or type not in accordance with the requirements and affecting road safety.	MaD
g. Damage.	(g). A wheel is damaged such that tyre damage or seal damage can occur.	MaD
h. The nominal size of the wheel to another on the same axle.	(h). Different size wheels are fitted on the same axle.	MaD
i. Spoke damage.	(i). Any spoke or other wheel component is in such a condition that there is a danger of failure.	MaD
j. Compatibility.	(j). Incorrect wheels fitted on twin wheel hub.	MaD
k. Wheel embellishers or hub caps.	(k). Wheel embellishers or hub caps not removed (See Note).	MiD

5.2.3. TYRES

(This inspection applies to all tyres fitted to the vehicle apart from spare tyres).

Tyre Condition

Method of testing

Check each tyre fitted to the vehicle:

1. Check whether the tyre tread appears to be regrooved (tyres designed for recutting or regrooving will normally be marked as regroovable or with the symbol "U".
2. Check visually each tyre is not seriously underinflated and that it is correctly seated on the rim.
3. Check tyres on twin wheels for wall contact. Side wall contact is unacceptable if caused by under-inflation, incorrect wheel or tyre fitment.
4. Check each tyre for perished rubber, cracks or breaks in the fabric, any lumps or bulges, any exposure of the ply or cord structure. A tyre that has any cut greater than 25 mm in length or 10% of section width, deep enough to reach the ply or cords is a reason for failure.
5. Check each valve stem for damage, distortion or chafing.
6. Check for any inappropriate tyre repairs.
7. Check each tyre for fouling on any part of the vehicle or protruding beyond bodywork.

Notes

- It will not always be possible to see the complete tyre from ground level, especially on twin wheels and on vehicles where the body shrouds part of the tyres. Any tyre or wheel examination must be performed with the vehicle raised on the lift to ensure that all parts of the wheel and tyre can be examined thoroughly.
- Examination is confined to tyres fitted to the road wheels. If, however, any defect on a tyre carried on a spare wheel is seen, the driver should be advised.
- When checking any tyre that appears to have been recut, it must be determined whether it has been recut to the manufacturer's recut tread pattern. It can be difficult to identify tyres which have been skilfully recut, but extra care should be taken to check for any exposure of the ply or cord at the bottom of the grooves.
- The fitment of a plug to the side wall of a tyre is considered an inappropriate repair.
- **An advisory notice applies where the tyre(s) fitted is older where the date of manufacture is obvious on the tyre.**

5.2.3. TYRES

Tyre Specification

Method of testing

1. Check each tyre to ensure that its speed rating is appropriate for the maximum legal speed permitted for the vehicle (see figure 1 below).
2. Check each tyre to ensure that the tyre load index rating for a single fitment tyre is not less than 50% (or for a twin fitment tyre is not less than 25%) of the design axle weight or weights not to be exceeded in Ireland if an authorisation plate is fitted.
3. Check all the tyres fitted and note the type of structure (radial or cross-ply) and the nominal size of tyres.
4. Check all tyres on the same axle must be of the same structure and nominal size.
5. Check that each tyre fitted to the vehicle has an E-mark or e-mark.
6. Check that any tyre is not incorrectly matched with the wheel.
7. Check each tyre to ensure that the tyre use marking is appropriate for the type of axle or vehicle to which it is fitted. For example tyres marked “TRAILER USE ONLY” or “NOT FOR HIGHWAY USE” should not be fitted.
8. Check in the case of a tyre which has been retreaded that it bears the marking ‘Retread’ on its sidewall and is additionally marked with “108R” or “109R” in the vicinity of the E-mark.

Notes

- Tyres on an axle may be of different structures and nominal sizes to those on another axle with the following exceptions:
  - All tyres on all steered axles must have the same structure.
  - All tyres on all driven axles must have the same structure.
- On a two axle motor vehicle where each axle is fitted with single wheels, then all the tyres must be of the same structure, otherwise then the only tyre combination that is allowed is cross-ply in the front and radial at the rear. This does not apply to an axle on which wide single tyres with a road contact width of more than 300mm are fitted.
- Unless marked otherwise, “standard” car or LCV tyres have a nominal aspect ratio of 82%. Some tyres have an aspect ratio of 80%. These have “/80” included in their size marking e.g. 165/80 R1 3. Tyres with aspect ratios of 80% and 82% are almost identical in size and can be safely mixed in any configuration on a vehicle. Where this is done, Reason for Failure (b) does not apply.

Tyre Tread

Method of testing

1. Check all tyres with a tyre tread depth gauge, that the central three-quarters of the tread pattern has a depth of at least 1.6 millimetres around the full circumference of the tyre.

Notes

- The tread pattern means the combination of plain surfaces and groves extending across the breadth of the tread but excludes any tread wear indicators or features which are designed to wear out substantially before the rest of the pattern under normal conditions of use. Where the pattern is interrupted by tread wear indicators but has at least 1.6 mm overall tread depth the tyre concerned should not be failed for inadequate tread-depth.
- **An advisory notice applies where tyre tread depth is less than 3 mm (but more than 1.6 mm).**

5.2.3. TYRES

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Load capacity	(a). Insufficient load capacity.	MiD
b. The nominal size of the tyre to another on the same axle.	(b). Tyres fitted to the same axle are not of the same size, aspect ratio or type. (i.e. cross ply or radial ply).	MaD
c. Tyre structure compatibility.	(c). Radial ply tyres are fitted to the front wheels but not to the rear wheels.	MaD
d. Speed rating.	(d). Speed rating of tyres cannot be determined on inspection or is insufficient for maximum legal speed limit.	MaD
e. Space saver fitment	(e). A space saving tyre is fitted on an axle.	MaD
f. Fouling and protrusion.	(f). Tyre protrudes beyond bodywork or touches other fixed vehicle parts impairing safe driving.	MaD
g. Wall contact.	(g). Evidence of wall contact on twin wheel fitment.	DD
h. Compatibility.	(h). Tyre is not fit for purpose.	MaD
i. Directional and asymmetric.	(i). Any tyre fitted in the incorrect direction (directional tyres) or wrong side out (asymmetrical tyres).	MaD
j. Tyre marking.	(j). An E or e mark is not visible on the tyre.	MaD
k. Cut(s) and damage.	(k). Any serious damage to the tyre or a cut in tyre that is longer than 25mm or 10% of section width (whichever is the shorter).	MaD
l. Exposed ply or cords.	(l). If tyre is damaged that cord is visible or damaged.	DD
m. Rubber condition.	(m). Rubber badly cracked or “perished”.	MaD
n. Tread depth.	(n). Tyre tread depth is less than 1.6mm in the centre three-quarters of the tread pattern.	DD
o. Fouling on any part of the vehicle.	(o). Tyre rubbing against other components (flexible anti spray devices).	MiD
p. Fouling on any part of the vehicle.	(p). Tyre rubbing against other components (safe driving not impaired)	MaD
q. Re-grooving.	(q). Evidence of regrooving of tread pattern where tyre is not marked as “regroovable” or with the symbol “V”	DD
r. Re-grooving.	(r). Tyre is re grooved so that cord protection layer is affected.	DD
s. Inflation.	(s). Tyre(s) obviously underinflated or cannot be inflated.	MiD
t. Correct seating.	(t). A tyre is incorrectly seated on wheel rim.	MaD

5.2.3. TYRES

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
u. Lumps, bulges or tears.	(u). The ply or cord structure is ruptured or exposed, tread is lifting, a lump or bulge has been caused by separation of rubber from cords or weakness in cord structure, or tread distorted or damaged.	DD
v. Valve stem damage.	(v). Obvious damage or distortion of a valve stem is present.	MaD
w. Valve stem damage.	(w). A valve stem is chafing against valve hole.	MaD
x. Unacceptable repairs.	(x). The sidewall of a tyre has been repaired with the use of a plug.	MaD
y. Tyre Pressure Monitoring System.	(y). For vehicles first registered on or after 1 January 2015, Tyre pressure monitoring system (TPMS) malfunctioning or obviously inoperative.	MaD
z. Compatibility.	(z). Are incorrectly matched with the wheels.	MaD
aa. The structure on a steerable axle is of the same structure as any other tyre on any steerable axle.	(aa). A tyre on a steerable axle which is not of the same structure as any other tyre on any steerable axle.	MaD
bb. Combination fitment.	(bb). On a two axle vehicle fitted with single tyres on both axles, a combination of tyres with structures which are not shown as acceptable in Method of Testing. This is, however, permissible in the case of vehicles with rear twin wheels	MaD
cc. Load rating.	(cc). Tyre load index rating for a single tyre is less than 50% of the design axle weight.	MaD
dd. Load rating.	(dd). Tyre load index rating for a twin fitment tyre is less than 25% of the design axle weight.	MaD
ee. Tyre type.	(ee). Tyre use marking is not appropriate for the type of axle or vehicle to which it is fitted.	MaD
ff. “Re-tread” marking.	(ff). A tyre which has been retreaded but which does not bear the word ‘Retread’ on its sidewall.	MaD
gg. “Re-tread” marking.	(gg). A tyre which has been retreaded but which is not marked “108R” or “109R” (This marking will be located in close to the location of the E-mark).	MaD
hh. Condition.	(hh). Any tyre having a “flat spot” where the tread is worn through to the fabric.	DD

Figure 1 Tyre Speed Rating

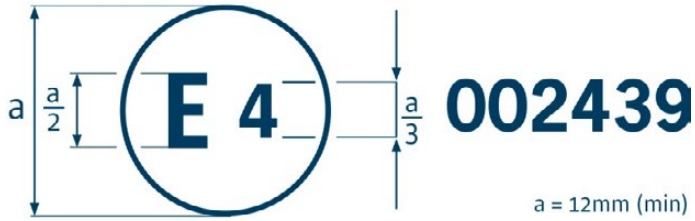
CODE	KM/H	CODE	KM/H
A1	5	**L**	120
A2	10	**M**	130
A3	15	**N**	140
A4	20	**P**	150
A5	25	**Q**	160
A6	30	**R**	170
A7	35	**S**	180
A8	40	**T**	190
B	50	**U**	200
C	60	**H**	210
D	65	**V**	240
E	70	**Z**	over 240
F	80	**W**	270
G	90	**(W)**	over 270
J	100	**Y**	300
K	110	**(Y)**	over 300

The speed rating of a tyre indicated by speed symbol which is made up of a single letter or an A with one number. It indicates the maximum speed at which the tyre can carry a load corresponding to its Load Index.

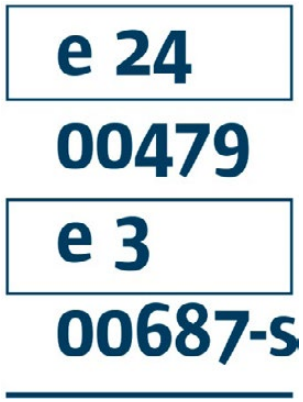
E-mark

All tyres sold for road use in the EU after July 1997 must carry an e/E-mark. The mark itself is either an upper case “E” or lower case “e” - followed by a number in a circle or rectangle, followed by a further number. An (upper case)”E” indicates that the tyre is certified to comply with the dimensional, performance and marking requirements of ECE Regulation 30 (primarily M1, O1, O2), Regulation 54 (primarily M2, M3, N, O3, O4) or Regulation 109 (retreaded tyres for commercial vehicles and their trailers). A (lower case) “e” indicates that the tyre is certified to comply with the dimensional, performance and marking requirements of Directive 92/23/EEC. The number in the circle or rectangle denotes the country code of the government that granted the type approval. The last number outside the circle or rectangle is the number of the type approval certificate issued for that particular tyre size and type.

ARRANGEMENT OF APPROVAL MARK



or



The maximum permissible axle Load for normal use can be found in the tyre load data tables made available by the RSA. The Load Index (LI) may consist of one or two numbers e.g. 154 or 146/143. Where two numbers are displayed the first refers to the use of the tyre in single formation and the second in twin formation. Reference to the table shows that the maximum loads for this tyre are 6000kg in single formation and 10900kg in twin formation.

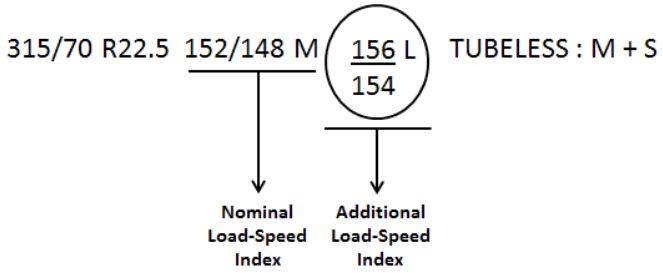
The additional load-speed index may also be used when making this determination. (Refer to tyre load data tables made available by the RSA).

A bonus load of 10% shall apply for N2, N3, M2 & M3 vehicles that are limited* to 65 km/h where the tyres have a speed rating of "G" or higher.

The tyre load index must be increased to cater for the bonus load (+10%) but the axle plated weight must not be reduced on CoVIS to match the load index of the tyres fitted to the vehicle. Where the load bonus is used the tyre load index of the tyres fitted on the vehicle should be recorded on the test report.

* As certified by the manufacturer or their authorised Irish Distributor or via the speed limiter setting.

Tyre-Sidewall Markings showing additional load-speed index



TYRE LOAD DATA TABLES - COMMERCIAL TYRES

Load Index	Mass (kg)
60	250
61	257
62	265
63	272
64	280
65	290
66	300
67	307
68	315
69	325
70	335
71	345
72	355
73	365
74	375
75	387
76	400
77	412
78	425
79	437
80	450
81	462
82	475
83	487
84	500
85	515
86	530
87	545
88	560
89	580
90	600
91	615
92	630
93	650
94	670
95	690
96	710
97	730

Load Index	Mass (kg)
98	750
99	775
100	800
101	825
102	850
103	875
104	900
105	925
106	950
107	975
108	1 000
109	1 030
110	1 060
111	1 090
112	1 120
113	1 150
114	1 180
115	1 215
116	1 250
117	1 285
118	1 320
119	1 360
120	1 400
121	1 450
122	1 500
123	1 550
124	1 600
125	1 650
126	1 700
127	1 750
128	1 800
129	1 850
130	1 900
131	1 950
132	2 000

Load Index	Mass (kg)
133	2 060
134	2 120
135	2 180
136	2 240
137	2 300
138	2 360
139	2 430
140	2 500
141	2 575
142	2 650
143	2 725
144	2 800
145	2 900
146	3 000
147	3 075
148	3 150
149	3 250
150	3 350
151	3 450
152	3 550
153	3 650
154	3 750
155	3 875
156	4 000
157	4 125
158	4 250
159	4 375
160	4 500
161	4 625
162	4 750
163	4 875
164	5 000
165	5 150
166	5 300
167	5 450

Load Index	Mass (kg)
168	5 600
169	5 800
170	6 000
171	6 150
172	6 300
173	6 500
174	6 700
175	6 900
176	7 100
177	7 300
178	7 500
179	7 750
180	8 000
181	8 250
182	8 500
183	8 750
184	9 000
185	9 250
186	9 500
187	9 750
188	10 000
189	10 300
190	10 600
191	10 900
192	11 200
193	11 500
194	11 800
195	12 150
196	12 500
197	12 850
198	13 200
199	13 600
200	14 000

The load index is a numerical code associated with the maximum load a tyre can carry at the speed indicated by its speed symbol. The above load data table is extracted from UNECE Regulation 54.

5.3.1. SPRING (COIL/LEAF), STABILISER AND TORSION BAR

Method of testing

1. Position the vehicle over the pit with its front wheels aligned over the wheel play detector plates with the brakes applied, operate the plates and observe suspension/ spring attachment points. Check spring (coil/leaf), stabiliser and torsion bar for presence, condition, security, any unsafe repair or modification. Check for the presence and condition of bump stops.

Leaf springs

2. Check each spring for its general condition and in particular for fractures in the leaves, especially in the vicinity of the anchor eye of the main leaf.
3. Note whether any spring is so weak that is not holding the body sufficiently far away from the wheels.
4. Examine condition of spring eyes/bushes.
5. Examine spring clamps to see that none is missing or insecure, thus allowing leaves to splay.
6. Check that the springs on each axle are symmetrically located.
7. Check that there is no movement of spring leaves denoting a fractured centre bolt.
8. Check that the attachments of the shackle/anchor brackets to the chassis are secure, looking for signs of movement of rivets or bolts, and elongated holes.
9. Examine the bolts and/or nuts securing the spring to the axle for tightness, and examine the spring and axle for evidence that these have been moving relative to each other.

Coil Springs

10. Examine each spring for its general condition and in particular that it is not broken, fractured or cut.
11. Note whether any spring is so weak that it is not holding the body sufficiently far away from the wheels.
12. Examine the attachment of the coil springs for security.

Torsion Bars

13. Check torsion bars for fracture or damage.
14. Examine the attachment of the torsion bars.

Spring Pins and Bushes

15. Examine the amount of play due to wear at spring anchor brackets and pins of the spring shackles.
16. Examine the condition and security of any slipper brackets.
17. Check that the anchor/shackle pins are fully in place, that they are secure and that the locking devices are in position and secure.
18. Examine the spring mountings for excessive side play.

Notes

- A bush and/or pin would be considered excessively worn if wear exceeded 2mm for 13mm diameter pins, 3mm for 25mm diameter pins and 1/8th of diameter for pins over 25mm diameter.
- For side play in spring mountings 6mm is to be considered excessive for normal suspension although this does not apply to single spring bogie suspensions. Caution should be exercised in the case of springs and suspensions with rubber/compliant mountings where the amount of free movement in new components might well exceed the above limit. In such cases the manufacturer's tolerances should be sought. Observation of the vehicle attitude when stationary can often reveal the effect of exhausted or broken springs, e.g. vehicle "sitting down" at front.
- A suspension bump stop should not be confused with rubber/synthetic suspension spring assistors.
- Observation of the vehicle attitude when stationary can often reveal the effect of exhausted or broken springs.
- An unsafe repair or modification carried out to the spring (coil/leaf)/torsion bar may require a modifications report to be presented.

5.3.1. SPRING (COIL/LEAF), STABILISER AND TORSION BAR

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Security (spring mounting).	(a). Spring mounting is obviously loose.	MaD
b. Excessive movement.	(b). Relative movement visible fixings very seriously loose.	DD
c. Condition & wear (spring).	(c). A damaged, cracked, fractured, worn or exhausted spring component.	MaD
d. Condition (road safety affected).	(d). Main spring (leaf), or additional leafs very seriously affected.	DD
e. Presence (spring(s)).	(e). Spring missing.	DD
f. Repairs/Modifications.	(f). Any obviously unsafe modification or repair.	MaD
g. Clearance.	(g). Insufficient clearance to other vehicle parts; spring system inoperative.	DD
h. Correct fitment (spring).	(h). Spring (coil/leaf) or torsion bar fitted incorrectly.	MaD
i. Condition / repairs.	(i). Any Leaf spring is broken or repaired by welding.	MaD
j. Presence & security (U-bolt).	(j). A U-bolt is loose or missing.	MaD
k. Condition (coil spring / torsion bar).	(k). A coil spring or torsion bar is broken/cut.	MaD
l. N/A	(l). N/A	
m. Presence & security (locking device).	(m). A locking device is missing or insecurely fitted.	MaD
n. Condition (spring eye-bolts/shackle pins).	(n). Spring eye-bolts/shackle pins are worn, incorrectly positioned, are of an incorrect type or are missing.	MaD
o. Security (spring eye-bolts/shackle pins).	(o). A spring eye-bolt/shackle pin is obviously loose in its bush.	MaD
p. Presence & condition (bushings or slipper pads).	(p). Spring or shackle bushes or slipper pads: Are worn, missing, perished or cracked.	MaD
q. Presence & condition (centre bolt).	(q). A spring centre bolt missing, damaged or broken.	MaD
r. Presence & condition (bump stop).	(r). A bump stop missing or ineffective.	MaD
s. Presence & condition (spring clamp).	(s). Spring clamp loose or missing.	MaD
t. Condition (leaf type spring).	(t). Spring (leaf type) contains leaves that are non-standard.	MaD
u. Presence & security (spring / torsion bar).	(u). Spring / torsion bar mounting bolts / rivets missing or loose.	MaD
v. Presence & security (slipper brackets).	(v). Slipper bracket / pin missing, damaged or insecure.	MaD

5.3.2. SHOCK ABSORBER(S)

Method of testing

1. Check each shock absorber and mounting bracket to see that they are correctly connected and in good condition.
2. Check for damage or excessive corrosion of any suspension strut mounting, wear in the shaft and the condition of the bonding between the metal and flexible material in the strut support bearing. This inspection must be conducted with the wheels clear off the ground.
3. Check the condition of any pivots.
4. Check each shock absorber for damage, corrosion and security of attachment.
5. Check each shock absorber for fluid leaks.

Notes

- A slight oil film on the piston rod of a shock absorber is not a reason for failure. Whereas an oil film that runs down the shock absorber indicates a leak and is a reason for failure.
- Damage or corrosion to the outer sleeve of a shock absorber is not a reason for failure unless detachment is imminent. Surface corrosion on a shock absorber casing is not a reason for failure.
- Some MacPherson strut top bushes are designed to have lateral play when the suspension is hanging free. Failure is only justified when play is due to wear and/or maladjustment, etc.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Presence & condition (shock mounting).	(a). A shock mounting bracket or bush is missing, loose, worn or damaged.	MaD
b. Condition (shock absorber).	(b). Shock absorber loose or not working.	MaD
c. Presence & condition (shock absorber).	(c). A shock absorber is missing or damaged, showing signs of obvious leakage.	MaD

5.3.3. TORQUE TUBES, RADIUS ARMS, WISHBONES AND SUSPENSION ARMS & 5.3.4. SUSPENSION JOINTS

(This inspection applies to front and rear suspensions)

Method of testing

1. Position the vehicle/trailer over the pit with the wheels of each axle in turn aligned over the wheel play detector plates and with the brakes applied, operate the plates and observe suspension/ spring attachment points when checking suspensions, use the vehicle manufacturer's recommended jacking points (front and rear). Certain vehicles will have to be jacked slightly in order to examine the suspension properly. In the absence of manufacturer's recommendations, see 2, 3 and 4 below.
2. Carry out the following checks whichever are relevant to the suspension type fitted by using a suitable bar under each wheel in turn and levering upwards and observe relative vertical movement between components.
3. When jacking vehicles with front suspension types that have the torsion bar or spring force acting on the lower suspension arm, they must be jacked under the lower suspension arm so that the suspension spring force is removed from the ball joints (figure 2 types 1 and 5). Beam axles should be jacked under the beam.
4. All other suspension types must be jacked so the suspension hangs freely.
5. As a general guide;
   (a). For suspension of the type shown in figure 2 type 1 and type 5, jack up the suspension so that the road wheels are clear of the ground and the suspension is as near as possible to normal running height. While each wheel is held at the top and bottom and rocked, examine for movement in the top and bottom ball joints and movement in the wishbone bushes.
   (b). For suspensions of the type shown in figure 2 type 2 and type 3, jack up the suspension so that the road wheels are clear of the ground and shake each road wheel vigorously laterally and vertically to determine the condition of the outer suspension ball joints and movement in the control arms.
   (c). For suspension of the type shown in figure 2 type 4, jack up the suspension so that the road wheels are clear of the ground.
6. Shake each wheel vigorously laterally and vertically, examine each suspension strut for wear at the strut sliding bush and gland as well as for movement at the strut upper support bearing.
7. Check the condition of wishbones and their inner bearings, ball joints, rubber gaiters, swivel joints, retaining devices, track control arms, anti- roll bars, radius rods and their mounting bushes or washers, leading arms and swinging arms for damage or distortion.
8. Check the condition of the chassis frame and body shell structure in the vicinity of suspension mounting points and suspension sub frame mounting points for fractures, excessive corrosion or distortion.
9. Check if there has been any repair or modification carried out to the suspension. An unsafe repair or modification carried out to the suspension system may require a modifications report to be presented as per the template in this manual.

Notes

- The main criteria to be used when making a defect assessment for the above methods of testing are; where the component has reached the stage where it is obviously likely to affect adversely the roadworthiness of the vehicle (dangerous) or where the condition of the component has clearly reached the stage at which replacement, repair or adjustment is necessary (major).
- Where the gaiter on the joint of an anti-roll bar link rod is torn, damaged or missing this should not be considered a reason for failure. Anti-roll bar link rods should be assessed for presence, security, condition and obvious wear.
- Anti-roll bar components should be checked for wear while operating the wheel play detector, applying hand pressure or the use of a suitable bar to check for movement. In the absence of manufacturer`s tolerance on wear between an anti-roll bar and a bushing, a bushing would be considered obviously worn if wear exceeds 3mm for a 50mm diameter bar.

5.3.3. TORQUE TUBES, RADIUS ARMS, WISHBONES AND SUSPENSION ARMS

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Condition & security (wishbones, swinging arm, track control arm and suspension strut).	(a) I. Wishbones, swinging arm, track control arm, suspension strut: attachment of component to chassis or axle is insecure or worn.	MaD
	(a) II. Wishbones, swinging arm, track control arm, suspension strut: attachment of component so insecure that directional stability of the vehicle is impaired.	DD
	(a) III. Wishbones, swinging arm, track control arm, suspension strut: a component or mounting is cracked, corroded, damaged or deformed.	MaD
b. Condition & security (anti-roll bar, torque arm/ rod and radius rod/link).	(b) I. Anti-roll bar, torque arm/rod, radius rod/link: a component is missing or broken.	MaD
	(b) II. Anti-roll bar, torque arm/rod, radius rod/link: a mounting is loose or obviously worn.	MaD
	(b) III. Anti-roll bar, torque arm/rod, radius rod/link: a component is cracked, damaged or deformed.	MaD
c. Condition & security (suspension mounting area).	(c) Suspension mounting area deformed or corroded to such an extent that the security or alignment of the suspension component is affected.	DD
d. Suspension geometry.	(d) Geometry obviously incorrect.	MaD
e. Repairs/modifications.	(e) Any obviously unsafe repair or modification to the suspension system.	MaD
f. Clearance.	(f) Insufficient clearance to other vehicle parts; system inoperative.	DD

5.3.4. SUSPENSION JOINTS

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Condition & security (swivel pin and/or bushes).	(a). Excessive wear in swivel pin and/or bushes or at suspension joints or a component is insecure or worn.	MaD
b. Excessive wear (stability affected).	(b). A component is so excessively worn or loose that directional stability of the vehicle is impaired.	DD
c. Presence & condition (retaining/locking device).	(c). Retaining or locking devices missing, insecure, worn or broken.	MaD
d. Presence & condition (dust covers/gaiters).	(d). Dust covers/gaiter split, damaged/ displaced, missing or severely deteriorated.	MaD
e. Play.	(e). Play exceeds manufacturer's specified tolerance.	MaD

5.3.5. AIR SUSPENSION (HYDROLASTIC, HYDROGAS, HYDRO PNEUMATIC SUSPENSION & BONDED SUSPENSION UNITS)

(This inspection applies to front and rear suspensions)

Method of testing

Air Suspension

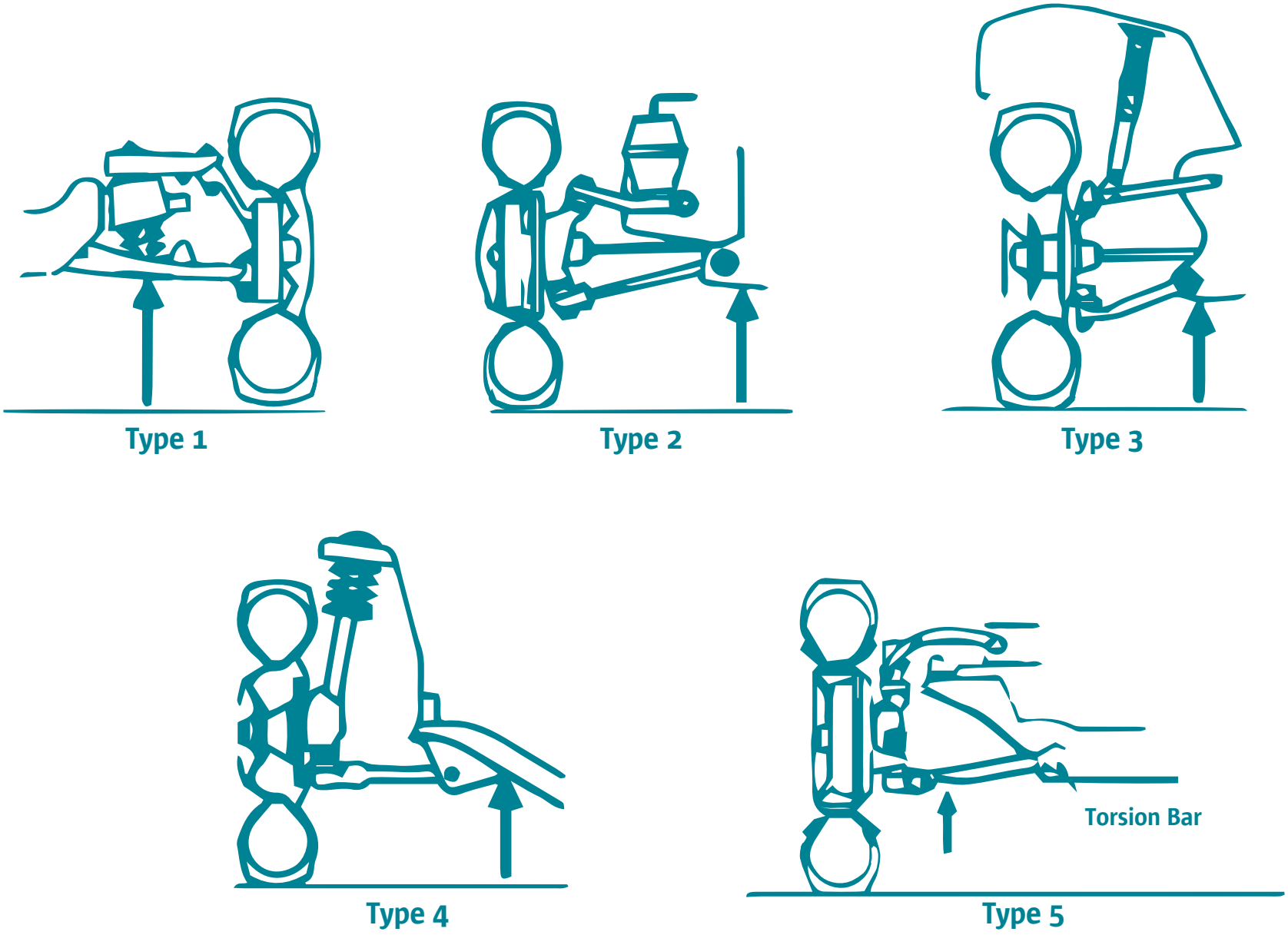
1. Check for any leaks; check the condition of the supply lines and suspension bellows.
2. Check the condition of levelling valve linkages.
3. Check the attachment of the suspension bellows for security and check the condition of bellows for lumps, bulges, cuts or exposed ply/cord structure.
4. Check the attachments for security to frame and axle.

Bonded Suspension Units

1. Check the bonding of the flexible element to its associated metal fixings.
2. Check the condition of the flexible element by applying pressure.
3. Check the attachments for security to frame and axle.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check:		
a. Operation.	(a). System inoperable, vehicle sitting on bump stops.	DD
b. Condition / modifications.	(b). Any component damaged, modified or deteriorated in a way that would adversely affect the functioning of the system.	MaD
c. Condition / modifications (stability affected).	(c). Any component damaged, modified or deteriorated in a way that functioning of the system is seriously affected.	DD
d. Air leaks.	(d). Leaks.	MaD
e. Condition (linkage to levelling valve).	(e). Linkage to levelling valve defective.	MaD
f. Movement (suspension bellows).	(f). Suspension bellows giving inadequate movement (risk of wheel fouling).	MaD
g. Condition (pipe).	(g). Pipe damaged to the extent it is likely to fail.	MaD
h. Condition & security (valve(s)).	(h). Valve(s) insecure or defective.	MaD
i. Condition (air bellows).	(i). Air bellows deteriorated or damaged to such an extent that it is likely to fail.	MaD
j. Condition (bonded suspension units, rubber/ metal attachment).	(j). Bonded Suspension: Failure of rubber/metal attachment.	MaD
k. Condition (bonded suspension unit).	(k). Bonded Suspension Units: deterioration of suspension medium (soft and sticky).	MaD

Figure 2. Suspension Types



6. CHASSIS, CAB AND BODYWORK

CONTENTS

6. CHASSIS, CAB AND BODYWORK

6.1. Chassis or Frame and Attachments

6.1.1. GENERAL CONDITION

Method of testing

With the vehicle over a pit, carry out the following checks:

1. Check cross members for deformation and/or fractures and/or advanced corrosion. Pay particular attention to a chassis or underbody which is encrusted with dirt. There may be cracks or fractures in high stress areas obscured by this dirt.
2. Check the welding and/or securing bolts/rivets for soundness and security. Pay particular attention to areas around spring and running gear mountings.
3. Check the frame/cross member junctions for indications of movement.
4. Check if there has been any obvious repair or modification carried out to the chassis or underbody.

Notes

- The test should be abandoned where a vehicle is presented in such a condition that the tester considers it unsafe to continue because it becomes apparent during the test that certain items cannot be satisfactorily inspected (e.g. dirty).
- The extent of this inspection is limited to that part of the chassis or underbody which can readily be seen without dismantling any part of the vehicle.
- The diagram below indicates the main chassis members of typical vehicle constructions.
- Where misalignment is suspected it may be necessary to confirm that the frame/chassis is within the manufacturer's tolerances.
- See examples of Surface, Advanced, and Extensive rust in the corrosion assessment section in this manual.
- An unsafe repair or modification carried out to the chassis or underbody may require a modifications report to be presented as per the template in` this manual.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition (cross-member).	(a). Slight fracture or deformation of any side or cross-member.	MaD
b. Condition (cross-member, failure imminent).	(b). Serious fracture or deformation of any side or cross-member.	DD
c. Condition and security (chassis member).	(c). Chassis members are cracked, insecure or pronounced misalignment is present.	MaD
d. Welds (chassis member/brackets).	(d). Chassis members or cross member/bracket weld is breaking away.	MaD
e. Condition (attachments and fasteners).	(e). Insecurity of strengthening plates or fastenings including rivets or bolts (up to 50%).	MaD
f. Condition (attachments, failure imminent).	(f). Majority of fastenings loose; broken or missing (50% or more) insufficient strength of parts.	DD
g. Chassis strength.	(g). The chassis/underbody is considerably weakened by holes.	MaD
h. Advanced corrosion.	(h). Advanced corrosion or other equivalent damage is present.	MaD
i. Extensive corrosion.	(i). Extensive corrosion that the chassis or frame is seriously weakened (insufficient strength of parts).	DD
j. Presence & condition (trailer landing legs).	(j). Trailer landing legs missing, insecure or defective operating mechanism.	MaD
k. Presence & condition (landing leg pads / wheels).	(k). Trailer landing legs pad/wheel missing or liable to become detached.	MaD
l. Repairs and modifications.	(l). Repairs or modifications are obviously not in line with manufacturer's recommendations.	MaD

6.1.2. EXHAUST PIPES AND SILENCERS

Method of testing

With the vehicle over a pit, carry out the following checks:

1. Check the condition of the exhaust pipes and silencers for security, leaks, fire risk and position (so that fumes are unlikely to enter the driver's or passenger's compartment).
2. Check if there has been any repair or modification carried out to the exhaust system. An unsafe repair or modification carried out to the exhaust system may require a modifications report to be presented as per the template in this manual.

Notes

- This inspection applies to all vehicles with an internal combustion engine, including hybrid vehicles.
- The overall security of the exhaust system should be assessed; one or more exhaust mountings missing may not justify rejection.
- Exhaust noise is assessed under Section 8.
- The presence of catalytic converters and diesel particulate filters is assessed under Section 8.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Security.	(a). Any exhaust component is insecurely mounted	MaD
b. Security (Liable to fall off).	(b). Any exhaust component is so insecurely mounted that it is liable to fall off.	DD
c. Condition, fitment and presence.	(c). Any exhaust component is damaged, incorrectly fitted or missing.	MaD
d. Leaks.	(d). Leaks present in exhaust system.	MaD
e. Fire risk.	(e). A risk of fire is present because of leaks or broken components in exhaust assembly.	MaD
f. Fumes.	(f). Fumes entering passenger cab or passenger compartment.	MaD
g. Excessive fumes.	(g). Excessive fumes entering cab or passenger compartment danger to health of persons on board.	DD
h. Repair or modification.	(h). Obviously unsafe repair or modification.	MaD

6.1.3. FUEL TANK AND PIPES (INCLUDING HEATING FUEL TANK AND PIPES)/SYSTEM

Method of testing

1. Check that a fuel tank cap is present and of the correct type. Check for evidence of leaking at the fuel cap.
2. Check fuel pipes to see they are securely clipped to prevent damage by vibration, chafing or cracking.
3. Check that pipelines/hoses are not damaged or deteriorated (e.g. kinked or flattened) and are not in a position to be fouled by moving parts or the road surface.
4. Check that all components of the fuel system are securely mounted.
5. Check the fuel tanks to see that they are suitable, free from advanced rust and are firmly held and secure on their mountings and in the case of Liquid Petroleum Gas/ Compressed Natural Gas that the fuel tank is not damaged.
6. Check that the excess fuel device on diesel engine vehicles cannot be readily operated from within the cab if it is of a type which, with the engine running, will cause an increase in smoke.
7. Check that the engine stop control is working satisfactorily on diesel engine vehicles. Where LPG/CNG is fitted, check that the engine fuel supply solenoids (usually in engine compartment for each fuel used) can be heard to open and close when each fuel system is selected on the dash switch.
8. Check that the air filter assembly is present and secure.
9. Check fuel tank straps or supports and mounting brackets to see that they are secure and free from fracture and that none is missing.
10. While seated in the driving position, check that the throttle control is functionally complete, not cracked, fractured, excessively worn, corroded, not obstructed or impeded in its travel.
11. On vehicles fitted with LPG or CNG, check (when required) that the retest date of the fuel tank has not passed.
12. Where the LPG/CNG fuel tank is fitted inside the vehicle, check that the tank valves are either piped separately to the outside of the vehicle or contained in a gas tight sub-compartment which is vented to the outside of the vehicle.
13. Check that any ducting used for venting sub-compartments or tank valves is not damaged or blocked.
14. Check that no fuel tank is fitted to the roof of the vehicle.
15. Where LPG/CNG is fitted, check that the manual hand valve on the tank can be closed off or where a solenoid is fitted in place of or as an extra protection for the manual valve, that it can be heard to open and close when the ignition key is switched on and off with the LPG/CNG switch on the dash in the 'on' position.
16. In CNG systems a second manual valve will normally be found near the filler valve which is usually in the engine compartment, this should also be checked.
17. Check that there are no leaks at all from the system in the case of petrol or in the case of diesel there are no leaks such that fuel is dripping on to the ground. In the case of LPG/CNG check that no hissing noise (pressure leak) can be heard.

Fuel cut off (only applies to passenger vehicles with accommodation for more than 14 passengers).

18. Check that a fuel cut off device is accessible without tools (in all fuel systems), functioning correctly and its position is clearly marked on the outside of the vehicle.

Notes

- The extent of this inspection is limited to those parts which can be seen and which are readily accessible without dismantling.
- All fuel tanks on the vehicle are included in the inspection.
- It may be necessary to open the luggage compartment to carry out a full inspection of the fuel system.
- If a fuel tank is seen to be holed, or the filler neck is seen to split it should be considered to be leaking even though a leak may not be evident because the defect is above the fuel line.

Fuel cut off (only applies to passenger vehicles with accommodation for more than 14 passengers).

- For vehicles first registered after the 29th October 2011 the fuel cut off test does not apply.
- For vehicles first registered after 28th May 2004 and before the 29th October 2011 and where the presenter provides evidence of either of the following then this test does not apply.
  a) That the vehicle was type approved to 2001/85/EC.
  b) That the vehicle has a valid UK COIF (Certificate of Initial Fitness) or that the vehicle fully complied with the requirements of the UK public service vehicle minibus National Type Approval Regulations (0189).
- Persons claiming an exemption from the requirement to have a fuel cut off because they are in receipt of a special permit from the RSA must produce a copy of the actual permit granted on the day of the test.
- The use of the ignition key from outside the vehicle may not be used as the fuel cut off.

6.1.3. FUEL TANK AND PIPES (INCLUDING HEATING FUEL TANK AND PIPES)/SYSTEM

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition and security (fuel tanks and brackets).	(a). A component is incorrectly or loosely mounted or damaged.	MaD
b. Corrosion (fuel tank).	(b). Advanced rust is present in fuel tank.	MaD
c. Leaks.	(c). Leaks in system are evident.	MaD
d. Tank compatibility.	(d). Unsuitable fuel tank has been fitted.	MaD
e. Fuel tank location (LPG/CNG).	(e). LPG/CNG tank has been fitted inside vehicle without being in a sub compartment or without having valves piped to the outside.	MaD
f. Venting or ducting pipes (LPG/CNG).	(f). LPG/CNG venting or ducting pipes are damaged or blocked.	MaD
g. Sub-compartment (LPG/CNG).	(g). Sub-compartment is obviously not gas-tight where valves are not piped to the outside.	MaD
h. Fuel tank location (external).	(h). Fuel tank is fitted to roof of vehicle.	MaD
i. Valve operation.	(i). Manual or solenoid valve is not operating.	MaD
j. Security and condition (Fuel lines).	(j). Possibility exists of fuel lines being crushed, chafed, ruptured or subject to excessive vibration.	MaD
k. Condition and presence (Fuel cap).	(k). Fuel cap or fuel cap seal is damaged or missing.	MaD
l. Fuel cut off operation.	(l). Fuel cut off (if required) missing, not operating, not accessible from outside the vehicle or position not clearly marked outside the vehicle.	MaD
m. Risk of fire.	(m). i. Fire risk due to leaking fuel	DD
	ii. Fire risk due to fuel tank or exhaust not properly shielded	DD
	iii.Fire risk due to engine compartment condition	DD
	iv. Fire risk due to insecure tank or pipes	DD
n. Throttle control.	(n). i. Throttle control is sticking, binding or excessively worn.	MaD
	ii. Throttle control a link pin, retaining device or safety device is missing.	MaD
	iii. Throttle control mounting bracket or panel is cracked or fractured.	MaD
	iv. Throttle control: excess fuel device gives off excessive smoke if operated from within the passenger compartment after the engine has been started.	MaD
	v. Throttle control: engine stop control (on diesel vehicles) is not working or is missing.	MaD
o. Air filter assembly.	(o). Air filter assembly is insecure, missing or incomplete.	MaD

6.1.4. BUMPERS, LATERAL PROTECTION AND REAR UNDERRUN DEVICES

Method of testing

Bumper & Bull Bars

1. Check components for security, jagged edges or damage that could cause injury or endanger other road users.
2. Check components for advanced or extensive corrosion.

Side Guards / Lateral Protection - Required on goods vehicles, trailers or semi-trailers exceeding a D.G.V.W. of 3,500kg first registered / licensed in the Republic of Ireland on or after the 1st day of January,1986. They are required to give protection on any side of the vehicle where the distance between any two adjacent axles exceeds 3 metres, the provision of 3 metres is from centre to centre of axles. (Certain vehicles, trailers & semi-trailers do not require side guards, see notes section).

3. Check that the side guards are securely fitted, free from cracks, corrosion, jagged edges or damage that would render the side guard ineffective or would endanger other road users.
4. Check visually that the dimensions are correct – see diagrams below.
5. Check that the side guards are fitted not more than 30mm inboard of the outermost tyre of the widest rear axle (except near the foremost edge of the side guard) and do not increase the overall width of the vehicle.

Rear underrun (Required on goods vehicles, trailers and semi-trailers exceeding a D.G.V.W. of 3,500kg and first registered / licensed in the Republic of Ireland on or after the 1st day of January, 1986). (Certain vehicles, trailers & semi-trailers do not require rear underrun, see notes section).

6. Check that the device is securely fitted, free from cracks, corrosion, jagged or sharp edges or damage that would render the rear guard ineffective or endanger other road users and that it has a ground clearance of not more than 550mm.
7. Check that the underrun device extends to within 100mm of the outer edge of the outermost tyres but not beyond this edge. The outer edges of the device must be radiused to a curvature of 2.5mm or more and must not be bent to the rear. The depth of the underrun device should be not less than 100mm.
8. Where a vehicle required to be fitted with a rear underrun device cannot be practically fitted with a one piece device it shall be fitted with two or more devices which comply with the clearance requirements in the diagram. Check that the space between one device and the device adjacent to it in such a case is not more than 500mm.

Notes

Side Guards

- In the case of a vehicle, trailer or semi-trailer, designed solely for the carriage of a fluid substance in a closed tank, which is permanently fitted to the vehicle or trailer and provided with valves and hose or pipe connections for loading or unloading, the dimensions in the sketches below shall only apply in as far as is practicable.
- In the case of a vehicle, trailer or semi-trailer, which is fitted on one or both sides with an extendable device to provide stability in operation, the dimensions in the sketches below shall only apply in so far as is practicable.
- In the case of a trailer with an extendable chassis, designed and constructed to carry exceptionally long timber poles, tree trunks, beams or girders, the area to be protected shall be determined when the chassis is at its minimum length.
- Side Guards (the following vehicles, trailers & semi-trailers do not require side guards).
- A vehicle which by its construction is incapable of exceeding 25kph (15 mph).
- A side or rear tipper, a vehicle, trailer or semi-trailer designed for refuse collection, street cleaning or for the collection or disposal of the contents of gullies or cesspools.
- The tractor unit of an articulated vehicle.
- A vehicle or trailer designed to carry other vehicles loaded on it from the front or rear.
- A vehicle with a load platform the upper surface of which is not more than 750mm from the ground along the length for which protection is required.

6.1.4. BUMPERS, LATERAL PROTECTION AND REAR UNDERRUN DEVICES

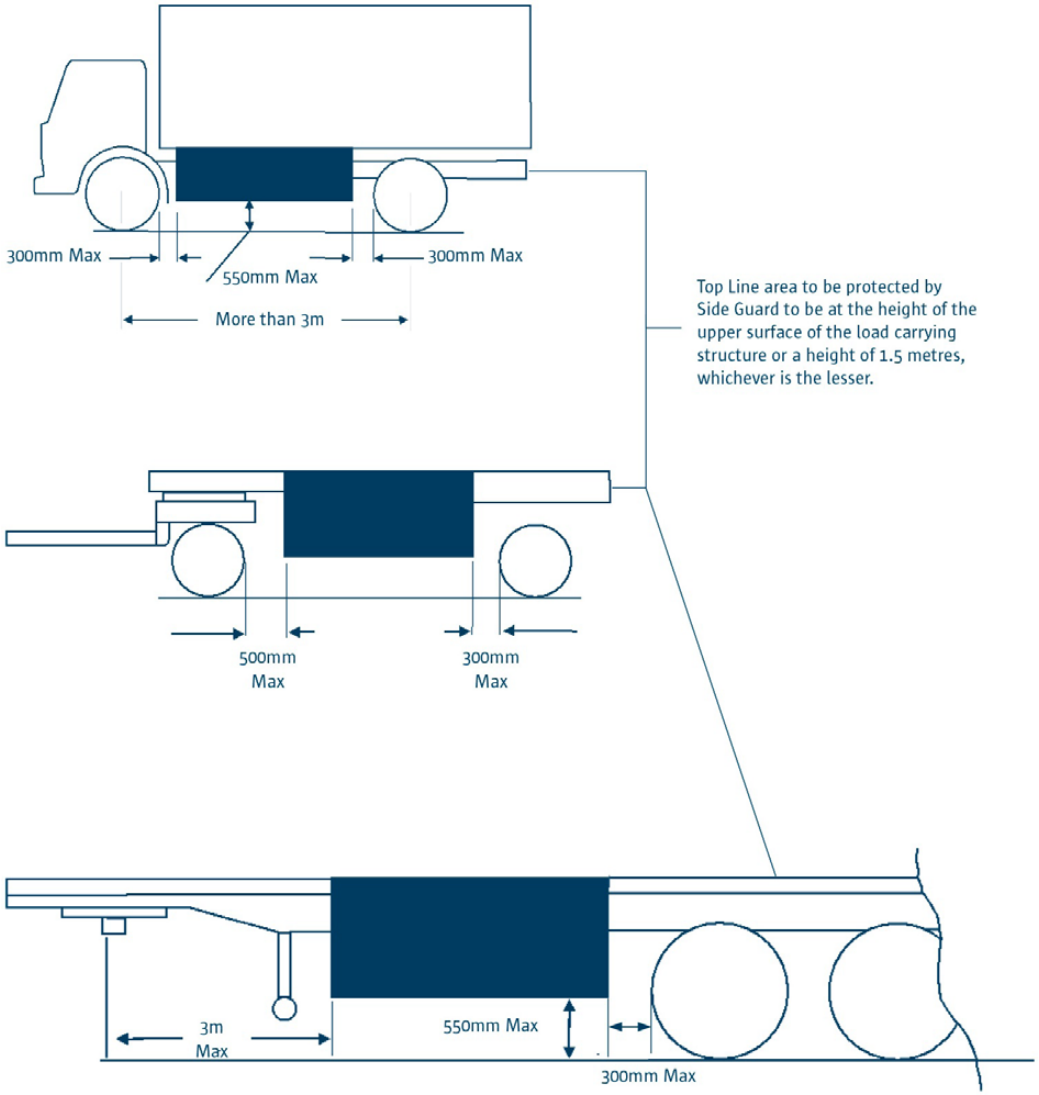
Notes

Rear underrun (the following vehicles, trailers & semi-trailers do not require rear underrun devices)

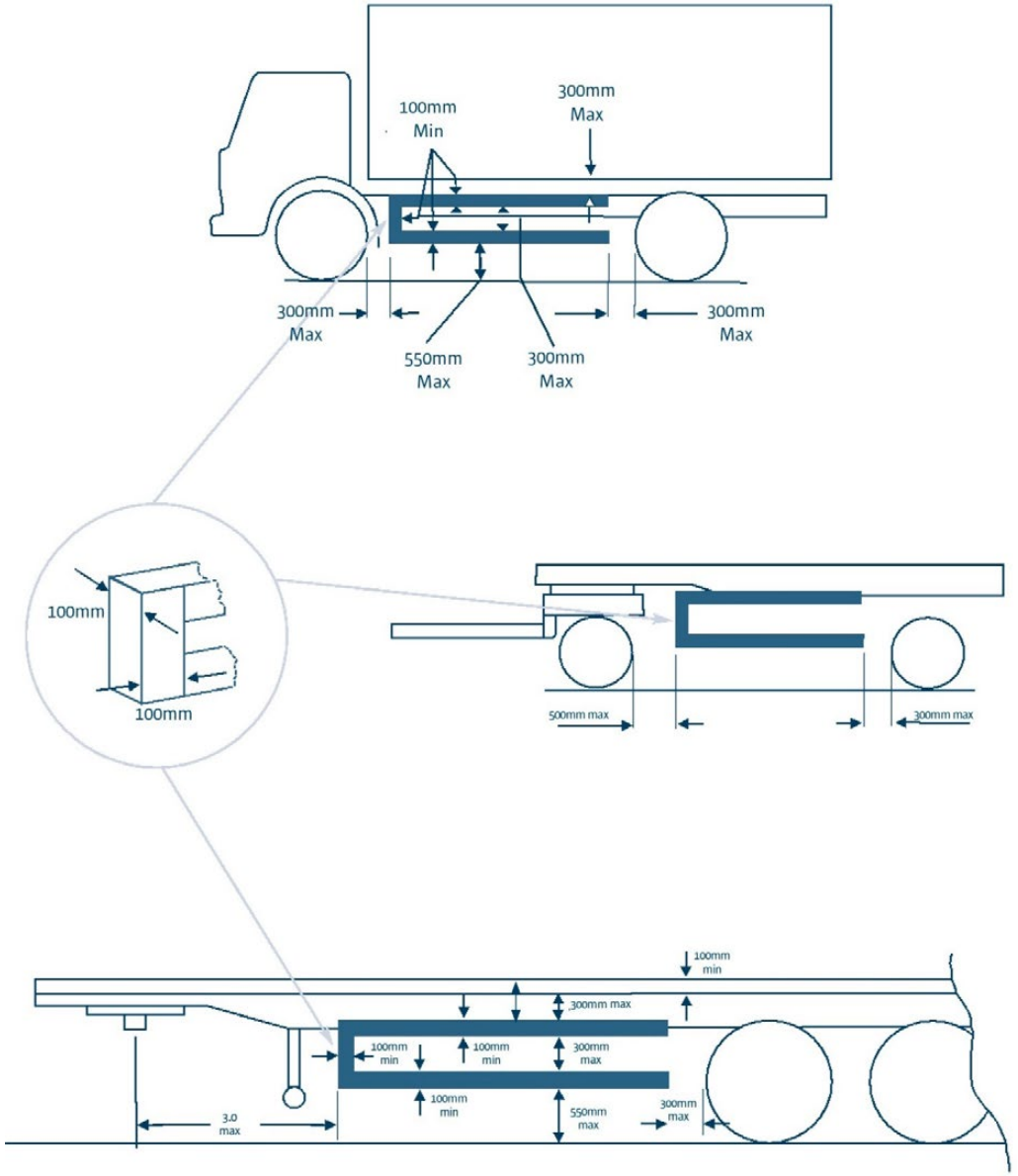
- A mechanically propelled vehicle which by its construction is incapable of exceeding 25kph (15 mph).
- The tractor unit of an articulated vehicle.
- A vehicle or trailer fitted with apparatus specially designed for spreading material on road.
- A vehicle or trailer which tips to the rear; a vehicle or trailer specially designed and constructed to carry other vehicles loaded on it from the rear (e.g. car transporter).
- A concrete mixer; vehicle, trailer or semi-trailer specially designed and constructed to carry exceptionally long timber poles, tree trunks, beams or girders.
- Vehicle fitted with a tail lift which forms at least 1 metre of the floor at the rear.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition and security (bumper/bull bar).	(a). A bumper/bull bar is loose/damaged or likely to cause injury when grazed or contacted.	MaD
b. Condition and security (bumper/bull bar, failure imminent).	(b). A bumper/bull bar is so insecurely mounted that it is likely to fall off.	DD
c. Security (body strip).	(c). Body strip is insecure.	MaD
d. N/A.	(d). N/A.	
e. Side guards / rear underrun (fitment).	(e). Not fitted to vehicle, trailer or semi-trailer where required by law.	MaD
f. Correct dimensions (Side guards / rear underrun).	(f). Dimensions incorrect not in compliance with the requirements.	MaD
g. Jagged edges (bumper or body strips).	(g). Insecure, cracked, corroded or has sharp or jagged edges.	MaD
h. Condition (bumper or body strips).	(h). Damaged in such a manner that would render it ineffective or endanger other road users.	DD
i. Side guard (outer surface).	(i). Side guard outer surface not flat or corrugated horizontally.	MaD
j. Side guard (fitment where required by law).	(j). Side guard fitted more than 30mm inboard of the outer edge of the outermost tyre of the widest rear axle.	MaD
k. Side guard / rear under run (width).	(k). Side guard / rear underrun increases overall width of the vehicle.	MaD

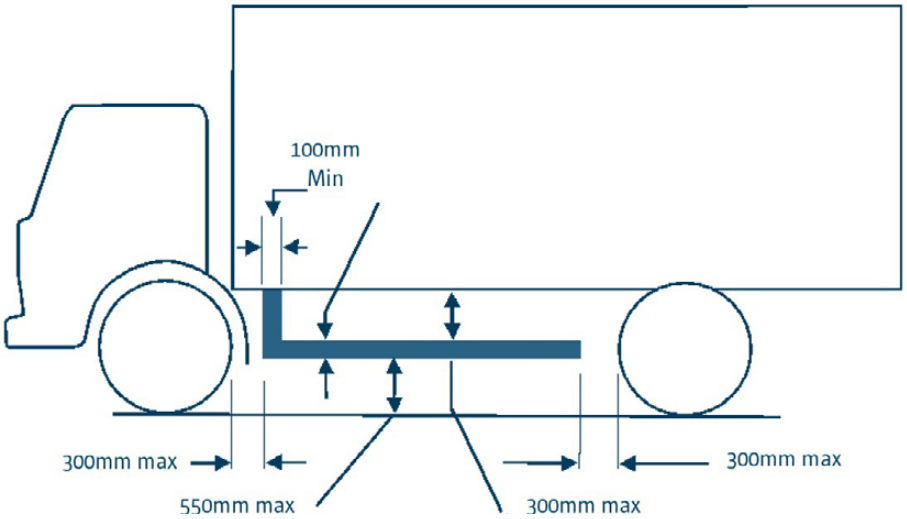
6.1. Chassis or Frame and Attachments



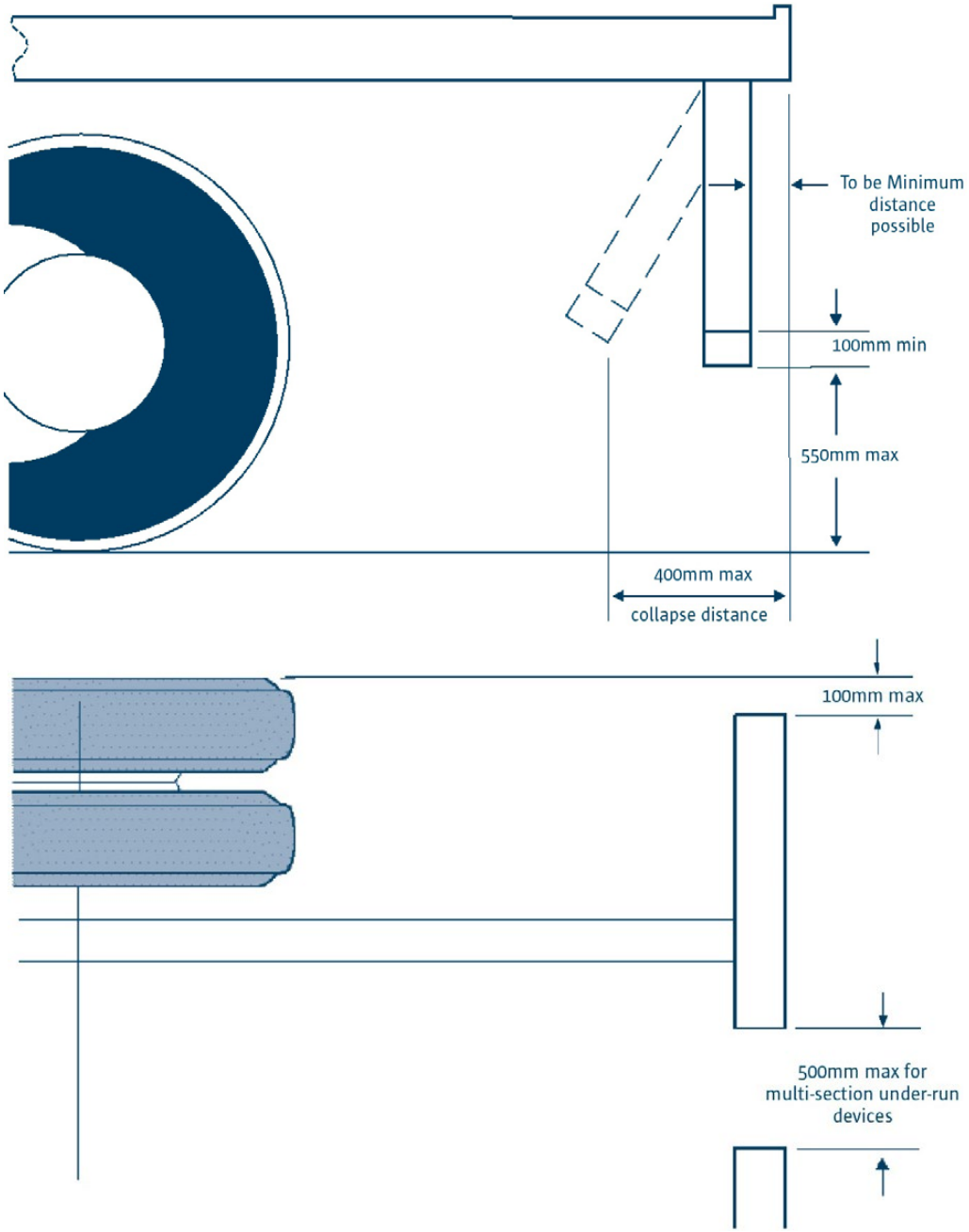
Examples of Maximum and Minimum Dimensions for Side guards for Vehicles with Superstructure Wider than Tyres



Examples of Maximum and Minimum Dimensions for Side guards for Vehicles with Superstructure Wider than Tyres



Examples of Maximum and Minimum Dimensions for Rear Underrun



Dimensions in Millimetres

Single rail guards are required to be fitted with the same size front upright as shown for the twin rail guards on page 78. A single rail guard open ended at the front is not acceptable under any circumstances. However, single rail guards could be accepted where the front upright is substituted by a fixed item which would afford the same protection as a front upright.

6.1.5. SPARE WHEEL CARRIER (IF FITTED)

Method of testing

1. Check the spare wheel carrier, if fitted, for security of attachment to vehicle.
2. Check the mounting points and the structure of the carrier are free from defects.
3. If there is a spare wheel in the carrier, check that this is securely held in the carrier.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition and security (carrier).	(a). Spare wheel carrier is cracked or insecurely mounted.	MaD
b. Security (spare wheel).	(b). Spare wheel (where present) is insecurely held in its place.	MaD
c. Security (carrier or spare wheel, risk of detachment).	(c). Spare wheel or carrier is so insecurely mounted that there is a very serious risk of it falling off.	DD

6.1.6. MECHANICAL COUPLING AND TOWING DEVICE

Method of testing

1. Check all couplings for any repairs or modifications. An unsafe repair or modification carried out may require a modifications report to be presented as per the template in this manual.
2. Where a trailer or semi-trailer is coupled to the drawing vehicle at the time of the inspection, disconnect the red suzie (i.e. the breakaway protection line) and move the drawing vehicle backwards and forwards. Check for excessive movement between drawing vehicle and trailer or semi-trailer. Uncouple the trailer or semi-trailer in order that the towing mechanism on the drawing vehicle and trailer or semi-trailer may be examined more effectively.

Towing couplings on rigid vehicles;

3. Check the vehicle coupling pin/hook/eye/ball. Note the condition of these components and ensure that they are free from distortion and/or fracture.
4. Check the hook/ball or pin/bushes for wear using a gauge where appropriate.
5. Check the body of the coupling for wear, distortion or cracks.
6. Check the cross member to which the coupling is mounted paying particular attention to the inner face of the cross member for security and cracks.
7. Check that the coupling assembly is securely attached to the vehicle.
8. Check that locking or safety devices are in position and working correctly.
9. Check any rubber components for deterioration (e.g. wear/cracks or swelling).
10. Check that the coupling is correctly positioned.

Fifth wheel coupling on towing vehicles;

11. Check the attachment of the fifth wheel assembly to the chassis/flinch plate and check the coupling plate for security, cracks and wear.
12. Check the jaw of the fifth wheel coupling for wear and check the safety locking device for presence and operation.
13. Check the articulating brackets of the fifth wheel assembly for cracks or damage and check any adjustable mechanism (e.g. sliding mechanism) for wear and security.
14. Unlock the coupling jaw by pulling the release handle to fully out position. Using an unworn dummy kingpin check that the coupling mechanism operates satisfactorily. With the dummy kingpin locked in position measure the amount of wear in the mechanism by moving the kingpin backwards and forwards.
15. Check the location of the fifth wheel assembly that is not obviously outside vehicle manufacturer's parameters (e.g. behind the rear axle centreline).

Notes

- This inspection applies only to vehicles which are fitted with equipment for towing trailers.
- Where no towing coupling is fitted, this may be noted on the test report.
- Many 'bolt-on' type tow balls have accessory devices sandwiched between the tow ball and its mounting flange. These are not to be considered as inappropriate modifications unless their fitment is clearly likely to adversely affect the roadworthiness of the vehicle/trailer combination.
- Where no towing coupling is fitted at the time of test or because it is detachable, has been unbolted or otherwise removed, but the attachment brackets are still in place, these brackets should still be assessed unless they have been deliberately rendered unfit for further use.
- Where a vehicle is presented for test with a 50mm ball hitch fitted and where there is no combination weight recorded on the manufacturer's or authorisation plate, this should not be considered a reason for failure. However if any other type of towing device is fitted there must be a combination weight on the authorisation plate.
- Care should be taken to ensure that an automatic tow hitch on a drawing vehicle is suitably matched to the towing eye on the accompanying trailer (where a combination of vehicles is presented) and that adequate provision is made for oscillation of the hitch/eye assembly.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition (coupling brackets).	(a). Cracks are present in the main parts of the coupling.	MaD
b. Wear (coupling).	(b). Ball, jaw or pin is excessively worn (e.g. 3mm wear on 50mm ball)	MaD
c. Excessive wear (coupling).	(c). Ball, jaw or pin is so excessively worn beyond limits, deformed or damaged	DD
d. Fasteners and securing devices.	(d). Fastening bolts / securing devices are loose or missing; securing device on the vehicle drawing pin/ball/jaw is loose or missing.	MaD
e. Security (attachment failure, imminent).	(e). Any attachment loose with a very serious risk of falling off.	DD
f. Presence (safety device).	(f). Safety device/lock or blocking device is missing or not operating correctly.	MaD
g. Coupling indicator.	(g). Coupling indicator not working (e.g. warning light)	MaD
h. Registration plate (obscured).	(h). Registration plate not readable (when not in use).	MaD
i. Repair or modification.	(i). Any obviously unsafe repair or modification.	MaD
j. Coupling strength.	(j). Coupling too weak.	MaD
k. Condition (fifth wheel assembly).	(k). Fifth wheel assembly mounting position obviously outside vehicle manufacturer's parameters (e.g. behind the rear axle centreline).	DD
l. Lock & blocking devices.	(l). Unsafe lock and blocking devices.	DD
m. Cracks (coupling or bar).	(m). Cracks in the main parts of the coupling or bar.	DD
n. Deformation (eye, hook, jaw, pin or ball).	(n). A deformed or damaged eye, hook, jaw, pin or ball.	MaD
o. Wear (eye, hook or ball).	(o). More than 3mm of wear in eye, hook, or ball.	MaD
p. Security (fifth wheel assembly).	(p). Fifth wheel assembly insecurely mounted, bolts loose.	DD
q. Cracks, gouging (coupler plate).	(q). Cracks or severe gouging on the coupling plate.	DD
r. Excessive wear (fifth wheel).	(r). Excessively worn jaw in fifth wheel coupling that there is very serious risk of detachment.	DD
s. Defective welding.	(s). Any defective welding associated with coupling.	MaD
t. Security & wear (articulating bracket/ bush, fifth wheel coupling).	(t). An insecure or excessively worn articulating bracket/bush on a fifth wheel coupling.	MaD
u. Play (dummy kingpin).	(u). More than 3mm of play with dummy kingpin in locked position.	MaD
v. Condition (springs).	(v). Weak or broken springs in coupling.	MaD
w. Condition (rubber blocks).	(w). Rubber blocks badly deteriorated.	MaD

6.1.7. TRANSMISSION

Method of testing

With the vehicle over a pit, carry out the following checks on the transmission and drive train.

1. Check clutch linkage, clutch pedal anti-slip provision and clutch operation.
2. Check drive shafts (both propeller shafts and half shafts), drive shaft flanges, universal joints bolts/nuts, drive shaft bearings where fitted and the security and condition of the bearing housing.
3. Check universal joints and CV joints for wear, condition and security (including CV boots).
4. Check for excessive oil leaks.
5. Check if there has been an unsafe repair or modification carried out to the engine or power train. An unsafe repair or modification carried out to the engine/powertrain may require a modifications report to be presented as per the template in this manual.

Notes

- Defects found in gearbox, differential or hub reduction gears can only be those noted when driving the vehicle at low speed in the test area.
- Drive train includes engine, gearbox, drive shafts, and final drive.
- Excessive oil leak is any oil leak from any assembly which can deposit oil at a rate of a 75mm diameter pool in 5 minutes or a number of leaks which collectively would deposit oil at the same rate.
- When carrying out this inspection it is important that the vehicle is in neutral gear and that, if a transmission brake is fitted, it is released. Wheels should be chocked.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Propeller shaft securing bolts.	(a). Loose or missing propeller shaft or half shaft securing bolts or nuts.	MaD
b. Propeller shaft securing bolts (detachment likely).	(b). Propeller shaft or half shaft securing bolts or nuts so loose or missing that detachment is likely.	DD
c. Clutch pedal anti-slip provision.	(c). Clutch pedal anti-slip provision is missing, loose, or worn to the extent that it is no longer effective.	MaD
d. CV / universal joints wear.	(d). Excessive wear at CV/universal joints or coupling.	MaD
e. CV/universal joints (detachment likely).	(e). CV/Universal joint(s) or coupling so excessively worn that there is a serious risk of loosening or becoming detached.	DD
f. Driveline component security.	(f). Driveline component is liable to lock up or break away.	MaD
g. Bearing/bearing housing mounting.	(g). Bearing/bearing housing/ housing mounting is askew, damaged or worn.	MaD
h. Bearing/bearing housing mounting (detachment likely).	(h). Bearing/bearing housing/ housing mounting is askew, damaged or worn that there is a very serious risk of loosening or becoming detached.	DD
i. Locking tabs presence.	(i). Lock tab is missing.	MaD
j. CV joint(s) boot(s) condition and security.	(j). CV joint(s) coupling grease boot(s) is missing, torn or not secured.	MaD
k. Excessive oil leaks.	(k). Excessive oil leak in engine, gearbox or axle.	MaD
l. N/A	(l). N/A.	
m. Propeller shaft or half shaft condition.	(m). Propeller shaft or half shaft is damaged or bent.	MaD
n. Drive shaft carrier bearing.	(n). Drive shaft carrier bearing obviously worn/fractured or insecure.	MaD
o. Drive shaft carrier bearing (detachment likely).	(o). Drive shaft carrier bearing so worn fractured or insecure that there is a very serious risk of loosening or falling off.	DD
p. Clutch condition.	(p). Clutch slips or drags so that driving is impaired.	MaD

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
q. Gear shift linkage.	(q). Gear shift linkage including gear lever worn or loose that driving is impaired.	MaD
r. Dust cover presence and condition.	(r). Dust cover missing or severely deteriorated.	MaD
s. Unsafe repair or modification.	(s). Any obviously unsafe repair or modification to the engine or drive train.	MaD
t. Clutch linkage.	(t). Clutch operating linkage not working, defective or leaking.	MaD
u. Clutch linkage (failure likely).	(u). Risk of failure of clutch operating linkage.	MaD
v. Final drive.	(v). i. Final drive: pinion or gear or sprocket seriously damaged or worn.	MaD
	ii. Final drive: serious damage to bearings or shafts.	DD

6.1.8. ENGINE/GEARBOX MOUNTINGS

Method of testing

1. Check engine/gearbox mountings for condition and security and their installation to the chassis or underframe.
2. Check for cracks or fractures and signs of deterioration.

Notes

- There will only be a failure under this item if a mounting is no longer capable of performing its function of location and support.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition and security (mounting).	(a). Mountings loose, worn or damaged.	MaD
b. Condition and security (mounting, detachment likely).	(b). Mounting so deteriorated damaged or Loose that detachment is likely.	DD

6.1.10. TRAILER/SEMI-TRAILERS (DRAWBAR, KINGPIN COUPLING ASSEMBLY, RUBBING PLATE)

Method of testing

1. Check all couplings (drawbar, kingpin coupling assembly, rubbing plate) for any repairs or modifications. An unsafe repair or modification carried out may require a modifications report to be presented as per the template in this manual.

Drawbar Trailer

2. Check the condition of the drawbar such that it is free from distortion and/or fracture.
3. Check the drawbar assembly for wear and security.
4. Check the drawbar eye and bushings for wear and provision for vertical articulation.
5. Check that safety devices are in position and working correctly.

Fifth Wheel Coupling

6. Clean off the rubbing plate area for a distance of 400mm from the centre of the kingpin and check for cracks.
7. Check the kingpin for security, damage or cracks and check for excessive wear using relevant equipment.
8. Place a straight edge (e.g. spirit level) across the rubbing plate and check for wear/distortion.
9. Check the rubbing plate attachment to the semi-trailer.
10. If it is possible to examine the attachment of the kingpin to the chassis/rubbing plate (e.g. via a hatch in the floor) check that the kingpin “mushroom” is securely attached to the trailer framework/rubbing plate.

Automatic Coupling

11. Check the condition of operating members for wear and security.
12. Check that safety devices are in the correct position.

Notes

- Normal safety precautions should be taken when examining semi-trailer kingpins e.g. the use of supports to supplement the landing legs before inspection of trailer kingpin and rubbing plate.
- The 3mm wear limit applies to a typical 50mm eye, hook, ball or pin. For other dimensions of eye, hook, ball or pin, wear beyond 1/20 of the original thickness of the metal would be a reason for failure.
- In the absence of manufacturer`s tolerance regarding wear/uneveness on a trailer rubbing plate, a plate should be considered excessively worn if uneveness exceeds 3.5mm with a straight edge placed across the rubbing plate.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition (drawbar).	(a). Seriously deformed, fractured or insecure drawbar.	DD
b. Security (fastening bolts / devices)	(b). Loose fastening bolts or securing devices.	DD
c. Condition (bushings).	(c). Worn drawbar bushes.	MaD
d. Presence (safety/locking devices).	(d). Missing or inadequate safety or locking devices.	MaD
e. Wear (drawbar eye).	(e). More than 3mm wear in drawbar eye	MaD
f. Wear (kingpin).	(f). More than 3mm wear in 50 mm kingpin	MaD
g. Condition (kingpin)	(g). Bent, cracked or damaged kingpin.	DD
h. Defective welding (kingpin/rubbing plate).	(h). Any defective welding associated with kingpin or rubbing plate.	MaD
i. Excessive wear (rubbing plate).	(i). Excessively worn/distorted rubbing plate.	MaD
j. Condition (rubbing plate).	(j). Cracks in rubbing plate.	MaD
k. Welding (fatigue cracks).	(k). Welding of fatigue cracks on rubbing plate surface.	DD
l. Security (rubbing plate & kingpin).	(l). Insecure rubbing plate or kingpin.	DD
m.Condition (rubbing plate, functionality affected).	(m).Rubbing plate in such a condition that the kingpin/rubbing plate assembly is unduly distorting or flexing under load.	MaD
n. Operation (vertical articulation).	(n). Inadequate provision for vertical articulation.	MaD
o. Condition (automatic couplings).	(o). Worn or defective automatic coupling components.	DD
p. Operation (safety device).	(p). A safety device (e.g. warning device) not operating.	DD
q. Repair or modification.	(q). Unsafe repair or modification.	MaD

6.1.11. ARTICULATED BUS COUPLING

Method of testing

Articulated bus coupling;

1. Open both inspection covers (in the floor) and check the coupling framework for cracks or damage.
2. Inspect the coupling framework bushings/pins for deterioration, wear and security.
3. Check ram pins for wear and security.
4. Check hydraulic rams and pipes for leaks and deterioration.
5. Move the vehicle backward and forward and note any movement in the coupling (this inspection may be carried out using the wheel play detectors).
6. Check air pipes for leaks, deterioration and/or security.
7. Check sensors or sensor brackets for security.
8. Check for any repairs or modifications. An unsafe repair or modification carried out may require a modifications report to be presented as per the template in this manual.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Play (between vehicle & trailer).	(a). More than 6mm total free play movement in coupling between the vehicle and trailer.	DD
b. Condition (cracks or damage).	(b). Cracks or damage in coupling framework.	DD
c. Condition & security (framework bushings/pins).	(c). Framework bushes/pins, insecure, deteriorated and worn	MaD
d. Condition & security (ram pins).	(d). Ram pins insecure/worn	MaD
e. Leaks (hydraulic rams).	(e). Hydraulic rams leaking.	MaD
f. Condition (hydraulic pipes).	(f). Hydraulic pipe leaking or deteriorated (e.g. cracks in flexible hydraulic pipes)	MaD
g. Wear (coupling).	(g). Wear in coupling beyond manufacturer's tolerance.	DD
h. Condition & security (air pipes).	(h). Air pipe leaking or insecure.	MaD
i. Security (sensor/sensor bracket).	(i). Sensor or sensor bracket insecure.	MaD
j. Repairs & modifications.	(j). Unsafe repair or modification.	MaD

6.2. Cab and Bodywork

6.2.1. GENERAL CONDITION (CAB/VAN/BODY)

Method of testing

With the vehicle over a pit, carry out the following checks:

1. Check the general condition of the vehicle structure for any fractures, damage, corrosion or inessential projections which might cause injury.
2. Check for security and condition of the cab by pushing and rocking the cab by hand where practical and check from both sides of the vehicle that the body is sitting squarely on the chassis. On tilt cabs check the retention and/or for locking devices and security.
3. Check that the bonnet main lock and safety catch operate correctly and check operation of boot lock.
4. Check the cab and mountings for damage and excessive corrosion to a load bearing member which seriously reduces its strength near the cab mountings.
5. Check that water or fumes are unlikely to enter the cab e.g. gear lever rubber boot should not be torn and check from both sides of the vehicle that the body is sitting squarely on the chassis.
6. Check the following items for security, freedom from fracture or distortion, serious structural corrosion, excessive wear or damage, and check that none is missing:
   (a). fixings (e.g. brackets) securing the body to the cross members or chassis and securing cross or longitudinal members to the chassis;
   (b). securing bolts or rivets for the above fixings;
   (c). parts of the body designed to carry or contain the load including the floor and main support pillars;
   (d). cross, longitudinal members, hinges, locking and retaining devices of drop sides and tail lifts.
7. Check panels and other similar devices to see that they are in position and that they are:
   (a). Securely fixed and not badly affected by corrosion.
   (b). Free from tears and jagged edges and check that there is sufficient clearance to rotating or moving parts and the road.
8. Check wind deflectors and other cab mounted accessories for security.
9. Check if there has been an unsafe repair or modification carried out to the cab or body work. An unsafe repair or modification carried out may require a modifications report to be presented as per the template in this manual.

Notes

- Typical Primary Structure Components are illustrated in figure 1 below.
- Secondary Structures include any structure or component which, if it collapsed, would not immediately affect a vehicle's controllability. Normally, surface rust or advanced rust in these structures or components would not make the vehicle unsafe. Extensive rust in these components is usually either hazardous to people in or near the vehicle because of its sharp edges or because exhaust fumes may escape into the vehicle. In such cases, this type of rust would make the vehicle unsafe.
- The term "other similar devices" has a wide interpretation. The criterion to be used is that the road wheels must have associated with them equipment or part of the body which catches, so far as is practicable, mud or water thrown up by the rotation of the road wheels.
- Typical Secondary Components are listed in the corrosion assessment section of this manual.
- Having regard to the purpose for which they are used the bodies of commercial vehicles are often subjected to rough treatment. Any superficial damage which does not affect the strength of the component, and is not likely to injure other road users should not be regarded as a defect.

6.2. Cab and Bodywork

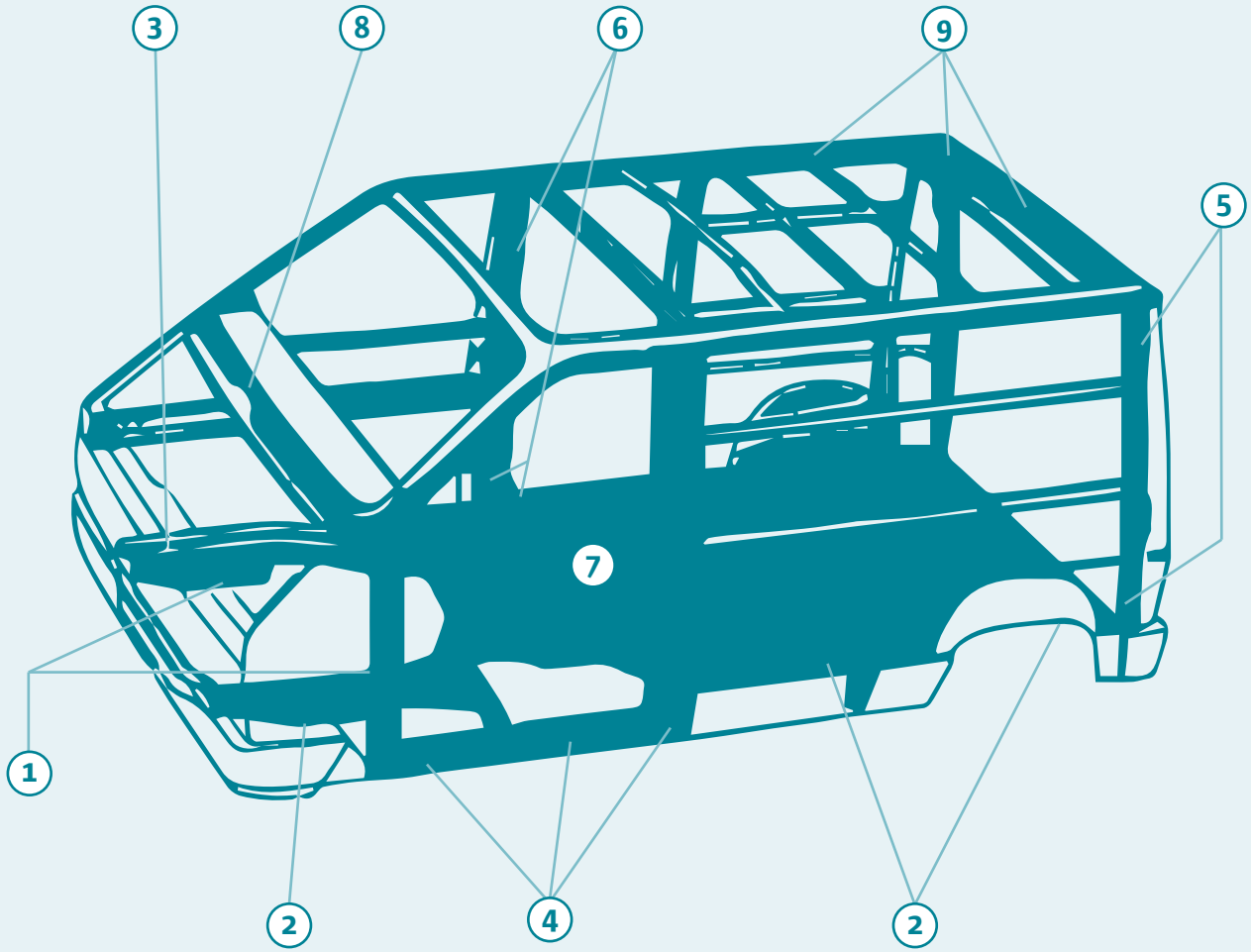
6.2.1. GENERAL CONDITION (CAB/VAN/BODY)		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for:		
a. Security and condition.	(a). Loose or damaged panel or part likely to cause injury.	MaD
b. Security and condition (likely to fall off).	(b). Loose or damaged panel or part that it is likely to fall off.	DD
c. Condition (primary structural components).	(c). Primary structural components broken, cracked, insecure, damaged or rusted to an advanced stage that stability is impaired.	DD
d. Condition (secondary structural components).	(d). Secondary structural components missing, insecure, rusted or damaged to such an extent as to leave sharp edges.	MaD
e. Cab squareness / distortion.	(e). Cab not sitting squarely due to distortion.	MaD
f. Presence and condition (bonnet / boot catches).	(f). Bonnet or boot catches defective or bonnet safety catch missing or defective.	MaD
g. Exhaust fumes in cab.	(g). Bodywork so deteriorated or damaged that engine or exhaust fumes are entering the cab. Danger to health of persons on board.	DD
h. Repairs and modifications.	(h). Obviously unsafe repair or modification.	MaD
i. Sufficient clearance.	(i). Insufficient clearance to rotating or moving parts and road.	DD
j. Advanced rust, cracks and condition.	(j). Advanced rust, cracked, damage or insecure.	MaD
k. Advanced rust, damage (bracing and support spars).	(k). Advanced rust or damage in bracing and support spars.	DD
l. Advanced rust, damage (body panels or floor).	(l). Advanced rust or damage in the body panels or floor.	MaD
m. Condition (panel / pillar / floor).	(m). Body panels, pillars or floor deteriorated or damaged to such an extent that it can no longer adequately perform its function.	DD
n. Condition (Cross / longitudinal member).	(n). Cross or longitudinal members in such condition that the integrity of the body is seriously affected.	MaD
o. Condition (twist locks / retaining device(s)).	(o). Defective twist locks or retaining devices.	MaD
p. Presence, security and condition (body fixings).	(p). Body fixings (e.g. brackets) missing, or loose, worn or damaged.	MaD
q. Condition (Cross / longitudinal member).	(q). Cross or longitudinal members so deteriorated or damaged to such an extent that it can no longer adequately perform its function.	DD
r. Leaks (driver or passenger compartment).	(r). Leaks permitting the entry of water or fumes into the driver or passenger compartment (other than open deck vehicles).	MaD
s. N/A	(s). N/A.	
t. Advanced rust (door(s), pillars, floor, mounting area).	(t). Advanced rust or damage in door(s), pillars, floor or mounting area.	MaD
u. Cab mountings.	(u). Cab mountings, worn, insecure or interfering with control functions.	MaD
v. Presence and condition (Retention / locking device).	(v). A retention and/or locking device on a tilt cab defective or missing.	DD

6.2. Cab and Bodywork

Figure 1 Primary Structure Components

Typical Primary Structure Components (as illustrated below) include;

(1) Main Structural Members such as sub frames and chassis rails.
(2) Suspension mounting areas.
(3) Steering box mounting point.
(4) Door sills and pillars.
(5) Door hinge mounting areas.
(6) Seat and seat belt anchorage points.
(7) All floor panels.
(8) Bulk head.
(9) Body Structural Members.



6.2.2. MOUNTING (CAB & BODY TO CHASSIS)

Method of testing

1. Visually inspect the vehicle over a pit.
2. Check the mounting of both the cab and body (where applicable) to the chassis. Particular attention should be paid to the general security and any displacement of either the cab or body relative to the chassis. The inspection should cover all fixings securing the body to the chassis or to a sub-frame or supporting members. Tipping gear mountings (where fitted) shall also be checked as part of this inspection.
3. Check tipping/lifting gear (where fitted) for security, serious leaks or obvious defects in valves. Check for wear in tipping gear pivots.
4. Check for advanced and excessive corrosion, cracks, or damage to a load bearing member (e.g. cross or longitudinal members) such that the integrity of the body is affected.

Notes

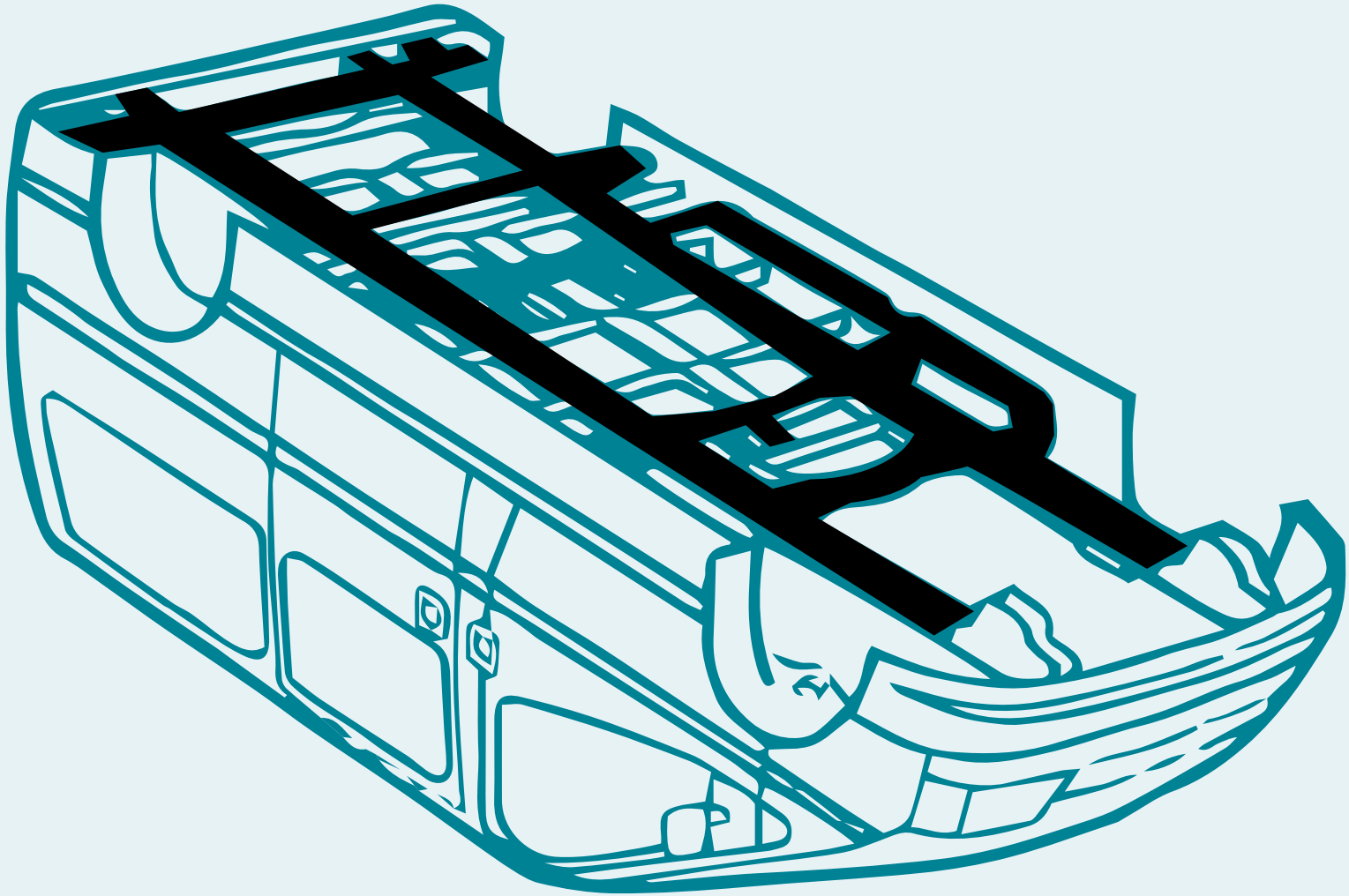
- All means of securing the cab and body to the chassis are to be inspected where practical. Movement which is designed into mountings should not be confused with insecurity or excessive wear.
- Corrosion Assessment – Before carrying out the assessment, testers should familiarise themselves with the corrosion assessment section of this manual. The inspection should determine whether advanced corrosion exists first by visual inspection and then by finger and thumb pressure. If necessary careful scraping or light tapping of the area is permitted. Corrosion affected heavy gauge metal may be tapped harder than light gauge, but unwarranted force and damage must be avoided.
- Excessive wear in tipping gear pivots is considered to be 3mm wear between a bush and bar on a 50mm bar in the absence of manufacturer's guidelines.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Security.	(a). Body insecure.	MaD
b. Security (stability affected).	(b). Body so insecure that stability is affected.	DD
c. Body squareness.	(c). Body obviously not located squarely on chassis.	MaD
d. Presence and condition (fixing(s)).	(d). Insecure or missing fixing of body/cab to chassis or cross-members.	MaD
e. Presence and condition of (fixing(s), detachment likely).	(e). Insecure or missing fixing of body/cab to chassis or cross-members to such an extent that detachment is likely.	DD
f. Advanced corrosion (body integrity is affected).	(f). Advanced corrosion on cross or longitudinal members in such condition that the integrity of the body is affected.	MaD
g. Extensive corrosion (body integrity is affected).	(g). Extensive corrosion on cross or longitudinal members in such condition that the integrity of the body is seriously affected.	DD
h. Security and leaks (tipping gear).	(h). Tipping gear insecurely mounted or leaking.	MaD
i. Wear (tipping gear).	(i). Tipping gear pivots excessively worn (3mm on 50mm bar).	MaD
j. Operation (tipping gear).	(j). Tipping gear on/off valve defective	MaD

6.2. Cab and Bodywork

Figure 2. Main Chassis Members.

Main Chassis Members are shown in black.



6.2.3. DOORS AND DOOR CATCHES

Method of testing

Visually inspect the condition and operation of the doors and door catches. (This section applies to doors fitted to trailers where applicable).

1. Check the condition and operation of the doors and door catches fitted to the vehicle. Open and close the driver's and passenger's doors. Check that a door is fitted and can be opened and closed normally. Check that doors are not so worn or damaged such that it is very difficult to open or close them.
2. Check that doors will not open inadvertently and can be opened from both inside and outside the vehicle.
3. By lifting the bottom of the door check for excessive play in the door hinges. Close the door and, without turning the handle, note whether the door primary and secondary catches hold the door closed.
4. By opening and closing each door note whether the door pillars are free from damage and deterioration.
5. If the vehicle is fitted with sliding doors examine the condition of the runners and tracks and actuating mechanism.
6. Check safety devices (where fitted) for non-operation or any defects.

Notes

- The above methods of testing of doors does not apply where a door was not fitted as part of the original design of the vehicle. Similarly, a lack of door handles because of original design characteristics or specialist modification is not considered to be a reason for failure provided the door can be latched securely in the closed position. The driver's and all passenger doors must be able to be opened from outside. Drivers and front passenger doors must also be able to be opened from inside, using the relevant control in all cases.
- The absence of a door handle from a luggage/cargo door should not be considered a reason for failure provided the door can be opened and closed from either the inside or outside. If it is not possible to open a luggage/cargo door, then it must be permanently secured in the closed position by other means in addition to the catch. However it must be possible to access the luggage/cargo area of a vehicle through at least one door, located behind the front row of seats. Access to the luggage/cargo area does not apply to vehicles used for cash in transit or vehicles used by driving schools where the doors are permanently secured.
- Door hinges, catches and pillars should only be failed for deterioration if door operation is adversely affected, in the absence of manufacturer`s wear tolerance, door hinges should be considered excessively worn if the door cannot be opened and closed normally.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Presence and condition.	(a). A door is missing or is likely to open inadvertently.	DD
b. Operation.	(b). A door cannot be opened or shut normally/excessively worn hinges.	MaD
c. Operation (sliding door).	(c). A sliding door likely to open inadvertently or one that will not remain closed.	DD
d. Wear, damage or defects.	(d). Door, hinges, catches or pillar deteriorated/missing/ not functioning or loose.	MaD
e. Defects (sliding door).	(e). Runners, tracks or an actuating mechanism on a sliding door is so defective that the door does not open or close properly.	MaD
f. Safety devices (general).	(f). Any safety device is not working or is defective.	MaD

6.2.4. FLOOR

Method of testing

Visually inspect the vehicle over a pit.

1. Check the condition of the floor (including areas around the internal wheel arches).
2. Check for signs of deterioration or insecurity that could affect the driver's stability or impair the driver's control of the vehicle.

Notes

- This inspection applies to the floor in driver, passenger and goods carrying compartments (including trailers).

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition and security.	(a). Floor insecure or badly deteriorated.	MaD
b. Deterioration (driver's stability affected).	(b). Floor insecure or badly deteriorated that the stability of driver's seat is affected.	DD

6.2.5. DRIVER'S SEAT

Method of testing

Visually inspect the condition and operation of the driver's seat.

1. Check the driver's seat and seat mountings for security and condition noting any movement of the seat relative to the vehicle body and check the condition of the seat back and seat cushion.
2. Check for collapsed or damaged framework and damage to seat cushion / support foam such that the driver's support or stability may be impaired.
3. Check that the driver's seat position adjusting mechanism is functioning properly (i.e. can be adjusted forwards and backwards and secured in the selected positions) and that the backrest can be secured in its normal upright position.

Notes

- A seat should fail when it is so loose that detachment from the runners or sliding backwards or forwards is likely. The driver's seat should be failed where the seat support foam cannot be contained, e.g. keeps falling out. This does not mean the seat fails if the upholstery is torn or worn. A seat cover is an acceptable means of containing the foam.
- When inspecting the driver's seat adjustment mechanism it is not necessary to check that the seat can be secured in all possible positions.
- Where a vehicle is fitted with electrically adjusted seats, it is not necessary to check any 'memory position' function(s).

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Security.	(a). Loose on runners or insecurely mounted that the stability is affected.	DD
b. Framework damage.	(b). Collapsed or framework damaged.	MaD
c. Condition (seat and cushion).	(c). Driver's seat so damaged that driver's support is impaired or interior foam is protruding beyond the seat trim.	MaD
d. Operation (adjustment controls).	(d). Driver's seat adjustment mechanism not functioning correctly.	MaD
e. Operation (backrest controls).	(e). Seat backrest not fixable.	DD

6.2.6. OTHER SEATS (PASSENGER SEATS)

Method of testing

Visually inspect the condition and operation of seats other than the driver's seat (i.e. passenger seats).

1. Check the seat and seat mountings for security and condition noting any movement of the seat relative to the vehicle body and check the condition of the seat back and seat cushion. Check for collapsed or damaged framework and damage to seat cushion or support foam.

Notes

- A seat should fail when it is so loose that detachment from the runners or sliding backwards or forwards is likely.
- A seat shall not fail for slight tears or wear to the upholstery. A seat cover is an acceptable means of containing the foam.
- or N2 & N3 vehicles the maximum number of seats excluding the driver's seat may not exceed 8.
- The requirements regarding the number of seats apply to seats that are designed for use when the vehicle is travelling on the road.
- Main parts includes components such as; seat frames while secondary parts include; seat cushion, back rest etc.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for: a. Condition and security (secondary parts) b. Condition and security (main parts)	(a). Seats in defective condition or insecure (secondary parts). (b). Seats in defective condition or insecure (main parts).	MiD MaD

6.2.7. DRIVING CONTROLS

Method of testing

This inspection applies to driving controls that are not covered in other sections of this manual, for example adaptations for disabled drivers.

1. Visually check that any control necessary for the safe operation of the vehicle is functioning correctly.
2. While sitting in the driver's seat, by operating the driving controls, where appropriate, check that they are:
   (a). Functioning correctly and not obstructed or impeded in their travel.
   (b). Positioned so that they can be satisfactorily operated without impairing proper control of the vehicle.
   (c). Not worn, insecure, sticking, fouling or likely to fail.
   (d). In the case of a vehicle fitted with adaptations for disabled drivers that a servo or electrical device is not obviously defective.
   (e). In the case of a vehicle fitted with adaptations for disabled drivers that wiring is secure, insulation is not damaged or is likely to short circuit or fail.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Safe Operation.	(a). Any control necessary for the safe operation of the vehicle not functioning correctly.	MaD
b. Safe operation (safety affected).	(b). Any control necessary for the safe operation of the vehicle not functioning correctly such that safe operation affected.	DD
c. Condition and operation (adaptations for disabled drivers).	(c). Adaptations for disabled drivers	
	i. Adaptations for disabled drivers: any adaptation is worn, insecure, sticking, fouling or likely to fail.	MaD
	ii. Adaptations for disabled drivers: a servo or electrical device is defective.	MaD
	iii. Adaptations for disabled drivers: wiring is insecure, insulation is damaged or is likely to short circuit or fail.	MaD

6.2.8. CAB STEPS / RUNNING BOARDS

Method of testing

1. Visually inspect the presence, condition and security of steps and running boards (where fitted).
2. Where any retractable steps are fitted to a vehicle, check that these operate correctly and do not pose any hazard of injury to users.

Notes

- This inspection only applies to those vehicles fitted with steps to aid entry into the driver's and/or the front passenger compartment.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Security	(a). Step or step rung insecure.	MaD
b. Condition and security (main parts)	(b). Insufficient stability.	MaD
c. Presence and condition	(c). Missing/unsafe likely to cause injury to users.	MaD

6.2.9. OTHER INTERIOR AND EXTERIOR FITTINGS AND EQUIPMENT

Method of testing

1. This inspection applies to internal and external fittings and equipment that are not covered in other sections of this manual, for example; printers, computers and tail lifts etc.
2. Check the condition and safe operation of qualifying parts and ensure there are no leaks or loss of hazardous material.

Notes

- It is inevitable that due to changes in design, or other reasons, from time to time defects may be found which are not described in any of the reasons for failure in the other sections of this manual. Therefore this section is to be used in cases only where a particular component is not checked under another section of this manual.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition	(a). Attachment of other fitting or equipment defective.	MaD
b. Safe operation.	(b). Parts fitted likely to cause injuries; safe operation affected.	MaD
c. Leaks (hydraulic equipment)	(c). Leaking hydraulic equipment.	MiD
d. Loss of hazardous material.	(d). Extensive loss of hazardous material.	MaD

6.2.10. MUDGUARDS (WINGS), SPRAY SUPPRESSION DEVICES (WHERE FITTED)

Method of testing

Mudguards & Wings

1. Visually inspect the presence, condition and security of mudguards and wings.
2. Check that devices are free from tears and jagged edges that may interfere with the safe operation of adjacent vehicle components or pose a danger to road users.
3. Check that devices are not rubbing on a tyre.

Spray Suppression - This section only applies to goods vehicles with a DGVW exceeding 7.5t and goods trailers or semi-trailers exceeding 3.5t maximum permissible mass registered/licenced on or after 1st September 2011. (Certain vehicles, trailers & semi-trailers are exempted, see notes section).

4. Check spray suppression system for type approval marking (e-mark).
5. Visually check for presence, mounting, security and damage.
6. Check mounting dimensions and clearances as per diagrams below.
7. Check that spray suppression devices are not rubbing on a tyre, (except special spray suppression devices e.g. “cats whiskers”).

Notes

- A missing or damaged mud flap is not a reason for failure if it is an extension to a wing or other similar fitting.
- Where a mud flap is fitted in place of a mudguard/wing these must meet the requirements of mudguards.
- The inspection of spray suppression devices only applies to vehicles where fitted.
- Corrosion Assessment – Before carrying out the assessment, testers should familiarise themselves with the corrosion assessment section of this manual.

Spray Suppression - As per regulation 3 (2) of S.I. No. 272 of 2011, the following vehicles are exempted from the requirement to be fitted with spray suppression devices;

- A mechanically propelled vehicle which is designed and constructed so as to be incapable of exceeding a speed of 50 kilometres per hour,
- A mechanically propelled vehicle which is limited to a speed of 50 kilometres per hour or less,
- A trailer in a combination of vehicles which, by reason of the design and construction of the mechanically propelled component, is incapable of exceeding a speed of 50 kilometres per hour,
- A semi-trailer as a component of an articulated vehicle which, by reason of the design and construction of the mechanically propelled component, is incapable of exceeding a speed of 50 kilometres per hour,
- Vehicles or their trailers, used by, or which are intended for use by the Defence Forces, the Garda Síochána, the Irish Coast Guard, local authority fire and rescue services, the Civil Defence or Customs and Excise,
- A road maintenance vehicle, or an “excluded vehicle” meaning either an off-road vehicle or a vehicle which in the normal course of its work is required to operate off the road and includes the following;
  - (a). A vehicle designed, and not merely adapted, for the carriage and mixing of liquid concrete,
  - (b). A vehicle designed or adapted for the carriage of concrete building blocks or bricks,
  - (c). A works truck, a works trailer, an agricultural tractor, an agricultural trailer, a vehicle so constructed that it can be unloaded by part of the vehicle being tipped sideways or rearwards,
  - (d). A refuse vehicle, a trailer specially designed and constructed, and not merely adapted, to carry round timber,
  - (e). A vehicle used in the provision or maintenance of telephone services or of gas or electricity supply, a vehicle used for the collection of un-processed milk from farms for transport to a processing facility, and
  - (f). A vehicle designed, and not merely adapted, for the transportation of livestock.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Presence, condition and security.	(a). Missing, insecurely mounted or badly corroded.	MiD
b. Fouling other components.	(b). Likely to foul other vehicle components, endanger road users or cause injuries; likely to fall off.	MaD
c. Clearance to tyre (spray suppression).	(c). Insufficient clearance to tyre/wheel (spray suppression).	MiD
d. Clearance to tyre (mudguard).	(d). Insufficient clearance to tyre/wheel (mudguards).	MaD
e. Coverage of tread.	(e). Insufficient coverage of tread.	MaD
f. Presence.	(f). Not fitted where required.	MaD
g. Dimensions.	(g). Dimensions/clearances incorrect.	MaD
h. E marking	(h). Not E marked.	MaD

Examples of Appropriate Dimensions for a Spray Suppression Device/System

Note: The figures refer to the corresponding items in Annex III of Appendix III of Council Directive 91/226/EEC and its amendments

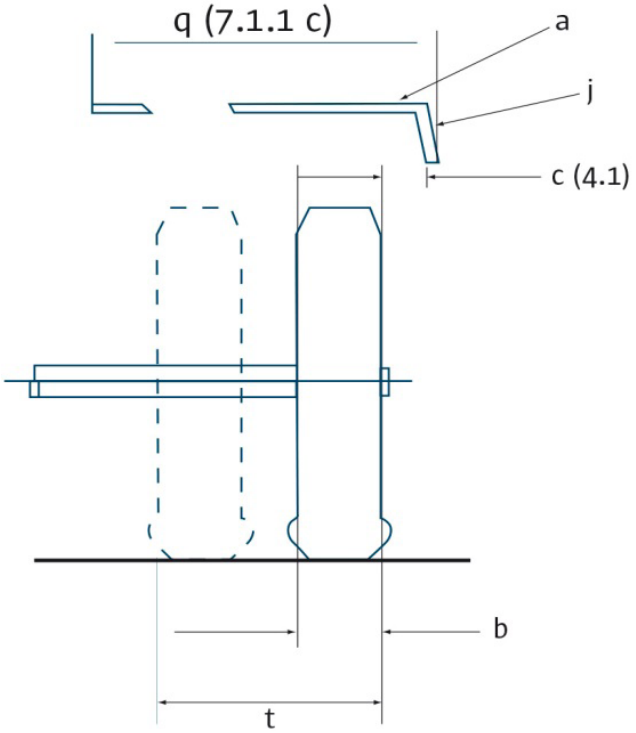


Figure 1: Width (q) of Mudguard (a) and Position of Valance (j)

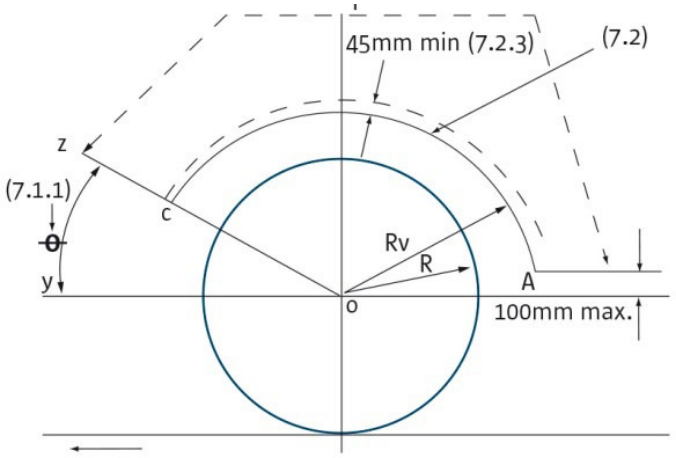


Figure 2: Dimensions of Mudguard and Outer Valance (j)

Note: T: extent of mudguard

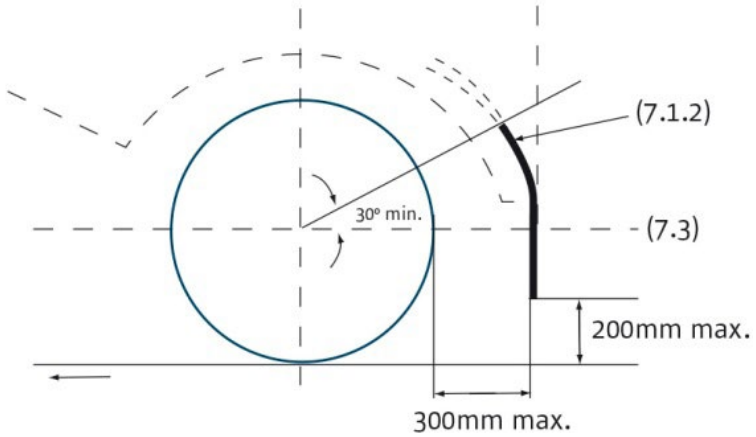
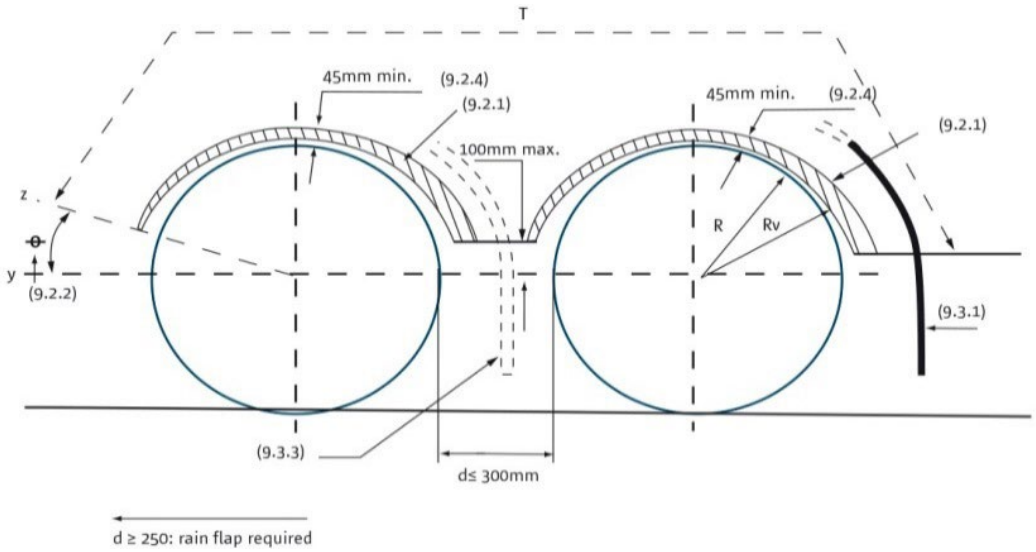


Figure 3: Position of Mudguard and Rain Flap

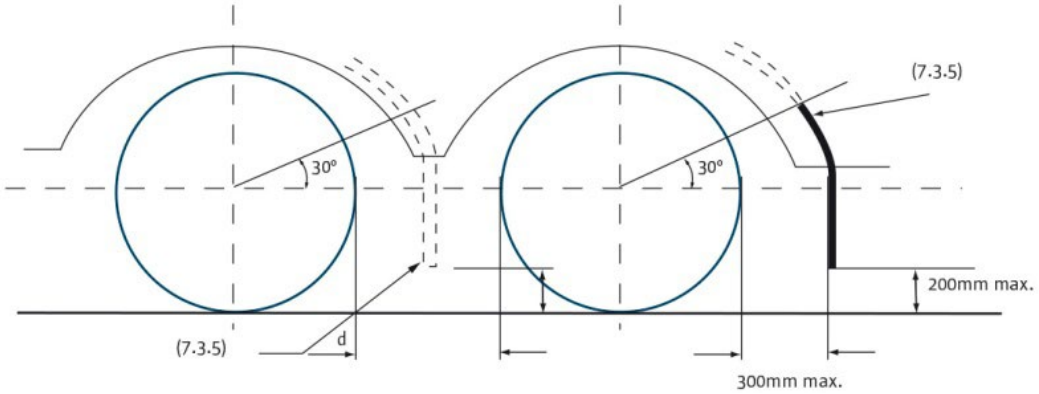
Note: The figures refer to the corresponding items in Annex 111 of Appendix 111 of Council Directive 91/226/EEC and its amendments

Figure 4: Mudguards and outer valance for steered or self-steering or non-steered wheels.



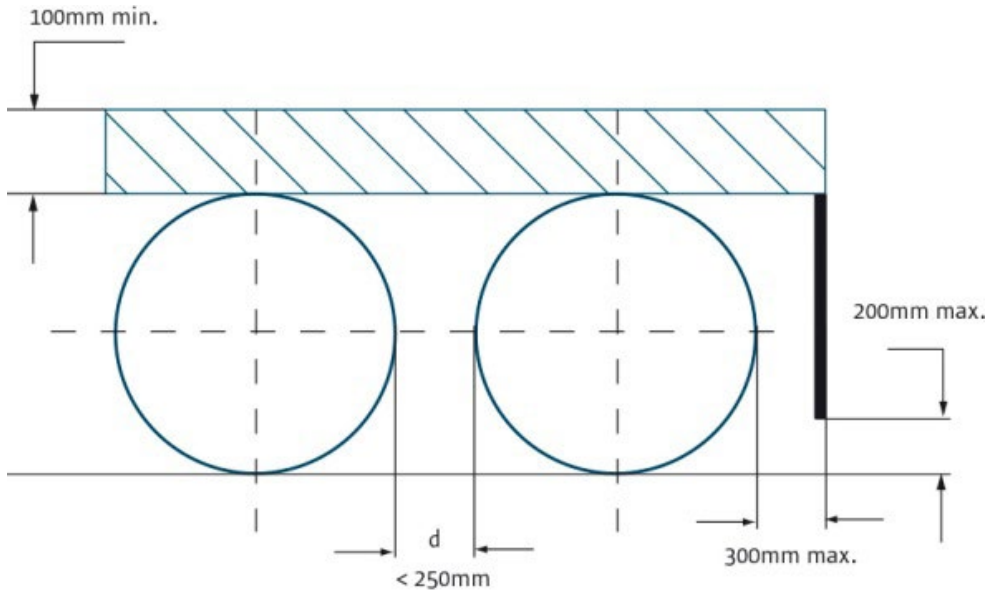
(a) Dimensions of mudguards and outer valances for multiple axles

Note: T: extent of mudguard

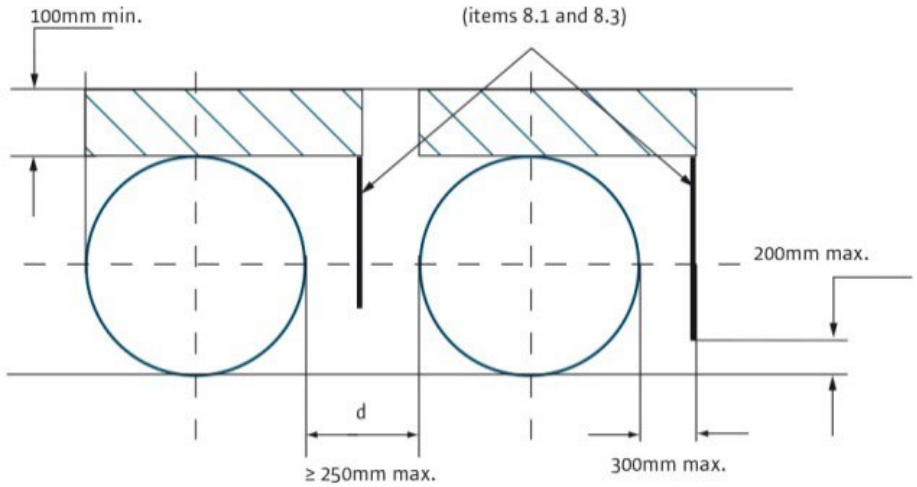


(b) Position of spray suppression devices for multiple axles

Figure 5: Diagram showing assembly of a spray-suppression system incorporating spray-suppression devices fitted with energy absorbers for axles fitted with non-steered or self-steering wheels.



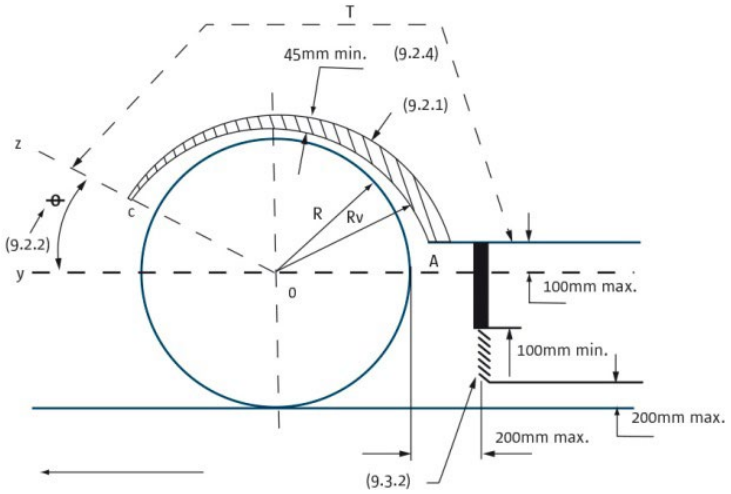
(a) Multiple axles where the distance between the tyres is less than 250mm



(b) Single axles or multiple axles where the distance between the tyres is not less than 250mm

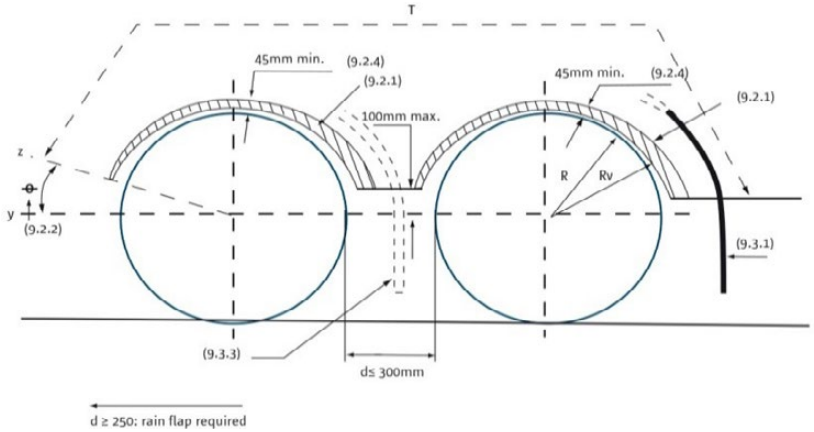
Figure 6: Diagram showing assembly of a spray-suppression system incorporating spray-suppression devices fitted with air/water separators for axles fitted with steered, self-steering or non-steered wheels.

Note: The figures refer to the corresponding items in Annex 111 of Appendix 111 of Council Directive 91/226/EEC and its amendments



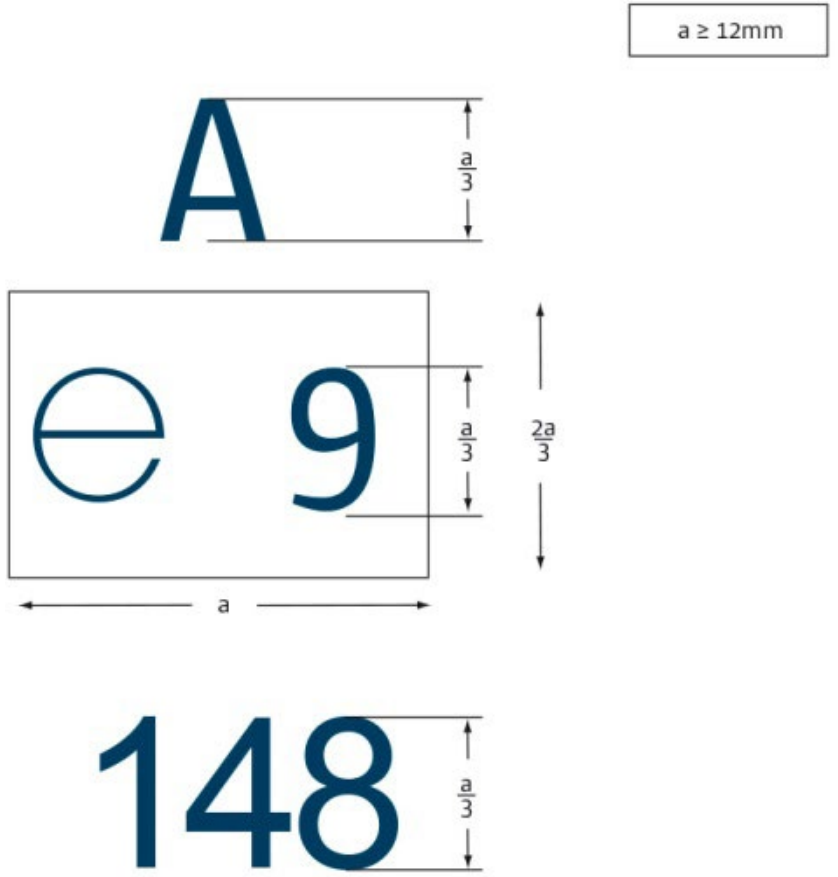
Note: T: extent of mudguard

Figure 7: Diagram showing assembly of a spray-suppression system incorporating spray-suppression devices (mudguard, rain flap, outer valance) for multiple axles where the distance between the tyres does not exceed 300mm.



Note: T: extent of mudguard

Appendix 3: Model for the EEC Component Type-Approval Mark



The spray-suppression device bearing the example EEC type-approval mark is a device of the energy-absorption type (A), which has been approved in Spain (e 9) under number 148.

The figures used are indicative only.

7. SAFETY RESTRAINTS, LOCKS, HORN, SPEEDOMETER, ESC

CONTENTS

7. OTHER EQUIPMENT

7.1. Safety-Belts/Buckles and Restraint Systems

(This section does not apply to vehicles registered before the 1st June, 1971)

7.1.1. SECURITY OF SAFETY-BELTS/BUCKLES MOUNTING

Method of testing

1. Pull each safety belt webbing against its anchorage and see that it is properly secured to the vehicle structure.
2. Check the condition of the attachment and adjustment fittings on each belt for distortion or fracture.
3. As far as is practicable without dismantling, check the condition of the vehicle structure in the vicinity of the safety belt anchorage points. The condition of floor mounted anchorage points may best be inspected from underneath the vehicle.
4. Check for any repairs or modifications to seatbelts or anchorage points.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition and security (mounting).	(a). Any belt mounting is loose or unsatisfactory, for example incorrect bolts fitted.	MaD
b. Repairs or modifications.	(b). Any belt mounting is obviously unsafely repaired or modified.	MaD
c. Condition (anchorage points).	(c). Any load bearing member of the vehicle structure or panelling within 30 cm of a safety belt anchorage point is cracked, corroded or is in otherwise weakened condition. This applies to the seat mounting if the belt is anchored to the seat.	DD

7.1.2. Condition of safety-belts/buckles

7.1.2. CONDITION OF SAFETY-BELTS/BUCKLES

Method of testing

1. Check the condition of all safety belt webbing for cuts or obvious signs of deterioration. In the case of the retractable type safety belt ensure that the belt is fully extended during this examination. Pull each safety belt webbing against its anchorage and see that it is properly secured to the vehicle structure.
2. With the seat unoccupied fasten the safety belt buckle and check that the adjustment mechanism functions properly. In the case of retractable belts ensure that all the slack is removed and by pulling the belt quickly check that the locking mechanism operates. Attempt to separate the fastened belt at the buckle and check that the belt can be released when required.
3. Check that the seatbelt malfunction indicator (if fitted) does not indicate a fault in the system. When checking ensure that the first level warning is tested according to the following conditions:
   a. Safety-belt is not fastened, engine is stopped or idling and the vehicle is not in forward or reverse motion.
   b. Transmission is in neutral position and ignition switch is engaged.
4. In the case of buses with more than 8 passenger seats and first registered before 29th October 2011,check seat belt certification is for that bus and is valid (i.e. number of seats/safety belts, and vehicle's VIN / Registration number correspond).
5. For passenger vehicles with more than 8 passenger seats, check that a completed safety belts owner declaration form is produced.
6. For vehicles registered on or after the 1st day of June, 1971, check that a lap and diagonal type safety belt is provided for the driver and front outer passenger seat **(See note below for applicable vehicles).**
7. For vehicles registered on or after the 1st day of January, 1992, check that all outer forward facing seats are provided with a lap and diagonal type safety belt and all other forward facing seats are provided with a lap and diagonal or lap type safety belt **(See note below for applicable vehicles)**.

Notes

- If safety belts are fitted to any seat of any vehicle, they must be tested per Methods of Testing 1-4.
- Methods 6 and 7 above apply only to passenger vehicles with more than eight passenger seats and a DGVW of 3,500kg or less first registered before 20th October 2007.
- For passenger vehicles with more than eight passenger seats first registered before 20th October 2007, safety belt installation documentation is not required where the owner can provide proof that the bus was manufactured to meet the requirements of type approval 2001/85/EC.
- From first registration date 20th October 2007 the seats of all vehicles must be fitted with safety belts with the exception of buses designed for standee passengers. Standee passenger buses will have letters or pictograms in the vicinity of the front door giving details of the maximum number of standing and seating places the vehicle is designed to carry.
- Restraint systems for all vehicles registered after 20th October 2007 must be type approved to Directive 76/115/EEC (as amended) and be e /E marked.
- In the case of motor caravans, seatbelts are only required in the front seats. Where seatbelts are fitted in the rear of a motor caravan, they should be tested as normal.
- Safety belts which only operate when the vehicle is in motion should be checked when driving to or from the test lane.
- Where a lap belt (only) is fitted to a forward facing front seat or exposed forward facing seat other than the driver's seat, padding to a depth of at least 50mm must be provided on any bar or the top edge of any screen or partition likely to be struck by the head of a passenger wearing a lap belt in the event of a sudden deceleration. Such padding must meet the requirements of UNECE Regulation 21, Annex 4.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:	**Passenger vehicles with more than eight passenger seats and a DGVW of 3,500kg or less first registered before 20th October 2007**	
a. Presence (vehicles registered between 1 June 1971 & 31 December 1991, inclusive of those dates).	(a). For vehicles registered between 1 June 1971 and 31 December 1991 (inclusive of those dates), a lap and diagonal type safety belt is not provided for the driver and outer front seat.	MaD
b. Presence, (vehicles registered on or after the 1 January 1992).	(b). For vehicles registered on or after the 1 January 1992, a lap and diagonal type belt is not provided for all outer forward facing seats.	MaD
c. Presence, (vehicles registered on or after the 1 January 1992) other forward facing seats.	(c). For vehicles registered on or after the 1 January 1992, a lap and diagonal or lap type safety belt is not provided for all other forward facing seats.	MaD
	All other vehicles (with the exception of buses with provision for standing passengers)	
d. Presence of type approved restraints/safety belts (vehicles registered on or after 20th October 2007).	(d). Any vehicle first registered on or after 20th October 2007 not fitted with type approved restraints (e-marked) restraints/safety belts.	MaD
e. Condition (seatbelts).	(e). Seat-belt damaged: Any belt, including any for a child seat attached to the vehicle. Any cut, sign of overstretching, badly frayed or obviously unsafely repaired or modified.	MaD
f. Condition (buckle).	(f). Safety-belt/buckle, including any for a child seat attached to the vehicle, is not operating properly or is damaged.	MaD
g. Condition (seatbelt retractor).	(g). Safety-belt retractor, including any for a child seat attached to the vehicle, is not operating properly or is damaged.	MaD
h. Padding.	(h). Padding missing or damaged on any hard structure in front of two-point safety belt (lap belt).	MaD
i. Malfunction indicator.	(i). The safety belt warning system, where fitted, is not operating correctly.	MaD
j. Seat belt certification.	(j). For passenger vehicles with more than 8 passenger seats first registered before 29th October 2011 safety belt installation certification not produced.	MaD
k. Owner's declaration form.	(k). For passenger vehicles with more than 8 passenger seats a completed safety belts owner declaration form not produced.	MaD

7.1.3. Safety belt load limiter

7.1.3. SAFETY BELT LOAD LIMITER (WHERE FITTED).		
Method of testing 1. Visually inspect any safety belt load limiter for deployment. 2. Check that the seatbelt malfunction indicator does not indicate a fault in the load limiter. **Notes** • Some seatbelt systems use load limiters to minimize belt-inflicted injury. The basic idea of a load limiter is to release a little more excess belt webbing when a great deal of force is applied to the belt. The simplest load limiter is a fold sewn into the belt webbing. The stitches holding the fold in place are designed to break when a certain amount of force is applied to the belt. When the stitches come apart, the webbing unfolds, allowing the belt to extend a little bit more.		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for: a. Presence and condition. b. Malfunction indicator (vehicle interface).	(a). Load limiter obviously missing or not suitable with the vehicle. (b). System indicates failure via the electronic vehicle interface.	MaD DD

7.1.4. Safety Belt Pre-tensioners

7.1.4. SAFETY BELT PRE-TENSIONERS		
Method of testing 1. Check for any obvious defect of seatbelt pre-tensioners. 2. Check that the seatbelt malfunction indicator does not indicate a fault in a seatbelt pre-tensioner.		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for: a. Presence and condition. b. Malfunction indicator (vehicle interface).	(a). Pre-tensioner obviously missing or not suitable with the vehicle. (b). System indicates failure via the electronic vehicle interface.	MaD DD

7.1.5. Airbag(s)

7.1.5. AIRBAG(S)

Method of testing

1. Visually check for the presence and suitability of airbags and ensure that no airbag is obviously inoperative.
2. Check that the airbag(s) malfunction indicator does not indicate a fault in the system.

Notes

- A passenger airbag that has been switched off is not a reason for failure.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Presence and condition (airbag).	(a). Airbags obviously missing or not suitable with the vehicle.	MaD
b. Malfunction indicator (vehicle interface).	(b). System indicates failure via the electronic vehicle interface.	DD
c. Operation (airbag).	(c). Airbag obviously non-operative.	MaD
d. Malfunction indicator.	(d). Malfunction indicator for Airbag(s) - indicates any kind of failure of the system.	MaD

7.1.6. SRS Systems

7.1.6. SRS SYSTEMS

Method of testing

1. Check that the SRS malfunction indicator does not indicate a fault in the system.

Notes

- The SRS malfunction indicator lamp (MIL) may display a symbol similar to that shown below, or one depicting a person wearing a seat belt. The SRS (MIL) may indicate that there is a fault in the seatbelt load limiter, pre-tensioners or airbags.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for: a. Malfunction indicator. b. Malfunction indicator (vehicle interface).	(a). Malfunction indicator for Supplemental Restraint System (SRS) – indicates any kind of failure of the system. (b). System indicates failure via the electronic vehicle interface.	MaD DD

7.2. Fire Extinguisher

7.2. FIRE EXTINGUISHER

Method of testing: (Only applies to passenger vehicles with more than eight seats excluding the driver's seat)

1. Check that a fire extinguisher is fitted, secure and fully charged.
2. Check that the extinguisher is of the correct size and type and check that the most recent inspection date is within limits.

Notes

- Fire extinguisher must be at least 2kg or 2 litre capacity and rated for class A and B fires.
- Where a fire extinguisher is behind a glass panel, then the information required in this test item shall be verified visually, alternatively a letter shall be presented by a competent person verifying these details.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Presence and condition.	(a). Missing.	MaD
b. Date of inspection.	(b). Absence of date of inspection.	MaD
c. Full charge.	(c). Not fully charged.	MaD
d. Security.	(d). Insecure.	MaD
e. Type and size.	(e). Incorrect type or size.	MaD
f. In date.	(f). Out of date inspection. In the absence of a date of renewal, one year since last inspection.	MaD

7.3. Locks and Anti-Theft Devices

7.3. LOCKS AND ANTI-THEFT DEVICES

Method of testing

1. Check anti-theft devices (steering door locks and ignition key only).
2. Check that the steering lock is not fouling the steering mechanism when the ignition is switched on.
3. Check steering lock where fitted.

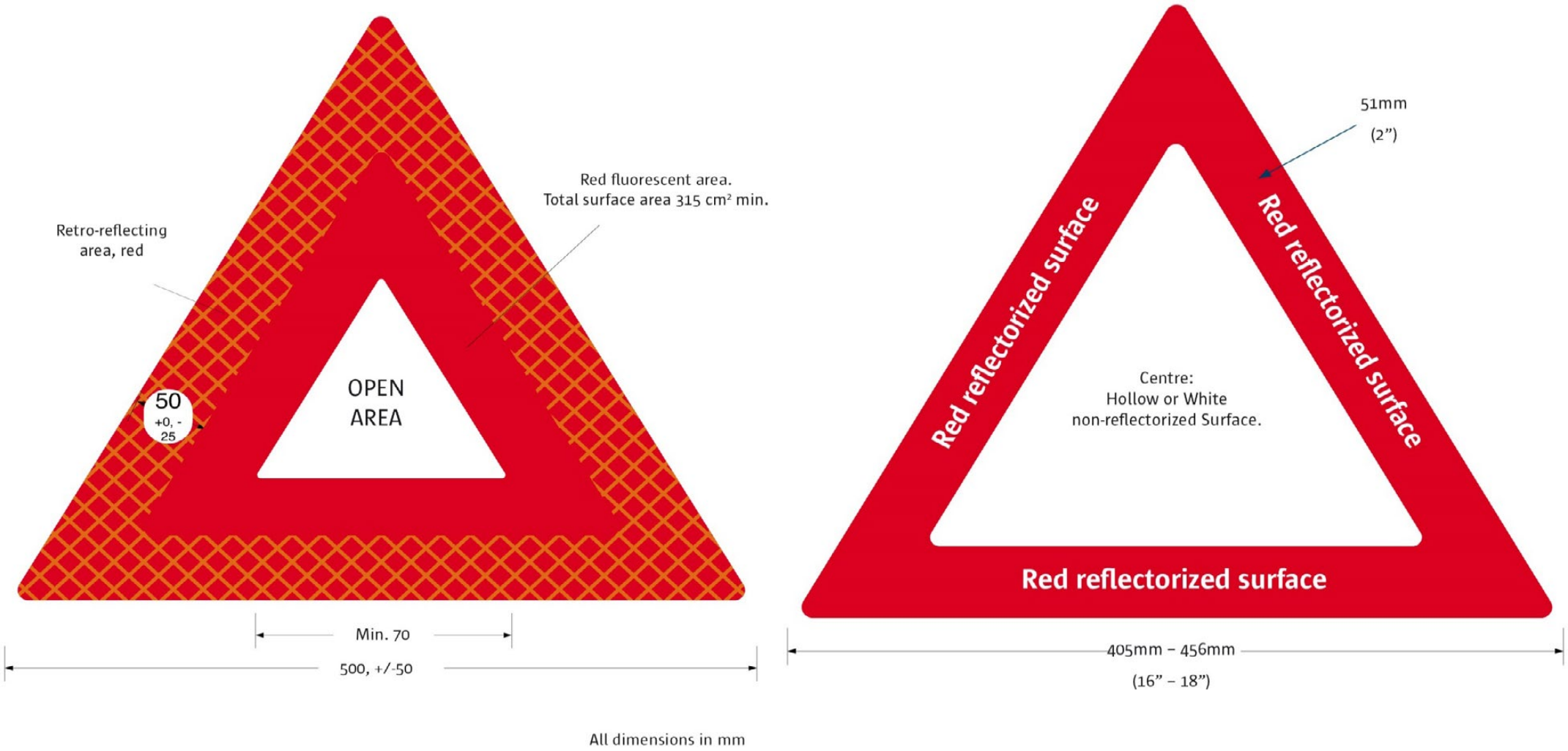
Notes

- Where a vehicle is not fitted with a steering lock, an ignition key or an immobiliser to prevent vehicle movement, then the doors must be capable of being locked.
- It is acceptable for a steering lock to be missing or inoperative provided the vehicle has an engine immobiliser, or a permanently installed immobilisation device which acts on either the steering, brakes or the transmission.
- Some electronic steering locks, generally on vehicles with keyless ignition systems, will only activate when the driver's door is opened/closed.
- If there is doubt as to whether a steering lock was originally fitted, the benefit of the doubt should be given.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation (device).	(a). Device not functioning to prevent vehicle being driven.	MaD
b. Wear (steering lock).	(b). Steering lock, where fitted as original equipment by manufacturer, has excessive wear or is subject to jamming of the lock/barrel/key mechanism.	DD
c. Presence and operation (steering lock).	(c). Steering lock missing or not working.	MaD

7.4. Warning Triangle

7.4. WARNING TRIANGLE		
Method of testing 1. Check that a warning triangle as shown in either of the diagrams that follow is being carried in the case of; all N2 and N3 category vehicles and all M3 category vehicles first registered on or after 1st January 2010. **Notes:** • The above requirements do not apply to motor caravans.		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for: a. Presence. b. Condition.	 (a). Missing or incomplete. (b). Not in good condition.	 MiD MiD



All dimensions in mm

7.5. First Aid Kit

7.5 FIRST AID KIT

Method of testing
(Only applies to passenger vehicles with more than eight seats excluding the driver's seat)

1. Check that a first aid kit is carried and appears to be complete.

Notes

- A first aid kit is not required on an omnibus with a scheduled route not exceeding 24km.
- An omnibus is a large public service vehicle used on definite routes and charging separate fares. Persons claiming an exemption from the requirement to have a first aid kit because they are in receipt of a special permit from the RSA must produce a copy of the actual permit granted on the day of the test.
- Where a first aid kit is behind a glass panel, then an inspection of the contents is not required.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for: a. Presence and completeness.	(a). Missing, obviously incomplete.	MiD

7.7. Horn (Audible Warning Device)

7.7 HORN (AUDIBLE WARNING DEVICE)

Method of testing

1. Check that the horn control is accessible to the driver when seated.
2. Check the security of the horn and control.
3. Operate the horn control and note that the horn sounds correctly (e.g. cannot be confused with official sirens).

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation (horn).	(a). Not working correctly.	MiD
b. Operation.	(b). Not working at all or is not fitted.	MaD
c. Security (control / horn).	(c). Control insecure or horn insecurely mounted.	MaD
d. Sound (confusion with official sirens).	(d). Emitted sound likely to be confused with official sirens.	MaD

7.8. Speedometer

7.8. SPEEDOMETER

Method of testing

1. Check that a speedometer is fitted, working and can be easily seen from the driving seat.
2. Check that the speedometer can be illuminated.
3. Record the odometer reading at the time of the test where an odometer is fitted. After completion of the CVR test, the owner / presenter must verify odometer reading (see Introduction).

Notes

- The speedometer functions check is limited to the movement of the vehicle within the test area.
- A Tachograph is an acceptable alternative to a speedometer providing it satisfies the requirements of this inspection.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Visibility to driver.	(a). Speedometer cannot be seen from the driver's seat.	MaD
b. Presence.	(b). Speedometer is missing.	MaD
c. Correct operation.	(c). Speedometer is not working correctly.	MiD
d. Operation.	(d). Speedometer is not working at all.	MaD
e. Illumination.	(e). Illumination of speedometer not working or defective.	MaD

7.9. EC Approved Tachograph (if required).

7.9. EC APPROVED TACHOGRAPH (IF REQUIRED)

Method of testing

1. Give the vehicle driver/owner/operator the option of completing the tachograph declaration form. If this form is satisfactorily completed and signed, carry out the test only on the speedometer, otherwise proceed as per the methods of testing below. This also applies to motor caravans.
2. Check that the tachograph is of an EC-approved type by identifying the approval mark on the descriptive plaque. This mark consists of a rectangle within which is the letter “e” followed by a number.
3. Check that the tachograph is positioned so that the driver when seated has a clear view of the speedometer, distance recorder and clock.
4. Check that the tachograph is positioned so that all parts are protected against accidental damage.
5. Check that the tachograph is in working order i.e. that time, speed and distance travelled are being recorded on the chart in the tachograph head, that it can be illuminated, and that speed is being indicated to the driver.
6. On a digital tachograph, check that the vehicle registration number is recorded in the vehicle unit.
7. Check that there is a current installation plaque affixed to the vehicle near the tachograph or on the instrument itself.
8. Check that the installation plaque shows the registration number or VIN (VIN required for digital tachograph), name and address or trade name of an approved tachograph fitter or workshop, the characteristic coefficient (“w”) of the vehicle, the effective circumference (“l”) of the wheel in millimetres, and the date on which these measurements were made. On the evidence of this date, the installation plaque should be no more than six years old.
9. Check that a current two-year inspection plaque (required every two years after installation or calibration) is affixed to the vehicle near the tachograph or on the instrument itself, showing the date the inspection was carried out and the seal number of the tachograph centre which carried out the inspection. The two-year plaque shall be fitted as well as and not in place of the installation plaque.
10. Check where possible the integrity of the seals at all connecting points in the overall installation which comprises the tachograph head, the adaptor at or near the vehicle’s gearbox and the connecting cable(s).
11. Check that the following points are sealed:
    (a). Each end of all connecting cables.
    (b). The adaptor and its connection to the gearbox.
    (c). The inner casing of the tachograph head which protects the internal parts of the instrument.
    (d). The installation plaque and the two year plaque unless it is attached in such a way that it cannot be removed without the markings thereon being defaced.
12. For vehicles not required to be fitted with a tachograph, where a tachograph is fitted in place of a speedometer check:
    (a). If a speed limiter is required (which is sensed from the tachograph head): the presence of a seal, it is complete and of a mandatory type.
    (b). If a speed limiter is not required: the presence of a seal (within the tachograph head) and it is complete. There is no requirement for the gearbox sender unit to be sealed.
13. Check that the speedometer can be illuminated.

7.9. EC APPROVED TACHOGRAPH (IF REQUIRED)

Notes

- Any vehicle that requires a tachograph to be fitted and is first registered on or after 1st May 2006, must be equipped with a digital tachograph (unless a tachograph declaration form is completed).
- A speedometer is only required on a vehicle capable of exceeding 48kph (30 mph) or 32kph (20 mph) in the case of a large tractor. The speedometer functions check is limited to the movement of the vehicle within the test area.
- If a speed limiter is NOT required, or where the speed limiter does not receive the speed signal from the tachograph head, it is only necessary to check the seals inside the tachograph head. Where a seal within the tachograph head is missing, broken, or where a clearly “non- mandatory” seal has been fitted in place of an “official” seal, it is a reason for failure. There is no requirement for the gearbox sender unit to be sealed in this case but the tachograph must have a calibration cert/plaque matching the VIN and VRN (digital) of the vehicle.
- Where a category of vehicle requiring a speed limiter (which is sensed from the tachograph head) is presented for test and is fitted with a tachograph but the owner has signed a tachograph declaration form, a reason for failure will apply for any seal missing, broken or where a clearly “non-mandatory” seal has been fitted in place of an “official seal”. The tachograph must have a calibration cert/plaque matching the VIN and VRN (digital) of the vehicle. For these vehicles there is no requirement for the tachograph to have a current calibration (Digital every 2 years, analogue every 6 years) provided the calibration plaque is legible and official seals are in place.
- Modular tachographs using encrypted sender units (there are two types and these are easily identified as they are shaped like a car radio: VDO Keinzel 1324 and Stoneridge) do not require the cable end connections to be sealed. However, in these cases the sender unit itself is still required to be sealed to the gearbox.
- Where a digital tachograph is fitted, an over speed printout must be printed from the vehicle unit, scanned and attached to the vehicle record on CoVIS for each test. Where a vehicle is failed on over speed, a calibration of the speed limiter is required and a new speed limiter plaque should be affixed to the vehicle on re-test. A new printout must also be printed on re-test, scanned and attached to the vehicle record on CoVIS.

7.9. EC APPROVED TACHOGRAPH (IF REQUIRED)

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Printout.	(a). Unable to obtain printout from digital tachograph.	MaD
b. Operation.	(b). Not operational (includes illumination of tachograph).	MaD
c. Presence and condition (seals).	(c). Defective or missing seals.	MaD
d. Presence and condition (Installation plaque).	(d). Installation plaque missing, illegible or out of date or does not match the vehicle.	MaD
e. Presence (tachograph).	(e). Not fitted (where no “Tachograph Declaration Form” is available).	MaD
f. Position (tachograph, driver’s view).	(f). Tachograph not positioned so that the driver has a clear view from his seat of speedometer, distance recorder and clock.	MaD
g. Position (tachograph, protected against damage).	(g). Tachograph not positioned so that all parts are protected against accidental damage.	MiD
h. Time / distance / speed recordings.	(h). Not recording time and/or speed and/or distance.	MaD
i. Condition (stylus).	(i). Stylus bent or damaged.	MaD
j. Installation plaque age (analogue tachograph).	(j). Installation plaque more than six years old (analogue tachograph).	MaD
k. Current two year inspection (analogue tachograph).	(k). No current two-year inspection plaque (analogue tachograph).	MaD
l. Compete details (installation or two year plaque).	(l). Incomplete details on installation or two year plaque.	MaD
m. 2-year calibration requirement (Digital tachograph).	(m). Digital tachograph outside 2-year calibration requirement.	MaD
n. Tyre size (Digital tachograph).	(n). On digital tachograph, tyre size does not match tachograph printout / size of tyres not compatible with calibration parameters.	MaD
o. Vehicle registration number / VIN (Digital tachograph).	(o). Vehicle registration number and VIN not recorded in the digital tachograph vehicle unit.	MaD
p. Presence of digital tachograph (vehicle first registered on or after 1st May 2006).	(p). Any vehicle first registered between 1 May 2006 and 14 June 2019 not equipped with a digital tachograph or any vehicle first registered on or after 15 June 2019 not equipped with a smart tachograph.	MaD
q. Tampering / manipulation.	(q). Obvious tampering or manipulation / presence of manipulation device(s).	MaD
r. (i) Tachograph – Speed limiter required.	(r). **(i) Where a speed limiter is required (which is sensed from the tachograph head):** Any seal missing, broken or where a clearly “non-mandatory seal has been fitted in place of an “official seal” (vehicles not required to be fitted with a tachograph, where a tachograph is fitted in place of a speedometer).	MaD
(ii) Tachograph – Speed limiter not required.	**(ii) Where a speed limiter is not required:** A seal (within the tachograph head) missing, broken, or where a clearly “non-mandatory” seal has been fitted in place of an“official” seal (vehicles not required to be fitted with a tachograph, where a tachograph is fitted in place of a speedometer).	MaD

7.10. Speed limitation device (if fitted / required)

7.10. SPEED LIMITATION DEVICE (IF FITTED / REQUIRED)

Method of testing

1. **For vehicles first registered on or after 1st January 1988** check that a speed limiter is present in;
   (a). Goods vehicles exceeding a GVW of 12,000Kg.
   (b). Passenger vehicles exceeding a GVW of 10,000kg with passenger accommodation for more than 8 passengers (not including driver's seat).
2. **For vehicles first registered on or after 1st October 2001 and before 1st January 2005** check that a speed limiter is present in;
   (a). Goods vehicles with diesel engines exceeding a GVW of 3,500kg but not exceeding a GVW of 12,000kg.
   (b). Passenger vehicles with diesel engines not exceeding a GVW of 10,000kg with more than 8 passenger seats* (not including driver's seat).
3. **For vehicles first registered on or after 1st January 2005** check that a speed limiter is present in;
   (a). Goods vehicles exceeding a GVW of 3,500kg,
   (b). Passenger vehicles not exceeding a GVW of 10,000kg with more than 8 passenger seats* (not including driver's seat).
4. For vehicles required to be fitted with a speed limiter, check that a plate is fitted in a conspicuous position in the driver's compartment showing the following information:
   (a). the words "speed limiter fitted" and details of the type approval authority and the national or international approval mark.
   (b). the name of the authorised sealer and the code number assigned to the authorised sealer by the approved body, i.e. NSAI.
   (c). the set speed, expressed in kilometres per hour, to which the speed limitation device has been set and the tyre size on the axle feeding the speed limiter.
   (d). the date on which the speed limitation device was most recently sealed; and the vehicle registration number or, in the case of an unregistered vehicle, the VIN.
5. Check the speed limiter settings by opening the tachograph head, plugging in the speed limiter check instrument, following the instrument manufacturer's instructions and noting the speed at which the speed limiter operates. Then compare the obtained reading with the permitted speed for the vehicle type.
6. Check that the tyres fitted to the drive axle(s) are the same size as that stated on the speed limiter plate in the driver's compartment.
7. Check where possible the integrity of the seals and that they are marked IR.
8. Check any other security arrangement at the electrical and mechanical connections within the speed limiter system.

7.10. SPEED LIMITATION DEVICE (IF FITTED / REQUIRED)

Notes

- A speed limitation device is not required on a motor caravan nor on an ambulance having not more than eight passenger seats plus driver.
- In the case of a goods vehicle incapable of exceeding 90km/hr. due to its design, or a passenger vehicle incapable of exceeding 100km/hr. due to its design, then a speed limiter is not required to be fitted. In such a case certification must be provided by the manufacturer or his authorised Irish Distributor detailing the vehicle's maximum design speed and any relevant construction characteristics (e.g. engine, transmission, axles and tyres).
- Notwithstanding the bullet points above, a vehicle which is registered as an ambulance and has more than 8 seats (excluding the driver) is required to be fitted with a speed limiter unless the vehicle is used for official purposes by the Defence Forces, Garda Síochána, civil Defence, Fire Services or other emergency services.
- A speed limitation device is not required to be fitted to a vehicle which is permanently fitted with a blue flashing light as allowed by SI 342 of 2006 and is used for one of the following purposes;

  (a). as a fire brigade vehicle.

  (b). by persons providing an ambulance service.

  (c). by the Irish Prison Service.

  (d). as an Irish Marine Emergency Service vehicle for the delivery or collection of human transplant organs, human blood or human blood products (copy of contract or letter from consignor must be produced to confirm this use).
- A speed limitation device is not required to be fitted to those vehicles which are specifically exempted as per circular V1-08-10.
- Seals may be in the form of lead, plastic, wax or paint.
- There will be a small % of vehicles for which the speed limiter check is not suitable. In such cases check that the tachograph has not recorded a speed in excess of 95 kilometres per hour in the case of a goods vehicle and 105 kilometres per hour in the case of a passenger vehicle.
- Speed limiter "set speed" checks using a speed limiter check instrument should not be carried out on vehicles with AS Tronic/Optidrive gearboxes.

7.10. SPEED LIMITATION DEVICE (IF FITTED / REQUIRED)		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for:		
a. Plaque.	(a). Plaque missing or illegible.	MaD
b. Operation.	(b). Obviously not operational.	MaD
c. Correct settings.	(c). Incorrect set speed / Speed Limiter Check Instrument shows speed in excess of that permitted for vehicle type (above 90kph for goods vehicles and 100kph for buses).	MaD
d. Seal.	(d). Defective or missing seals, seals not marked IR, or other security arrangements interfered with.	MaD
e. Sealer number.	(e). Incorrect Authorised Sealer number.	MaD
f. Tyre size	(f). Size of tyres not compatible with calibration parameters / Tyre size on drive axle(s) does not corresponded to tyre size stated on speed limiter plate.	MaD
g. Fitment (where required).	(g). Not fitted where required by law.	MaD
h. Damage (actuating rods / cables).	(h). Actuating rods/cables disconnected or damaged so that the operation is obviously affected.	MaD
i. Condition (wiring).	(i). Wiring disconnected or can easily be disconnected by unauthorised means.	MaD
j. Speed limiter plate (conspicuous position & required information).	(j). i. Speed Limiter Plate: not fitted or not fitted in a conspicuous position. ii. Speed Limiter Plate: required information not available.	MaD MaD
k. Over speed (Digital Tachograph).	(k). For speed limiter on vehicle with Digital Tachograph Overspeed (above 90kph for goods vehicles and 100kph for buses) is recorded for more than five consecutive minutes over the last twelve months.	MaD
l. Tachograph.	(l). Tachograph chart shows speed in excess of that permitted for vehicle type (above 95kph for goods vehicles and 105kph for buses).	MaD

7.12. Electronic Stability Control (ESC)

7.12. ELECTRONIC STABILITY CONTROL (ESC) (WHERE FITTED).		
Method of testing 1. Visually inspect the Electronic Stability Control (ESC) systems for presence and condition of wheel speed sensors, wiring, switches and other components.		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for:		
a. Presence and condition (wheel speed sensors).	(a). Wheel speed sensors missing or damaged.	MaD
b. Condition (wiring).	(b). Wirings damaged.	MaD
c. Presence and condition (other components).	(c). Other components missing or damaged.	MaD
d. Operation and condition (switch).	(d). Switch damaged or not functioning correctly.	MaD
e. Malfunction indicator.	(e). ESC MIL indicates any kind of failure of the system.	MaD

8. EMISSIONS/NOISE

CONTENTS

8. EMISSIONS/NOISE

8.1. Noise

8.1.1. NOISE SUPPRESSION SYSTEM

Method of testing

1. Check the condition of the exhaust pipe and silencer for security and leaks.
2. Check the effectiveness of the silencer in reducing, as far as is reasonable, the noise caused by the exhaust from the engine.
3. Check if there has been any repair or modification carried out to the exhaust system. An unsafe repair or modification carried out to the exhaust system may require a modifications report to be presented as per the template in this manual.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Excessive noise	(a). Exhaust noise excessive.	MaD
b. Presence, condition and security.	(b). Any part of the noise suppression system (including silencer and exhaust pipe) is loose, damaged, incorrectly fitted, missing or obviously modified in a way that would adversely affect the noise levels.	MaD

8.2. Exhaust Emissions

8.2.1.1. POSITIVE IGNITION ENGINE EMISSIONS (PETROL & GAS) CONTROL EQUIPMENT

Method of testing

1. Check visually that the emission control system is present, complete, properly connected and has not been bypassed.
2. Check if there has been any repairs or modifications carried out to the exhaust system. An unsafe repair or modification carried out to the exhaust system may require a modifications report to be presented as per the template in this manual.
3. Check that the emission control system is not leaking, incomplete or incorrectly assembled, which would affect emission measurements.
4. Check that the engine idle speed is correct (e.g. not more than ±100 rpm or 10% of manufacturer's stated speed whichever is greater).
5. Check for excessive exhaust smoke likely to affect other road users.

Notes

- The above checks are limited to those parts which can be seen without dismantling.
- A missing exhaust gas recirculation (EGR) valve or catalytic convertor where either were fitted when the vehicle was originally manufactured, is subject to a failure under reason for failure 8.2.1.1 (a).
- A durable repair to an exhaust system which effectively prevents leaks is acceptable providing the system is structurally sound.
- A minor exhaust leak (e.g. a connection joint or a pin hole) is not a reason for failure.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Presence, modifications and condition.	(a). The emission control system fitted by the manufacturer is absent, modified or obviously defective.	MaD
b. Completeness / unsafe repairs.	(b). Exhaust system incomplete, bypassed, incorrectly assembled or obviously unsafely repaired or modified.	MaD
c. Leaks, incomplete / incorrect assembly.	(c). The emission control system is leaking, incomplete or incorrectly assembled, which would affect emission measurements.	MaD
d. Idle speed.	(d). Idle speed is outside vehicle manufacturer's recommendations.	MaD
e. Excessive exhaust smoke (likely to affect other road users).	(e). Excess exhaust smoke likely to affect other road users.	MaD

8.2.1.2. GASEOUS EMISSIONS

(This section does not apply to vehicles registered before 1st January, 1980 or fully electric vehicles)

Pre checks:

These pre checks should be carried out before the emissions test is conducted. Where any of the following is noted the tester should not conduct an emissions test and the relevant reasons for failure under section 8.2.1.2. shall be applied.

- The engine warning lamp indicates a defect in the system.
- The oil level is below the manufacturer's minimum level.
- The coolant level is below the manufacturer's minimum level.
- The oil warning light remains on with the engine running.
- The oil level is above the manufacturer's maximum level.
- There are obvious engine defects.

Method of testing

1. With the engine at normal operating temperature connect the CO/HC meter as per manufacturer's instructions or as prompted on screen. Raise the engine speed to approximately 2500 rpm and hold for 20 seconds. Allow the engine to return to idle and the emissions readings to stabilise. Check the carbon monoxide and hydrocarbon content of the exhaust gases at idle speed in accordance with the instructions supplied by the manufacturer of the carbon monoxide and hydrocarbon exhaust gas analyser.
2. **For vehicles first registered on or after 1st day of January 1994**, a further check of the carbon monoxide content of the exhaust gases is required at an engine speed of 2500 rpm or at a speed specified by the vehicle manufacturer. The air/fuel ratio (Lambda) value should also be checked at this engine speed.

Notes

- Hybrid Electric Vehicles should have this test carried out as per the type of internal combustion engine fitted unless there is no switch to run the engine when the vehicle is stationary or where the required RPM cannot be attained.
- Where it can be established that the vehicle manufacturer's recommendations on exhaust emissions are higher than those listed in the reasons for failure, then the manufacturer's figure should be the criteria used when deciding whether or not a vehicle passes.
- For vehicles tested operating on L.P.G. the hydrocarbon reading must be divided by the propane/hexane equivalent factor (PEF) which is marked on the hydrocarbon tester.
- Where vehicles are fitted with twin exhaust systems the average of the two should be taken.
- A HC test is not required on vehicles operating on CNG.
- This test does not apply to two-stroke or rotary piston (Wankel) engines.
- Where a vehicle has passed the emissions test and the exhaust system is later found to be leaking, the emissions test must be redone once the exhaust system has been repaired.

8.2. Exhaust Emissions

8.2.1.2. GASEOUS EMISSIONS		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for:		
a. Oil / coolant levels, oil warning light.	(a). Engine oil level too high or too low, coolant level too low or the oil warning light remains on with the engine running.	MaD
b. Engine defects	(b). Obvious engine defects.	MaD
c. Engine idle speed.	(c). Engine idle speed is incorrect.	MaD
d. Carbon Monoxide levels.	(d). Carbon Monoxide;	
	(i). Carbon monoxide: in the case of vehicles first registered: Before 1 October 1986, the carbon monoxide content is more than 4.5% at idling speed.	MaD
	(ii). Carbon monoxide: in the case of vehicles first registered between 1 October 1986 and 31 December 1993 (inclusive of both dates), the carbon monoxide content is more than 3.5% at idling speed.	MaD
	(iii). Carbon monoxide: in the case of vehicles first registered on or after 1 January 1994, the carbon monoxide content is more than 0.5% at idling speed.	MaD
	(iv). Carbon monoxide: in the case of vehicles first registered on or after 1 January 1994, the carbon monoxide content is more than 0.3% at either an engine speed of 2,500 rpm or at a speed specified by the vehicle manufacturer.	MaD
	(v). Carbon monoxide: in the case of vehicles first registered after 1 July 2002, the carbon monoxide content of the exhaust gases is more than 0.3% by volume at idle speed.	MaD
	(vi). Carbon monoxide: in the case of vehicles first registered after 1 July 2002, the carbon monoxide content of the exhaust gases is more than 0.2% by volume at either an engine speed of 2,500 rpm or at a speed specified by the vehicle manufacturer.	MaD
e. Hydrocarbon levels.	(e). Hydrocarbon	
	(i). Hydrocarbon (HC): the result of the test on hydrocarbon emissions is not in accordance with the standard for hydrocarbon emissions as specified by the manufacturer of the vehicle.	MaD
	(ii). Hydrocarbon (HC): in the case of vehicles first registered before 1 October 1986, the hydrocarbon content is more than 1,000ppm at idling speed.	MaD
	(iii). Hydrocarbon (HC): in the case of vehicles first registered between 1 October 1986 and 31 December 1993 (inclusive of both dates), the hydrocarbon content is more than 750ppm at idling speed.	MaD
	(iv). Hydrocarbon (HC): in the case of vehicles first registered on or after 1 January 1994, the hydrocarbon content is more than 200ppm at either 2,500 RPM or at the speed specified by the vehicle manufacturer.	MaD
f. Lambda reading.	(f). Lambda: In the case of vehicles first registered on or after 1 January 1994, the lambda value at either 2,500 rpm or at the speed specified by the manufacturer is not 1+/- 0.03 or is not within the vehicle manufacturer's recommendation.	MaD
g. Malfunction indicators.	(g). OBD indicating significant malfunction.	MaD

8.2.2.1. COMPRESSION IGNITION ENGINE EMISSIONS (DIESEL) CONTROL EQUIPMENT

Method of testing

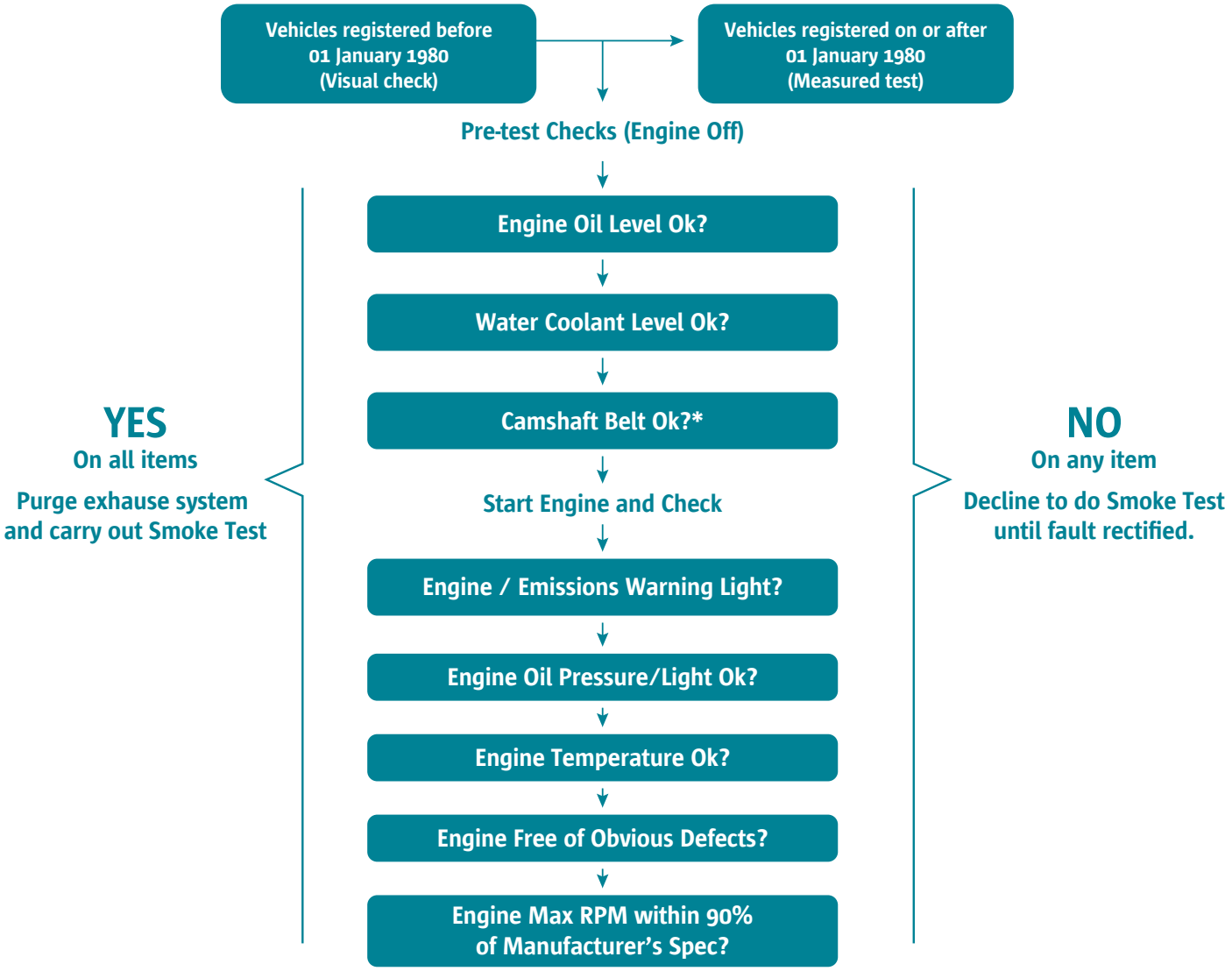
1. Check visually that the emission control system is present, complete, properly connected and has not been bypassed.
2. Check if there has been any repairs or modifications carried out to the exhaust system. An unsafe repair or modification carried out to the exhaust system may require a modifications report to be presented as per the template in this manual.
3. Check that the emission control system is not leaking, incomplete or incorrectly assembled, which would affect emission measurements.
4. Check for excessive exhaust smoke likely to affect other road users.

Notes

- The above checks are limited to those parts which can be seen without dismantling.
- A missing diesel particulate filter (DPF), exhaust gas recirculation (EGR) valve or catalytic convertor where either were fitted when the vehicle was originally manufactured, is subject to a failure under reason for failure 8.2.2.1. (a).
- A durable repair to an exhaust system which effectively prevents leaks is acceptable providing the system is structurally sound.
- A minor exhaust leak (e.g. a connection joint or a pin hole) is not a reason for failure.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for: a. Presence, modifications and condition. b. Leaks (emission measurements affected).	(a). The emission control system fitted by the manufacturer is absent, incomplete, incorrectly assembled or obviously defective. (b). Leaks which would affect emission measurements.	MaD MaD

Preliminary Check before carrying Out Diesel Engine Smoke Test



NOTE

*** Check with the vehicle owner/presenter that the camshaft belt has been changed at the manufacturer's specified interval. Removing the camshaft belt cover is not part of the roadworthiness test.**

8.2.2.2. OPACITY

(Vehicles that are fully electric vehicles are exempted from this requirement & vehicles registered or put into service before 1 January 1980 are subject to a visual smoke check)

Pre checks

These pre checks should be carried out before the smoke test is conducted. Where any of the following is noted the tester should not conduct a smoke test and the relevant reasons for failure under section 8.2.2.2. shall be applied.

- The engine warning lamp indicates a defect in the system.
- The oil level is below the manufacturer's minimum level.
- The coolant level is below the manufacturer's minimum level.
- The oil warning light remains on with the engine running.
- The oil level is above the manufacturer's maximum level.
- There are obvious engine defects.

Method of testing

1. With the engine at normal operating temperature, raise the engine speed slowly to 2,500 rpm or half the engine manufacturer's recommended governed speed whichever is less and hold for 20 seconds in order to purge the exhaust system. If the engine emits any unusual noises the test should be abandoned. Slowly raise the engine speed to its maximum rpm and note if the governor operates within the vehicle manufacturer's recommended rpm setting. If not the test should be discontinued. Do not hold the engine at maximum rpm for any length of time.
2. Connect the diesel smoke meter to the vehicle following the manufacturer's instructions. Depress the accelerator pedal firmly from the idling position to the maximum fuel delivery position following the prompts of the smoke meter. The smoke meter is programmed to repeat this operation a minimum of 2 and a maximum of 5 times.

Notes

- Where a vehicle's engine speed is limited when the vehicle is stationary, the smoke test may be carried out at the restricted rpm.
- All diesel engine tests must be performed according to EU Directives. Where an automatic transmission is fitted, the manufacturer's guidelines should be consulted.
- DPF regeneration can sometimes cause diesel to be dumped into the oil, resulting in the maximum oil level (for servicing) being exceeded. The level of oil dilution which different manufacturers allow varies. Most vehicles use sensors and where there is excessive fuel in the oil a warning light will illuminate. Others have an "X" marked on the dipstick which is above the "max" level. It should not be a reason for failure for vehicles fitted with DPF where the oil level indicated on the dipstick is above the "max" unless the "X" mark is exceeded or the dashboard display indicates excessive fuel in oil.
- If the fuel pump seal is missing and the maximum rpm achievable is less than 90% of the manufacturer's stated maximum rpm with the vehicle stationary, it may be the case that the fuel pump has been adjusted to pass the test and the vehicle should be failed on this test.
- It is absolutely essential that the engine is at normal operating temperature before carrying out a smoke test. Engines should not be warmed up by being left idling or at half throttle. They should be warmed up by normal driving.
- When carrying out the test the throttle must not be "blipped".
- Where a vehicle is producing black smoke to such an extent that the smoke meter might be damaged, the vehicle should be failed without carrying out the normal smoke test (see Test for vehicle registered prior to 1980).
- Unless test results are captured automatically by CoVIS, a print out of the smoke test results showing the vehicle registration number, the maximum R.P.M, the engine idle speed, the engine temperature and the opacity value for each acceleration should be attached to each inspection report form.
- For each initial/periodic CVR test carried out, a diesel smoke test is required.

8.2.2.2. OPACITY		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for:		
a. Oil and coolant levels, oil warning light.	(a). Engine oil level too high or too low, coolant level too low, or oil warning light remains on with the engine running.	MaD
b. Engine defects.	(b). Obvious engine defects.	MaD
c. Engine idle speed.	(c). Engine idle speed is incorrect.	MaD
d. Smoke meter readings (pre 1 July 2008).	(d). For vehicles first registered between 1 January 1980 and 1 July 2008 (inclusive of both dates), the average smoke meter reading is higher than 2.5m-1 in the case of naturally aspirated compression ignition engines, or the average smoke meter reading is higher than 3.0m-1 in the case of turbo charged compression ignition engines.	MaD
e. Emissions not in accordance with manufacturer's specifications.	(e). The result of the test on exhaust smoke emission is not in accordance with the standard for exhaust smoke emission as specified by the manufacturer of the vehicle (recorded on the manufacturer's plate on the vehicle).	MaD
f. Smoke meter readings (post 1 July 2008).	(f). Smoke meter readings are;	
	(i). For vehicles first registered after 1st July 2008: the average smoke meter reading is higher than 1.5m-1.	MaD
	(ii). For vehicles first registered after 1st July 2018: the average smoke meter reading is higher than 0.7m-1 for vehicles fitted with Euro 6 engine.	MaD
g. Maximum engine speed.	(g). The maximum attainable engine speed is less than 90% of the maximum speed specified by the manufacturer of the vehicle.	MaD
h. Smoke test (Pre 1980).	(h). Exhaust Smoke for diesel engine vehicles first registered before 1st January, 1980: The exhaust emission is coloured black haze or darker for two successive accelerations after the first.	MaD

8.3. Electromagnetic Interference Suppression

8.3.1. ELECTROMAGNETIC INTERFERENCE SUPPRESSION		
CHECK ITEMS	**REASONS FOR FAILURE**	**SEVERITY**
Check for: a. Radio interference.	(a). Not meeting the requirements.	MiD

8.4. Other items related to the Environment

8.4.1. FLUID LEAKS

Method of testing

1. Check for any excessive fluid leak, other than water or other fluids referred to in this manual, likely to harm the environment or to pose a safety risk to other road users.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for: a. Excessive fluid leaks. b. Excessive fluid leaks (serious risk to road users).	(a). Any excessive fluid leak, other than water, likely to harm the environment or to pose a safety risk to other road users. (b). Steady formation of drops that constitutes a very serious risk.	MaD DD

9. SUPPLEMENTARY TESTS FOR PASSENGER-CARRYING VEHICLES (M2 & M3)

CONTENTS

9.1. Doors/Body Condition and Integrity

9.1.1. ENTRANCE AND EXIT DOORS

Method of testing

The following checks apply to all driver and passenger doors.

1. Check all entrance and exit doors (including remote controls) for operation, condition and security such that no harm or injury is likely to be caused.
2. Where a power operated door is fitted, check the system operates by applying a resistance to the door edge whilst in its operational cycle.
3. Check that emergency door controls/switches and warning devices are not defective.
4. Check the security of handrails (where fitted).

Notes

- Power operated doors should be checked when the door is approximately half way through its cycle, as power operated doors will not stop or reopen if they are almost closed. Testers should ensure when conducting this check that there is no risk of entrapment or injury to themselves or others.
- Power operated doors may be electrically or pneumatically controlled and must be checked with the ignition switched on and the engine switched off. If the door is pneumatically controlled the air system must be fully charged when testing the safety device. The operation of the door should not deplete the brakes air reservoirs.
- Remote control refers to the 'door open' and 'door close' button(s) adjacent to the driver's seat.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation.	(a). Defective operation of entrance / exit door.	MaD
b. Condition.	(b). Door(s) in a deteriorated condition.	MiD
c. Condition (injury likely).	(c). Door(s) in such deteriorated condition that injury is likely to occur.	MaD
d. Emergency controls.	(d). Defective emergency control(s)	MaD
e. Control / warning devices.	(e). Remote control(s) of doors or warning devices defective.	MaD
f. Handrails / handholds.	(f). Handrails / handholds unsafe or obviously missing.	MaD
g. Controls (power doors).	(g). Power door(s) operating / control mechanism not working or defective.	MaD
h. Safety devices (power doors).	(h). Power door(s) safety device(s) obviously not working or defective.	MaD

9.1.2. EMERGENCY EXITS

Method of testing

The following checks apply to all driver and passenger doors.

1. Check that any emergency exit(s) in the vehicle operate satisfactorily, and that the means of operation is clearly marked.
2. Check that notices indicating the presence of any emergency exit(s) are present both on the inside and the outside of the vehicle.
3. Check warning buzzers and lights (where fitted) for operation.
4. Where a break glass window is fitted check that a break glass hammer is available.

Notes

- An 'Emergency Exit' means an emergency door, emergency window or escape hatch for use by passengers as an exit only exceptionally and in particular in an emergency.
- A bolt on the emergency door that would enable the door to be locked is not acceptable.
- The driver's door can be used as an emergency exit on buses with valid type approval certification that have not undergone any modifications since the original approval was granted provided the door is marked with a sign indicating it is an emergency exit.
- When checking 'break glass' emergency exits this is just a visual check.
- In the case of an emergency 'break glass' window or roof hatch, there is no requirement to have the means of operation marked externally.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation.	(a). Emergency exit(s) not operating satisfactorily, not opening outwards, locked or inoperative / defective.	MaD
b. Signage (location).	(b). Emergency exit signs illegible.	MiD
c. Signage (operation).	(c). Signs indicating presence of emergency exits or their means of operation not present.	MaD
d. Warning buzzer.	(d). Warning buzzer or lights (where fitted) not working.	MaD
e. Break glass hammer.	(e). Break glass hammer missing (where originally fitted).	MaD
f. Glazing (break glass window).	(f). Break glass window fitted with laminated glass or other unbreakable glazing.	MaD
g. Presence.	(g). Emergency exit not fitted.	MaD
h. Obstruction	(h). Emergency exit obstructed.	MaD

9.1.3. BODY CONDITION & BODY INTEGRITY

Method of testing

1. Check all body panels including engine and luggage compartment covers/doors and access flaps/covers, for presence, security, jagged edges or inessential projections.
2. Check the body structure for rust, cracks, damage or insecurity.
3. Check for any defective hinges or retaining devices that may cause luggage compartment covers/doors and access flaps/covers to open inadvertently.
4. Check that (other than on an open deck passenger vehicle) water or fumes are unlikely to enter the vehicle and that engine sound proofing material is secure and free from contamination by oil (risk of fire).
5. Check that in the case of an articulated bus, the body bellows are not torn, deteriorated or damaged.

Notes

- It is inevitable that due to changes in design, or other reasons, from time to time defects may be found in terms of body condition and integrity of passenger carrying vehicles which are not described in any of the reasons for failure in the other sections of this manual. Therefore this section is to be used in cases only where a particular component described in the check items below is not checked under another section of this manual.
- Surface corrosion on luggage compartments and or panels which is not likely to effect the safety of passengers, and which does not diminish the effectiveness of the component(s), should not be regarded as a reason for failure.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Body condition.	(a). Body condition:	
	(i) Body panels, luggage compartment doors, flaps, covers, missing, insecure, badly deteriorated or with jagged edges or inessential projections.	MaD
	(ii) Defective hinges or devices for retaining any of the above devices in the closed position.	MaD
	(iii) Defective hinges or devices for retaining the luggage compartment in the open position.	MaD
b. Body integrity.	(b). Body integrity:	
	(i) Bellows on articulated bus torn, deteriorated or damaged.	MaD
	(ii) Leaks permitting the entry of water or fumes into the driver or passenger compartment (other than open deck vehicles).	MaD
	(iii) Engine Sound Proof Material contaminated with oil (e.g. dripping on to ground).	MaD

9.4. Seats

9.4.1. PASSENGER SEATS (INCLUDING SEATS FOR ACCOMPANYING PERSONNEL)

Method of testing

1. Check all passenger seats, mountings and upholstery for condition and security.
2. Check for any movement of the seats relative to the vehicle body.
3. Check that the seat spacing and layout is such that adequate gangway width and access to exits are assured.

Notes

- Detailed measurements are not required for the purposes of checking gangway widths.
- Side and rear facing passenger seats are acceptable.
- Reason for failure (a) does not apply where the unfolded seats do not obstruct any gangway or doorway.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation (folding seats).	(a). Folding seats (if allowed) not working automatically.	MiD
b. Security of mountings.	(b). Incorrectly mounted.	MaD
c. Condition (Collapse).	(c). Collapsed.	MaD
d. Damage.	(d). Damaged.	MaD
e. Tears.	(e). Upholstery torn.	MaD
f. Seat security.	(f). Seat insecure.	MaD
g. Obstruction.	(g). Any seat obstructed.	MaD

9.4.2. DRIVER'S SEAT (ADDITIONAL REQUIREMENTS)

Method of testing

1. Check for defective special devices such as anti-glare shields which may obstruct or otherwise impair the driver's field of vision.
2. Where fitted, check that driver protection shields are secure and in such condition that they are not likely to cause injuries to the driver.

Notes

- 'Anti-glare shield' refers to a device or panel installed behind the driver's seat.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition (special devices).	(a). Defective special devices such as anti-glare shield.	MiD
b. Impaired vision.	(b). Special devices such as anti-glare shield so defective that field of vision impaired.	MaD
c. Security (driver protection).	(c). Protection for driver insecure.	MiD
d. Security (driver protection, likely to cause injuries).	(d). Protection for driver so insecure that it is likely to cause injuries.	MaD

9.5. Interior Lighting and Destination Devices

9.5. INTERIOR LIGHTING AND DESTINATION DEVICES

Method of testing

1. Check that there is sufficient internal lighting available to illuminate every deck, stairway and any step or platform forming part of any passenger entrance or exit other than an emergency exit.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Operation.	(a). Interior lighting not operational at all.	MaD
b. Adequate light (deck).	(b). Any deck, inadequately illuminated.	MiD
c. Adequate light (stairways, steps, platforms).	(c). Stairways, steps or platforms inadequately illuminated.	MaD

9.6. Gangways, Standing Areas

9.6. GANGWAYS, STANDING AREAS

Method of testing

1. Check floors, floor coverings and gangways (including floor trap(s) where fitted) for presence, condition and security.
2. Check that grab handles and rails (commonly referred to as stanchions) are present (where originally fitted), are secure and are in such condition that they are not likely to endanger passengers.
3. Check that luggage racks (where fitted) are secure and free of jagged edges or other defects that might endanger the driver and or passengers.

Notes

- The above checks are limited to those parts which can be seen without dismantling.
- There is no requirement to lift trapdoors or remove floor sections for the purposes of the above checks.
- Visible signs of excessive movement of the floor should be taken as evidence of insecurity.
- Where floor traps are fitted testers should check that a floor trap locking device is not worn or ineffective so that the trap may become displaced and pose danger to passengers.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Security (floor).	(a). Insecure floor.	MaD
b. Security (floor, safety affected).	(b). Floor so insecure that passenger safety is affected.	DD
c. Condition (grab handles & rails).	(c). Defective rails or grab handles.	MiD
d. Presence & security (grab handles & rails).	(d). Rails or grab handles missing, insecure or un-useable.	MaD
e. Condition & security (floor, floor covering, trap doors).	(e). Floor deteriorated or floor covering loose or so worn or damaged as to be dangerous, beading loose or trap doors insecure or so fitted as to be likely to cause injury or an accident.	DD
f. Security (luggage racks).	(f). Luggage Racks insecure.	MaD

9.7. Stairs and Steps

9.7. STAIRS & STEPS

Method of testing

1. Check all entrance/exit steps, stairways and anti-slip provisions for any signs of deteriorated condition, insecurity or any other dangers such that passenger safety is likely to be effected.
2. Check anti-slip resistant material for deterioration such that it is no longer effective.
3. Where retractable steps are fitted to a vehicle, check that these operate correctly i.e. that the step(s) retract and remain retracted.

Notes

- In the case of a retractable step which projects beyond the body of the vehicle and is likely to injure pedestrians, check that the step can fold or retract and that the vehicle is not capable of being driven normally unless the step is folded, retracted or the driver is alerted by means of a warning device.

CHECK ITEMS	REASONS FOR FAILURE	SEVERITY
Check for:		
a. Condition (general, steps/stairs).	(a). Stairs/steps in deteriorated condition.	MiD
b. Damage (steps/stairs).	(b). Stairs/steps in damaged condition.	MaD
c. Damage (steps/stairs, safety affected).	(c). Stairs/steps so damaged that passenger safety is affected.	DD
d. Operation (retractable steps).	(d). Retractable steps not operating correctly.	MaD
e. Anti-slip provisions.	(e). Anti-slip provisions unsafe - liable to cause injury to passengers.	MaD
f. Presence & condition (step linkage).	(f). Missing / step linkage inoperative.	MaD

GUIDELINES FOR COMPLETING MODIFICATIONS REPORTS

Individuals must first read and fully understand the following important information before completing a modifications report (as per the attached template) in respect of a vehicle presented for CVR testing.

1. Road Traffic (Construction, Equipment and Use of Vehicles) Regulations, S.I. 190 No. of 1963 (as amended)

In accordance with the Road Traffic (Construction, Equipment and Use of Vehicles) Regulations, S.I. 190 No. of 1963 (as amended), all vehicles on public roads must conform to the general principles set down in these Regulations in relation to the condition and maintenance of vehicles. All parts and equipment of every vehicle shall be in good and efficient working order. It is each vehicle owner's responsibility to ensure his or her vehicle is in compliance with the law and maintained in a roadworthy condition at all times.

2. Suitably qualified individual (SQI)

A "suitably qualified individual" (SQI) must have:

- An Engineering/Technical Qualification (Level 7 or higher accredited courses1) or appropriate accreditation with Engineers Ireland2 or the Institute of Automobile Engineer Assessors3.
- A minimum of 5 years' experience of working in a suitable technical environment (preferably Automotive or Engineering Environment).
- Access to adequate facilities to carry out a thorough vehicle examination and appropriate professional indemnity insurance.

3. A modifications report is not required where:

- a vehicle has been subject to a post registration modification scheme in another Member State prior to being registered in Ireland and documentation (in English) is provided from the competent authority in the Member State concerned, giving details of the nature of the modifications carried out and the VIN of the vehicle. However, where such documentation has been provided but does not correspond to modifications identified and which may adversely affect the roadworthiness of the vehicle then a modifications report for the relevant modifications shall be required.
- a vehicle has been type approved and has one of the following certificates of approval corresponding to the vehicle presented;
  - An EC Certificate of Conformity (EC CoC) for a complete or completed vehicle,
  - National Small Series Type Approval Certificate of Conformity (Irish NSSTA CoC) for a complete or completed vehicle,
  - Individual Vehicle Approval Certificate (Irish IVA Certificate)
- However, where such documentation has been provided but does not correspond to modifications identified and which may adversely affect the roadworthiness of the vehicle then a modifications report for the relevant modifications shall be required.

RSA MODIFICATIONS REPORT TEMPLATE

(Use block caps throughout)

Note: in addition to this report, a vehicle converted from M2, M3, N2 or N3 to N1 requires a letter on official headed paper from the manufacturer or authorised distributor confirming that the vehicle maybe classed as N1 in the converted condition.

VIN: | | | | | | | | | | | | | | | | | | | | | | | | | |

Registration Number: | | | | | | | | | |

Make: _____ **Model:** _____ **Variant:** _____

This report relates to a modification/ repair (delete where appropriate)
In the case of a modification, give description of: body-type before modification: and body-type after modification (if changed):
The purpose of the modification / repair is to: (give brief details of why these repairs or modifications were carried out to the vehicle)
List of the repairs or modifications made to the vehicle (including, but not limited to those involving changes to the braking systems, suspension, steering systems, bodywork, safety belts / restraint system, towing / coupling equipment, or chassis alterations):
In relation to the modifications/ repairs listed above, provide a detailed description of each. (Please use another page where necessary). Notes: • Give full details of any change to the braking system. Include a schematic diagram with key to the components and confirm on which axle's park brakes are fitted. • Where available, list any type approval numbers related to the modified systems • Where available from the component/ system manufacturer, supplementary evidence of compatibility with the type and variant of vehicle concerned may be provided
Details of the standard of workmanship and specifications (including any certification provided by manufacturer / convertor).

The following table must be completed for any vehicle modifications

		Original		Modified	
EU Category[1]					
EU Bodywork Code[1]					
No. of seats (excluding driver)					
wheel configuration (e.g. 4x2, 6x4)					
Un-laden Vehicle Weight (kg)					
DGVW (Design Gross Vehicle Weight) (kg)					
Gross Combination Weight (N1, N2 or N3 only) (kg)					
		Design weight	Suspension type	Design weight	Suspension type
Design Axle Weights (kg) and suspension type (air/leaf)	Axle 1				
	Axle 2				
	Axle 3				
	Axle 4				
	Axle 5				
Maximum kingpin load (semi-trailers only) (kg)					
Wheelbase Length (mm)					

I declare the information provided in relation to the vehicle referred to in this report:

a. Is true and correct.
b. That the modifications/ repairs detailed above have been carried out to the vehicle such that the technical status and integrity of the vehicle and its other components and safety features have not been compromised and that the vehicle is safe to be used on the road and does not present a danger to the vehicle occupants or other road users.
c. That the vehicle meets with the Road Traffic (Construction, Equipment and Use of Vehicles) Regulations (as amended), the Road Traffic (Lighting of Vehicles) Regulations (as amended) and the Road Traffic (Construction and Use of Vehicles) Regulations (as amended).
d. That the vehicle meets with the essential technical provisions of the EU Directives to which the modification relates for the year and category of vehicle concerned.

I declare that (tick ☑ one of the following 3 boxes and complete all of the information necessary):

❑ • I am a "suitably qualified individual" (as per Note 2). The following details must be provided:

Engineering/Technical Qualification (must be Level 7 or higher accredited course):

Level _____ University / Institute _____Programme_____

Or

Membership Grade with Engineers Ireland: ❑ Associate ❑ Chartered ❑ Fellow

Or

Membership Grade with Institute of Automobile Engineer Assessors:

❑ Associate ❑ Member ❑ Fellow ❑ Honorary Fellow

Number of year's experience (minimum 5) _____

Details of professional indemnity insurance (include company name (not broker), type of policy, expiry date)

_____

❑ • I am an authorised representative of an Approved Test Centre (ATC) as appointed by the National Standards Authority for Ireland.

ATC Number (Unique identifier issued by NSAI)

❑ • I am the manufacturer/ authorised distributor/ convertor of the vehicle (delete as appropriate)

Complete ALL of the following IN BLOCK LETTERS and sign the declaration below;

Name of Certifying Person:

Signature of Certifying Person: _____

Company name:

Position within company:

Company address:

Official Stamp of the SQI/ ATC/ Manufacturer

Email:

Phone:

Date of certification: d d m m y y

Place of certification:

Tástáil Ródacmhainneachta um Fheithiclí Tráchtála
Commercial Vehicle Roadworthiness Testing

Údarás Um Shábháilteacht Ar Bhóithre
Road Safety Authority

Teach Chluain Fearta, Sráid Bhríde, Baile Locha Riach, Co. na Gaillimhe
Clonfert House, Bride Street, Loughrea, Co. Galway

tel: (091) 872 600 fax: (091) 872 660 email: CVRTAdmin@rsa.ie website: www.cvrt.ie