Volume

1

NORFOLK ISLAND ADMINISTRATION

ROAD TRAFFIC ACT 1982

INSPECTION MANUAL FOR LIGHT VEHICLES

NORFOLK ISLAND ADMINISTRATION

LIGHT VEHICLE INSPECTION MANUAL

This manual is applicable to all motor vehicles with a GVM of 8 tonnes or less

PREPARED BY THE REGISTRAR OF MOTOR VEHICLES
NORFOLK ISLAND ADMINISTRATION
KINGSTON
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Amendments 23rd January 2008

Vehicle Identification

Reason for Rejection

- No chassis or model number present where applicable

Brakes

1.1 Check the operation of the brake controls
1.2 Inspect the condition of visible brake components

1.1 Check the operation of the brake controls

Reason for rejection

1. on rubber faced brake pedals, any metal is showing

2. on metal brake pedals, there is no anti-slip surface

3. missing or broken brake pedal or handle, or associated components; when the service brakes are firmly applied, less than 20% of the pedal travel remains (unless within manufacturers limits);

4. when steady moderate pressure is applied to the service brake pedal for 10 seconds, the pedal travels towards the floor or the brake failure indicator light comes on;

5. the brake failure warning light does not operate when the ignition is turned "on", before the engine is started

6. the parking brake ratchet or locking device does not hold the park brake in its applied position;

7. the park brake warning lamp does not operate when the ignition is "on" and the parking brake is applied

8. the brake controls fail to cause the corresponding brake to activate

9. hand brake must hold on moderate slope

10. when braking applied to moving vehicle it does not deviate or pull to one side

1.2 Inspect the condition of visible brake components

NOTE: This includes the area underneath the vehicle

Reason for Rejection

1. where visible, any brake component is broken, excessively worn, leaking, contaminated or is not securely mounted

NOTE: use manufacturer's limits for assessing wear in components

1. any hydraulic brake hose is damaged or severely deteriorated or distorted

NOTE: For example the reinforcement fabric is exposed or the hose swells or bulges when the brakes are applied. Minor cracking or splits in the outer casing are not a reason for rejection but should be brought to the attention of the owner.

1. any hydraulic brake hose is of insufficient length to allow for the full range of steering and suspension movement, or is twisted;

2. the level of brake fluid is below the minimum indicated level;

3. where visible, the brake lining material, at any point, is worn to less than manufacturers limits or 0.8mm above the rivets or on bonded pads backing plate or 1.5mm if the limits are not known

4. it is evident that any power/vacuum assistance for the brakes is not operating or compressors, vacuum pumps, pulley belts are loose, cracked or worn

5. any brake hose that not marked with the manufacturers name, and any braided hose missing protection sleeves.

Towing Attachments

1. Visually inspect the towbar and its mounting on the vehicle body

Reasons for rejection

1. any towing attachment such as a tow ball or pintle hook is loose, or is cracked;
2. the towbar is not securely mounted, severely corroded or is cracked;
3. any mounting bolts, fasteners or weld beads have advanced corrosion or are missing;
4. where any part of the coupling or towbar is removable, the bolts, studs, nuts, etc fastening those parts do not have a locking device such as a U-clip, split pin, spring washer, or nylon lock nut;
5. a bicycle rack is fitted to the towbar and bicycles are not being carried

Steering & Suspension

1. **With the engine running, check the operation of the steering by moving the steering wheel, or, on cycle type vehicles, the handle**
2. **Visually inspect all steering components under the bonnet and under the vehicle**
3. **Examine the idler arm**
4. **Visually inspect the suspension**

1. With the engine running, check the operation of the steering by moving the steering wheel, or, on cycle type vehicles, the handle

Reasons for rejection

1. where a steering wheel is fitted, there is more than 50mm rotational free play
2. the steering wheel is not securely attached to the steering column
3. where steering linkages are fitted to cycle type vehicles, the rotational free play exceeds 10mm measured at the end of the handle bars;
4. the steering wheel is not of the same specification as the one provided by the vehicle manufacturer

2. Visually inspect all steering components under the bonnet and under the vehicle

NOTE: Take care with spring-loaded and rubber-bush joints. These components might be designed to have a certain amount of allowable movement.

Reasons for rejection

1. any steering component ismissing, cracked or broken or is worn beyond manufacturers limits;

2. any steering component can be seen to have been repaired or modified by heating or welding;

NOTE: Does not apply where an original component has been fitted by the manufacturer or repairs have been conducted to manufacturers specifications.

1. any nut, bolt or locking device is missing or insecure

2. the steering box or rack is not securely fixed to the vehicle

3. there is any movement on the spline between Pitman arm and the steering box or between any thread or tapered joint; (free play due to wear in any steering component exceeds manufacturers specification (if that specification is not known, free play exceeds 3mm));

4. any power steering component is leaking, damaged or inoperative;

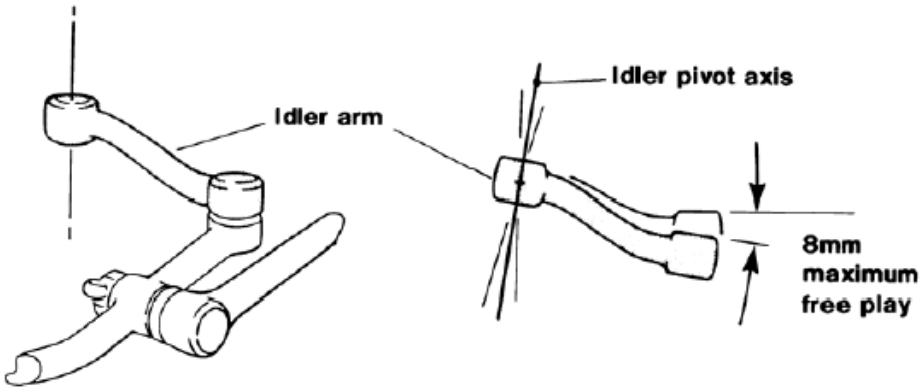
5. any power steering belts are loose, broken, frayed, missing, or cracked through to reinforcing plies.

3. Examine the idler arm

If fitted, attempt to move the idler arm in the direction of the pivot axis.

Reason for rejection

1. the play at the end of the idler arm exceeds 8mm



4. Visually inspect the suspension

Reasons for rejection

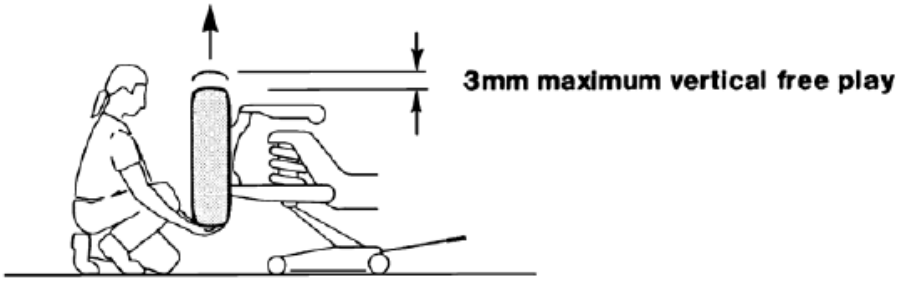
1. any suspension component is broken, insecure, cracked, cut, missing, or can be seen to have been repaired or modified by heating or welding, or is worn beyond manufacturer's limits;

2. any shock absorber or strut is inoperative

3. any chock absorber or strut is not securely mounted;

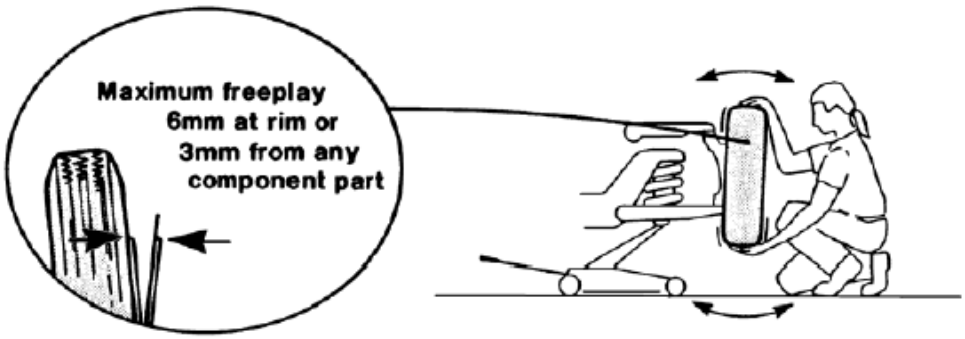
4. any nut, bolt or locking device is missing or not secure;

5. with the wheels raised, the vertical free play of any wheel exceeds 3mm;



NOTE: Manufacturer's tolerances take precedence over specified free play measurements when performing these checks.

1. with the wheels raised, the free play of the wheel measured at the rim exceeds 6mm in total or 3mm from any component



NOTE: Manufacturer's tolerances take precedence over specified free play measurements when performing these checks.

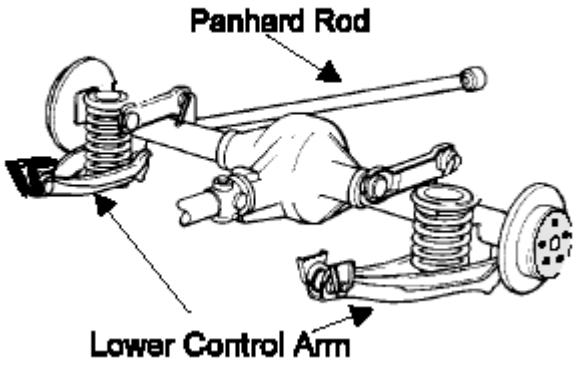
1. any axle component, U-Bolt, spring hangers, center bolt etc associated with the axle installation or performance is cracked, loose, broken, missing or worn outside of manufacturers safe working limits;

2. any springs are cracked, broken, missing, displaced more than 10% of their width or in contact with wheels, brakes or the frame;

3. air bags leak

4. any part of the vehicle (excluding wheel rims, tyres and (mudflaps) is closer to the ground than 100mm.

Axle locating devices



NOTE: Superficial crazing is acceptable on rubber bushes. This is often present on rubber suspension components even when new

Wheels & Tyres

1. **Visually inspect the inside and outside of each road wheel**
2. **Visually inspect each road tyre**
3. **Measure the wheel track, where modified from standard, taking measurement from the center of the tyres**

1. Visually inspect the inside and outside of each road wheel

Reasons for rejection

1. Any wheel or rim is cracked, has pieces of casting missing, or is buckled or shows signs of welding

2. The wheel nut does not engage the thread or the wheel stud for the full length of the nut, or the fitting of the wheel nut does not match the taper of the wheel stud hole (where these can be seen without removing hubcaps or wheel trims).

3. Any hub has missing or broken wheel mounting nuts, studs or bolts (where these can be seen without removing hubcaps or wheel trims).

4. Any spoked wheel has any missing, loose, broken, bent or cracked spokes.

5. The tyre or rim fouls any component at any point over the full range of suspension travel or steering movement.

2. Visually inspect each road tyre

Reasons for rejection

1. The tyre has less than 1.5mm tread depth on the surfaces which normally contact the road.

2. The tyre is not compatible with the rim, has deep cuts, bulges, exposed cords or other signs of carcass failure.

3. The tyre construction of all tyres on each axle is not the same (cross ply, radial ply or bias belted).

4. The tyre has been re-grooved (except where indicated on the sidewall that the tyres are suitable for re-grooving).

5. Any retreaded tyre fitted to the vehicle is not marked with the name or identification of the retreader and speed rating of the tyre.

6. Dual tyres contact each other.

7. The tyre load and/or speed rating as marked on the tyre sidewall are less than the rating specified by the vehicle manufacturer, as displayed on the tyre placard;

3. Measure the wheel track, where modified from standard, taking measurement from the center of the tyres

Reason for rejection

1. The vehicle manufacturer's specified wheel track measurement for the vehicle is exceeded by more than is currently approved for specific vehicle types.

Body Condition

1. **Check the operation of all doors, door locks and latches and the bonnet lock & latches**
2. **Visually inspect the windscreen and front side windows**
3. **Test the light transmittance level of the windscreen, side and rear windows**
4. **Visually inspect the body panels, chassis and sub-frame for dangerous protrusions and rust**
5. **Inspect the wheel arches/mudguards & mudflaps, with the wheels in the "straight ahead" position**
6. **Visually inspect rear vision mirrors**
7. **Check the operation of seats, *seatbelts*, buckles and other restraints, and inspect webbing and metal stalks**
8. **Visually inspect and check the operation of the windscreen wipers and windscreen washers**
9. **Check the operation of the horn**
10. **Visually inspect the front and rear number plates**
11. **Speedometer**

1. Check the operation of all doors, door locks and latches and the bonnet lock & latches

Reason for rejection

1. Any inside or outside door latch, control or hinge is not secure or functional.

2. Any bonnet or similar panel which covers the engine, luggage space or battery compartment and which is forward of the windscreen, does not have a device to secure the panel in the closed position.

3. Any bonnet or similar panel which opens from the front (that is, the hinges are at the back) and which, when opened, would obstruct the driver's view through the windscreen, does not have a primary and secondary securing device.

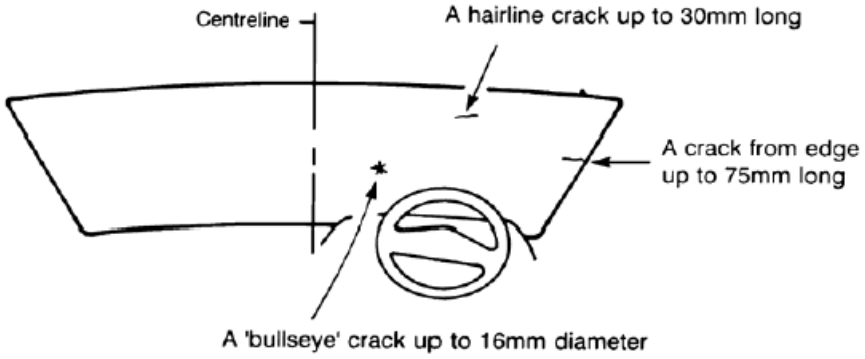
4. Any hinges, or slides for doors, tailgates, sidegates, hatches or compartment

covers are damaged or worn and likely not to prevent load or passenger from falling off.

2. Visually inspect the windscreen and front side windows

Reason for rejection

1. the area of the windscreen from the center of the vehicle in front of the driver has cracks or is deteriorated to the extent that it interferes with the drivers view.



EXCEPTION: Any two of the following three types of damage are acceptable

NOTE: This rule applies to windscreens repaired with clear resins. After repair, there must be no visible damage beyond the limits given above.

3. Test the light transmittance level of the windscreen, side and rear windows

NOTE:(i) This section should be read in conjunction with the light meter manufacturers' instructions.

(ii) The light meter may have up to a 5% measuring inaccuracy. A vehicle may be accepted if the readings are up to 5% lower than the minimum light transmittance.

(iii) The light transmission requirements do not apply to a tinted or opaque band at the top of the windscreen, provided they are above the arc swept by the windscreen

wipers, or 10% of the depth of the windscreen whichever is the greater.

Reasons for rejection

1. The visible light transmittance of any glazing (including any applied film) is less than that details below:

Glazing	Minimum Light Transmittance	Vehicles NOT TO BE REJECTED until meter readings are LESS than
Windscreen	75%	70%
All other windows	35%	30%
		1. No limit for windows o the rear of the driver if the vehicle is a bus, stretch limo, ambulance or hearse. 2. No limit for windows with a glazing or coating fitted before 1 October 1996 behind the rear of the drivers seat of the vehicle 3. No limit for windows with glazing or coating adjacent to the rear of an area of a motor vehicle designed & built to carry goods 4. Examples for no. 3 – the area without seats behind the rear seat of a station wagon or the tray of a utility, van or truck

4. Visually inspect the body panels, chassis and sub-frame for dangerous protrusions and rust

Reasons for rejection

1. Exterior body work and fittings have sharp edges due to rusted panels or body damage, or protrusions of any after market object or fittings, not technically

essential to the operation of the vehicle, which protrudes from any part of the vehicle that could cause injury to a person coming into contact with the vehicle.

2. Any structural member such as a subframe, floor panel, door sill, or seat is cracked or has advanced rust.

3. The doors of a vehicle have advanced rust.

4. Chassis frame members or supporting members are cracked, loose, sagging or broken.

5. Frame members in load areas are missing, damaged or unsecured.

6. Tilting cabin or tray latches do not hold the cabin or tray securely in the operating position.

5. Inspect the wheel arches/mudguards & mudflaps, with the wheels in the "straight ahead" position

Reasons for rejection

1. Mudguards are not fitted to all wheels of passenger and goods type vehicles;

6. Visually inspect rear vision mirrors

Reason for rejection

1. Rear vision mirrors are cracked, loss of reflectivity, missing, or do not provide a clear view of the road to the rear of the vehicle.

2. Where there is no effective rear vision provided by the internal rear vision mirror, the vehicle does not have an external rear vision mirror fitted to each side.

3. Any light commercial vehicle (except a station wagon) is not fitted with an external rear vision mirror on each side of the vehicle.

4. Mirrors are not securely mounted.

7. Check the operation of seats, *seatbelts*, buckles and other restraints, and inspect webbing and metal stalks

Reasons for rejection

1. any seat or seat belt is not securely fastened to its mounting

8. Visually inspect and check the operation of the windscreen wipers and windscreen washers

Reason for rejection

1. Windscreen wipers are missing, are not secured, or do not operate on any speed position.
2. Windscreen wiper blades are missing, cracked, curled, frayed, torn, or ineffective.
3. Windscreen washers do not work or are not correctly aimed onto the windscreen.

9. Check the operation of the horn

Reason for rejection

1. The horn is not working.
2. The horn is of the following types: exhaust whistle, compression whistle, siren or alternating tone (reversing alarms are acceptable).

10. Visually inspect the front and rear number plates

Reasons for rejection

1. Number plate is obscured, for example by a towing attachment goose neck, tow ball, protective cover and or frame.
2. The number plate is damaged or faded to the extent that the registration number is not legible.
3. The registration (number) plate is not issued or approved by the registrar of motor vehicles.

11. Speedometer

Reason for rejection

1. speedometer is not operational;
2. speedometer indicator values are not legible.

Seats

1. **Check seats**
2. **Check child restraints**

1. Check seats

Reasons for rejection

1. Seat frames or attaching points are loose, cracked, broken or have fasteners missing.
2. Adjustment mechanisms do not work properly or any securing device does not hold the seat in the selected position.
3. Any seat has an exposed sharp edge or other parts that protrude due to damage.

2. Check child restraints

Reasons for rejection

1. Child restraint belt webbing is not correctly secured to each end fitting or is damaged, frayed, split, torn altered or modified.

Lighting

1. **Visually inspect the compulsory reflectors fitted to the rear of the vehicle**
2. **Visually inspect & check the operation of all lights fitted to the vehicle**
3. **Visually inspect front & rear lights for the presence of tinted covers**
4. **Using a headlight tester, check the aim of the headlights**
5. **Visually inspect the headlights**

Note – 3rd Edition vehicles are those vehicles manufactured from 1 July 1988

1. Visually inspect the compulsory reflectors fitted to the rear of the vehicle

Reason for rejection

1. Red reflector(s) are damaged, discoloured or missing (note: reflectors may be incorporated in the lamp assembly).

2. Visually inspect & check the operation of all lights fitted to the vehicle

These provisions to apply to all commercial operators who use trailers at night eg for baggage trailers towed by buses

Reasons for rejection

1. Any of the following lights do not work or has incorrect colour:

   i) headlight (high/low beam) (white);

   ii) front park or side lights (white);

   iii) tail lights (red);

   iv) brake light(s) (red);

v) turn signal indicator lights (yellow);

vi) clearance lights (trucks and cycle type vehicles only) (front: yellow/white, side: yellow, rear: yellow/red);

vii) number plate light (white).

2. Any rear light other than a reversing light is in a condition or damaged to the extent that white light shows to the rear of the vehicle.

3. Any yellow clearance light or front turn signal is damaged so that it shows white light.

4. The number plate light is not directing light onto the surface of the rear number plate.

5. Lights as follows are not fitted to pre 3rd Edition vehicles (passenger and light goods vehicles and light omnibuses) (dimensions at centre of lights).

At front of vehicle (Pre 3rd edition vehicles only)

- 1 White Main beam headlights, min 500mm and max 1400mm off ground, with min separation of 600mm

- 2 White Dipped beam headlights, min 500mm and max 1400mm off ground, min 600mm separation

- 2 White Parklights, min 500mm off ground, max 500mm inboard of vehicle side, wired to remain "on" with headlights if vehicle built after 7/71

- 2 Yellow turn signal indicators (7/73 onwards, pre 7/73 may be white), min 350mm and max 2000mm off ground, min 750mm separation, max 500mm inboard of vehicle side;

- 2 Yellow or White clearance lights (where vehicle is over 2.2m wide), min 750mm above headlights, max 150mm inboard of side of vehicle;

- 2 Hazard warning lights (9/83 onwards), incorporated with turn signal indicators;

- Additional head lights as per main or dipped beam headlights.

Fog Lights:

- Optional White or yellow fog lights, mounted no higher than the headlights wired through park lights on a separate switch, may also operate when main and/or dipped beam headlights are illuminated;

At Side of vehicle:

- 2 Yellow to front, red to rear side marker lamps (where vehicle is more than 2.2m wide and/or 7.5m long), min 600mm and max 1500mm off ground, max 300 mm from rear of vehicle;

At Rear of vehicle:

- 2 (1 prior to 7/88) Red tail lights, max 1500mm off ground, min 600mm apart, max 400mm inboard of side of vehicle (single light located in centre or right side of vehicle);
- 2 Red reflectors, max 1500mm off ground, max 400mm (250mm if vehicle more than 2.2m wide) inboard of side of vehicle;
- 2 (8/72 onwards) white or yellow reverse lights, max 1200mm off ground
- White registration plate lamp/s, to illuminate registration plate;
- 2 (1 prior to 7/88) Red stop lights, min 300mm and max 1500mm off ground (single light to be in centre or on right side of vehicle);
- 2 Yellow (red permitted prior to 1/73) turn signal indicators, min 350mm and max 1500mm off ground, min 600mm separation.

6. Any optional lights or reflectors interfere with any compulsory lights or reflectors.

3. Visually inspect front & rear lights for the presence of tinted covers

Reasons for rejection

1. Any light has a tinted cover over it, or any tinting applied to it.
2. There is any opaque cover over a headlight which cannot be readily removed without the use of tools.

4. Using a headlight tester, check the aim of the headlights

Reasons for rejection

1. The aim of the headlight is adjusted such that, when on high beam and measured at an effective distance of 8m, the projected centre of the beam is to the right of the headlight centre and/or is above the headlight centre.

2. When measured at an effective distance of 8m, any part of the top edge of the high intensity portion of the **low beam pattern** is above **and to the right** of the centreline of the headlight.

NOTES:

i. in the region above and to the right of the centreline of the headlight the luminous intensity must not exceed 437cd.

ii. the portion of the beam to the left of the centreline of the light may extend above the height of the centreline of the headlight.

iii. the "centreline of the headlight" passes through the centre of the globe filament, or equivalent.

3. The headlight high beam indicator light is not operating.

5. Visually inspect the headlights

Reasons for rejection

1. Headlight reflector is tarnished or peeling to the extent that headlight performance is impaired.

2. Headlight lens is cracked or broken.

3. Headlight assembly is not secured or is out of position.

4. Headlight does not show white light.

Engine compartment & Driveline

1. **Visually inspect the engine, transmission and drive-line. Operate the transmission control**
2. **Visually inspect the exhaust system**
3. **Check for the presence of a catalytic converter**
4. **Visually inspect the fuel system**
5. **Where it is evident that a vehicle is emitting significantly higher noise than normal, conduct a stationary noise test**
6. **Engine controls**

1. Visually inspect the engine, transmission and drive-line. Operate the transmission control

Reason for rejection

1. Significant oil leaks from the engine, gearbox or driveline which allow oil to drop onto the road surface, exhaust system or brake components.

2. Any engine or transmission mounting is broken or not secured.

3. Fasteners on couplings in the driveline are loose or missing.

4. Any transmission drive shaft is bent, damaged, loose or noticeably misaligned.

5. Any universal or constant velocity joint has excessive wear, is misaligned, seized, is not securely attached.

6. Where an automatic transmission is fitted, the engine can be started in any gear position other than neutral or park (ensure that brakes are applied during this test), or gear selector indicator is not operational or is not illuminated (when headlights are turned on).

7. Where the motor cycle chain or belt guard is cracked ,broken or missing.

8. Batteries are not securely mounted or leak.

9. Electrical wiring or connectors are damaged or hanging loose.

2. Visually inspect the exhaust system

Reasons for rejection

1. Any component of the exhaust system is not securely mounted or is fouling on any other component.

2. Exhaust pipe outlet is not rearward of all side passenger doors and opening windows or discharges to the left hand side of the vehicle.

3. Exhaust pipe outlet does not extend at least 40mm beyond the furthermost outboard or rearmost joint of the floor pan which is not continuously welded or permanently sealed which could permit direct access of exhaust gases to the passenger compartment, but not beyond the perimeter of the vehicle when viewed in plan.

4. There is any leak in the exhaust system, excluding manufacturers' drain holes in the mufflers.

5. Exhaust outlet does not extend to the outline of the vehicle body.

6. The engine lets out sparks, flames, excessive gases, oil or fuel residue.

7. For a vehicle manufactured after 1930 and propelled by an internal combustion engine, the vehicle emits visible emissions for a continuous period of more than 10 seconds.

NOTE: a vehicle should not be rejected for emissions that are visible only because of heat or the condensation of water vapour.

3. Check for the presence of a catalytic converter

Reasons for rejection

1. There is no catalytic converter fitted, where one was originally provided or has a missing heat shield.

2. The catalytic converter has been bypassed.

4. Visually inspect the fuel system

Reasons for rejection

1. There is any leakage from the fuel system.
2. Any part of the fuel system is insecure or damaged so that there is a risk of a fuel leak.
3. The fuel cap is missing, insecure, or of the incorrect type.

5. Engine Controls

Reasons for rejection

1. Throttle control mountings, pivots, cables or links are kinked, loose, broken, excessively worn or binding
2. A throttle pedal does not have an anti slip surface across the complete surface
3. Any throttle cable or linkage that is not capable of operating from the idle position to the full throttle position and returning to the idle position by the aid of a throttle return spring without sticking

Fuel Systems LPG/NGV/ Vehicles

1. **Visually inspect for the presence of an approved Liquid Petroleum Gas (LPG), Natural Gas Vehicle (NGV) or, Compressed Natural Gas (CNG) modification plate and number plate labels.**

1. **Visually inspect for the presence of an approved Liquid Petroleum Gas (LPG), Natural Gas Vehicle (NGV) or, Compressed Natural Gas (CNG) modification plate and number plate labels.**

A vehicle which has an LPG/NGV/CNG fuel system fitted and which is registered in another State or Territory may be accepted if:

1. A metal plate is fitted in a prominent position near the installation, showing;

   - a statement that the installation complies with the Standards Australia code for the fuel type (AS1425 for LPG and AS2739 for CNG/NGV);

   - the date the installation was commissioned; the State or Territory where installation was made;

   - the identification number of the suitably qualified installer.

AND

2. The installation passes a safety check inspection conducted by an authorised gas fitter/installer.

Reasons for rejection

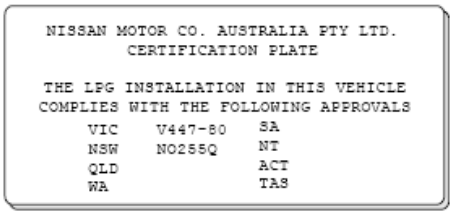
a) The vehicle fails a safety check inspection conducted by an authorised gas fitter/installer.

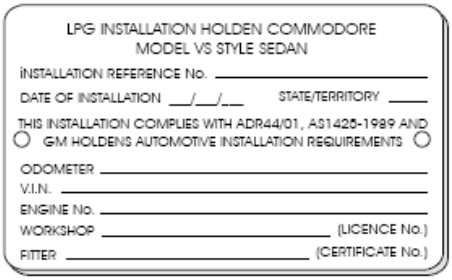
b) Vehicle does not have an approved lpg/ngv/cng modification plate. Acceptable plates are either;

i) a plate fitted by a State or Territory authorised/licensed gas fitter/installer; or

ii) a plate fitted by the vehicle manufacturer, where the LPG/ NGV or CNG system was installed by the original vehicle manufacturer.

The following are examples of acceptable plates that have been fitted by vehicle manufacturers.





Home built kits not allowed and are grounds for refusal

Tanks out of service and should be disabled

c) number plate labels are not fitted to the front and rear of the vehicle indicating it is LPG, NGV or CNG fuelled. Acceptable number plate labels are shown below.

White lettering on red background

Petrol / Diesel Vehicles

1. Visually inspect the fuel system

1. Visually inspect the fuel system

Reasons for rejection

1. There is any leakage from the fuel system.
2. Fuel lines are in contact with moving parts or a heat source, are kinked, cracked or not secure.
3. Fuel tanks are not securely mounted and straps, supports, mounting brackets or fasteners are missing, cracked, broken or loose.
4. Fuel tanks are damaged or corroded so that leaks could result.
5. Fuel filler cap is missing or not suitable for the type of tank.
6. Fuel filler cap seal is damaged or missing.

Motorcycles

1. **Visually inspect the condition of the brake controls**
2. **Check the operation of the brake controls**
3. **Inspect the condition of visible brake components**
4. **Check the operation of the parking brake on ADR 33 cycles fitted with side-car outfits**
5. **Visually inspect the towbar and its mounting to the frame**
6. **Visually inspect all steering components**
7. **Visually inspect the suspension**
8. **Inspect both sides of each road wheel**
9. **Visually inspect each road tyre**
10. **Visually inspect body panels, chassis and frame for dangerous protrusions and rust**
11. **Inspect the mudguards**
12. **Visually inspect rear vision mirror)s)**
13. **Check the operation of the horn**
14. **Visually inspect any exposed drive chain or belt or shaft**
15. **Visually inspect the number plate**
16. **Visually inspect the compulsory reflectors fitted to the rear of the cycle**
17. **Visually inspect & check the operation of all lights fitted to the cycle**
18. **Visually inspect front and rear lights for the presence of tinted covers**
19. **Using a headlight tester, check the aim of the headlight(s)**
20. **Visually inspect the headlight(s)**
21. **Visually inspect the engine, remote oil reservoirs, transmission and drive-line**
22. **Visually inspect the fuel system**
23. **Visually inspect the exhaust system**

Note – 3rd Edition vehicles are those vehicles manufactured from 1 July 1988

1. Visually inspect the condition of the brake controls

Reasons for rejection

1. On rubber faced brake pedals, any metal is showing.
2. On metal brake pedals, there is no anti-slip surface.
3. Missing or broken pedal or handle.

2. Check the operation of the brake controls

Sit in the rider's position and put the transmission into neutral or operate the clutch. Apply each brake while attempting to move the cycle forward

Reasons for rejection

1. When the brakes are firmly applied, less than 20% of the pedal or handle travel remains.
2. Any wheel brake is not functioning.
3. When steady moderate pressure is applied for 10 seconds, the pedal or handle does not hold its position or, the brake failure indicator comes on

3. Inspect the condition of visible brake components

Reason for rejection

1. Where visible, any brake component is leaking or is not securely mounted.
2. Any brake cable is frayed, seized or otherwise damaged.
3. Where visible, any brake lining is worn to the extent that only **1.0 mm** of lining thickness remains at any point.
4. Where hydraulic brakes are fitted, the level of brake fluid is below the minimum indicated level.
5. Any brake hose is not marked with manufacturers name, and any braided hose is missing protection sleeves

4. Check the operation of the parking brake on ADR 33 cycles fitted with side-car outfits

Reason for rejection

1. There is no parking brake fitted.

2. The parking brake fails to stop the outfit being moved.

5. Visually inspect the towbar and its mounting to the frame

Reason for rejection

1. Any towing attachment such as a tow ball is loose or is cracked.

2. The towbar is not mounted directly to the frame or through rigid connections to the frame.

3. The towbar is not securely mounted, or is cracked.

4. Any mounting bolts, fasteners or weld beads have advanced corrosion or are missing.

5. Where any part of the coupling or towbar is intended to be removable, the bolts, studs, nuts etc. Fastening those parts do not have a locking device such as u-clip, split pin, spring washer, nylon lock nut.

6. Visually inspect all steering components

NOTE: On most motor cycles this will normally only apply to the steering damper, however, there are some specialised cycles fitted with remote steering controls or centrehub steering to which this check is more appropriate.

Reason for rejection

1. Where steering linkages are fitted, the rotational free play exceeds 10mm measured at the end of the handlebars.

2. Any steering component can be seen to have been repaired or modified by heating or welding.

NOTE: Does not apply where an original component has been fitted by the manufacturer

or repairs have been conducted to manufacturer's specifications.

3. Any nut, bolt, or locking device is missing or insecure.

4. Any steering component is insecure, broken, missing or has noticeable free play beyond manufacturer's limits.

5. The steering assembly fails to turn from "lock to lock" position without jamming, fouling or roughness in its operation.

7. Visually inspect the suspension

Reason for rejection

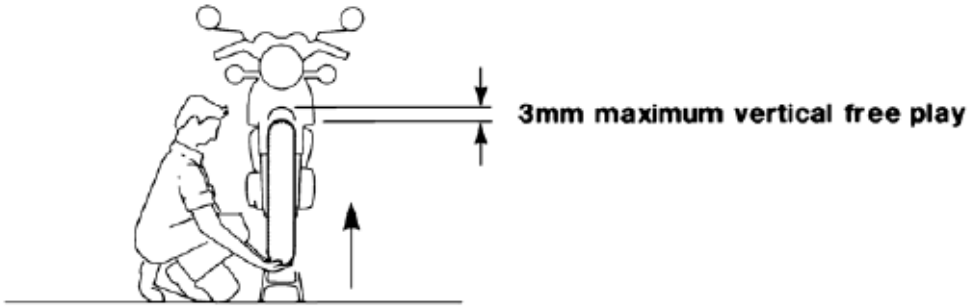
1. Any suspension component is broken, cracked, cut, missing, not secured or can be seen to have been repaired or modified by heating or welding.

2. Any shock absorber is missing, inoperative or is leaking fluid.

3. Any shock absorber is not securely mounted.

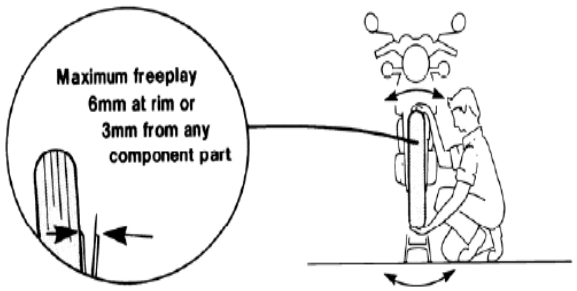
4. Any nut, bolt, or locking device is not secured or is missing.

5. With the wheels raised, the vertical free play of any wheel exceeds 3mm;



NOTE: The free play measurement given is a guide only, and manufacturers' tolerances take precedence in all cases when performing these checks.

6. With the wheels raised, the free play of the wheel measured at the rim exceeds 6mm in total or 3mm from any component part



NOTE: The free play measurement given is a guide only, and manufacturers' tolerances take precedence in all cases when performing these checks.

8. Inspect both sides of each road wheel

Reasons for rejection

a) Any wheel or rim is cracked, has pieces of a casting missing, or is buckled.

b) Any hub has missing or broken wheel mounting nuts, studs or bolts.

c) Any spoked wheel has missing, loose, broken, bent or cracked spokes.

d) The tyre or rim fouls any component at any point over its full range of travel.

9. Visually inspect each road tyre

Reasons for rejection

a) The tyre has less than 1.5mm tread depth on the surfaces which normally contact the road.

b) The tyre has deep cuts, bulges, exposed cords or other signs of carcass failure.

10. Visually inspect body panels, chassis and frame for dangerous protrusions and rust

Reasons for rejection

a) Exterior body work, fairings and fittings have sharp edges due to rusted or fractured panels, or other damage that could cause injury to a person coming into contact with them.

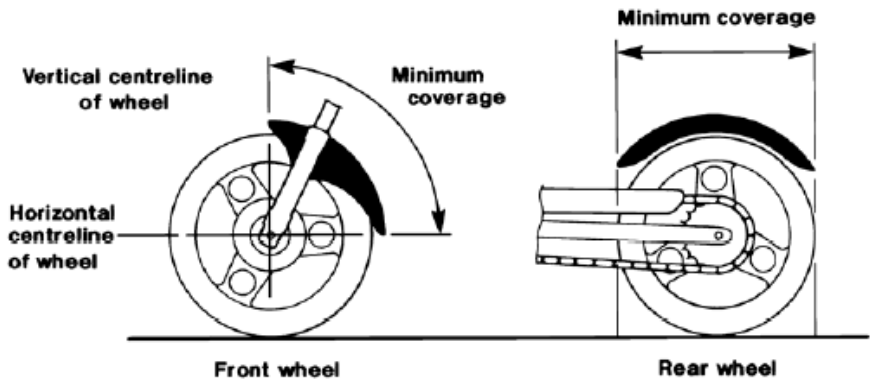
b) Any structural member such as the chassis or frame, is cracked or has advanced rust.

11. Inspect the mudguards

Reasons for rejection

a) Mudguards are not fitted to all wheels.

b) The cycle or side car mudguard does not fully cover the width of the tyre or does not meet the requirements set out in the illustration below.



12. Visually inspect rear vision mirror(s)

Reason for rejection

a) Rear vision mirror(s) is (are) missing, or do not provide a clear view of the road to the rear of the cycle.

b) Two rear vision mirrors are not fitted to motorcycles manufactured if not standard issue after june 1988.

13. Check the operation of the horn

Reasons for rejection

a) The horn is not working.

b) The horn is of the following types: exhaust whistle, compression whistle, siren or alternating tone (reversing alarms are acceptable).

14. Visually inspect any exposed drive chain or belt or shaft

Reason for rejection

a) The drive chain, belt or shaft is not protected by the frame or by a guard extending at least 300mm rearward of the rear most footrest, or to the vertical centre of the drive sprocket.

15. Visually inspect the number plate(s)

Reasons for rejection

a) Number plate is obscured, for example by a towing attachment protective cover and/or frame.

b) The number plate is obscured, damaged or faded to the extent that the registration number is not legible.

c) The number plate is not issued or approved by the registrar of motor vehicles.

16. Visually inspect the compulsory reflectors fitted to the rear of the cycle.

Reason for rejection

a) Red reflector(s) are damaged, discoloured or missing (note: reflectors may be incorporated in the lamp assembly).

17. Visually inspect and check the operation of all lights fitted to the cycle.

Reasons for rejection

a) Any of the following lights do not work or has incorrect colour:

i) headlight (high/low beam) (white);

ii) tail light (red);

iii) brake light(s) (red);

iv) turn signal indicator lights (yellow);

v) side-car marker light (white/red);

vi) number plate light (white).

b) Any of the above lights are damaged to the extent that white light shows to the rear of the cycle.

c) Any amber turn signal light is damaged so that it shows white light.

d) The number plate light is not directing light on to the surface of the rear number plate.

e) Lights as follows are not fitted to pre 3rd edition vehicles (mopeds, motor cycles, motor cycle and sidecar, and motor tricycle) (dimensions at centre of lights):

At front of vehicle:

1 White Main beam headlight, min 500mm and max 1400mm off ground;

1 White Dipped beam headlights, min 500mm and max 1400mm off ground;

1 White Parklights, min 500mm off ground;

2 Yellow turn signal indicators (Jan 83 onwards), min 425mm and max 2000mm off ground, min 300mm separation

Optional White or yellow fog lights, wired through park lights on a separate switch, not higher than headlights;

Optional driving lights as per main or dipped beam headlights.

At Rear of vehicle;

1 Red tail light, max 1000mm (1500mm if 1000mm impractical) off ground;

1 (2 for motorcycle and side car and motor tricycles) Red reflectors, max 1000mm (1500mm if 1000mm impractical) off ground, max 400mm (for motorcycle and side car and motor tricycle) inboard of side of vehicle;

1 (2 for motorcycle and side car and motor tricycle) Red stop lights, min 350mm off ground, max 400mm (for motorcycle and side car and motor tricycle) inboard from side of vehicle;

White registration plate lamp/s, to illuminate registration plate;

2 Yellow turn signal indicators (Jan 83 onwards), min 425mm and max 2000mm off ground, min 300mm separation.

18. Visually inspect front and rear lights for the presence of tinted covers.

Reasons for rejection

a) Any light has a tinted cover over it;

b) There is any type of opaque cover over a headlight which cannot be readily removed without the use of tools

19. Using a headlight tester or testing screen, check the aim of the headlight(s).

Reasons for rejection

a) The aim of the headlights is adjusted such that, when on high beam and measured at an effective distance of 8m, the projected centre of the beam is to the right of the headlight centre and/or is above the headlight centre.

b) When measured at an effective distance of 8m, any part of the top edge of the high intensity portion of the **low beam pattern** is above **and to the right** of the centreline of the headlight.

Notes:

1) *in the region above and to the right of the centreline of the headlight the luminous intensity must not exceed 437cd.*

2) *he portion of the beam to the left of the centreline of the light may extend above the height of the centreline of the headlight.*

3) *he "centreline of the headlight" passes through the centre of the globe filament, or equivalent*

c) Headlight high beam indicator light is not operating.

20. Visually inspect the headlight(s).

Reasons for rejection

a) Headlight reflector is tarnished or peeling to the extent that headlight performance is impaired.

b) Headlight lens is incomplete, cracked or damaged.

c) Headlight assembly is not secured.

21. Visually inspect the engine, remote oil reservoirs, transmission and driveline.

Reasons for rejection

a) There are significant oil leaks from the engine, remote oil reservoir, gearbox or driveline which allow oil to drop onto the road surface, exhaust system or brake components.

b) The drive chain, belt, shaft or sprockets show signs of excessive wear or misalignment.

c) The engine or transmission is not securely mounted.

22. Visually inspect the fuel system.

Reason for rejection

a) There is any leakage in the fuel system.

b) Any part of the fuel system is insecure or damaged so that there is a risk of a fuel leak.

c) The fuel cap is missing or insecure.

23. Visually inspect the exhaust system.

Reasons for rejection

a) Any component in the exhaust system is not securely mounted.

b) There is any leak in the exhaust system, excluding manufacturer's drain holes in the mufflers.

Light Trailers

Note – 3rd Edition vehicles are those vehicles manufactured from 1 July 1988

1. Trailer Braking requirements

No brakes required.

2. Visually inspect the trailer coupling, drawbar and mountings on the trailer body.

Reasons for rejection

a) Any coupling component is loose, or is cracked.

b) The drawbar is not securely mounted, or is cracked.

c) Any mounting bolts, fasteners or weld beads have advanced corrosion.

d) Where any part of the coupling or drawbar is removable, the bolts, studs, nuts etc. fastening those parts do not have locking device such as U-clip, split pin, spring washer, nylon lock nut

3. Visually inspect safety chains.

Reasons for rejection

a) Any trailer without breakaway brakes is not fitted with at least one safety chain.

b) If a trailer breakaway protection system is not fitted, the size of the chain and shackles is less than that specified in the following table;

Minimum chain and shackle sizes

AGGREGATE TRAILER MASS (ATM)	MINIMUM CHAIN SIZE	SHACKLE BODY DIAMETER
Up to 1000kg Over 1000kg up to 1600kg Over 1600 kg up to 2500kg	6.3 mm 8.0mm 10.0mm	9.5mm 12.7mm 12.7mm

e) On rigid drawbar pig trailers in excess of 2.5 tonne gross trailer mass there are less than two chains of a diameter specified in the following table, and there is at least one chain which is not positioned such that it prevents the drawbar from touching the ground when the drawbar is detached.

NOTE: A "pig trailer" is a typical trailer with one axle group and a rigid drawbar. A "dog trailer" has two axle groups and a hinged drawbar.

Minimum chain sizes

AGGREGATE TRAILER MASS(ATM	MINIMUM CHAIN SIZE (2 of)
2500 to 4500 kg Over 4500 kg up to 7500 kg Over 7500 kg up to 13500kg	7.1mm 9.5mm 12.7mm

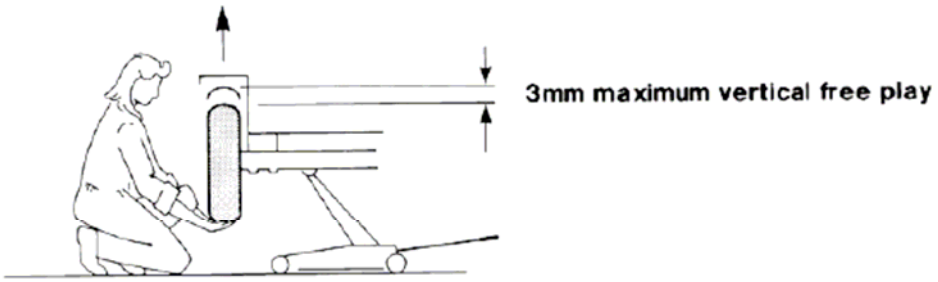
4. Visually inspect all suspension components.

Reasons for rejection

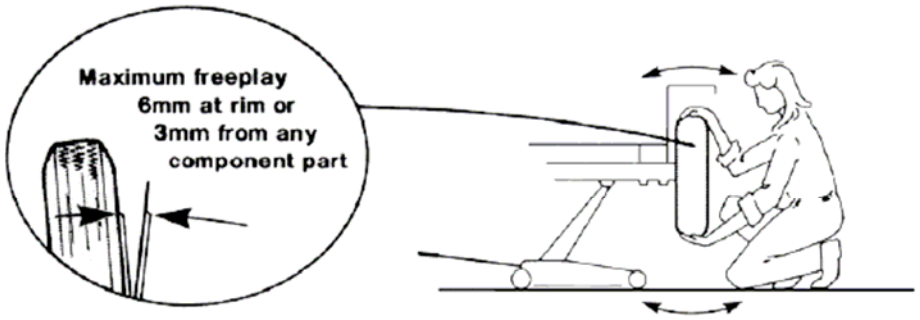
a) Any suspension component is broken, cracked, missing, not secured, or can be seen to have been repaired or modified by heating or welding or is worn beyond manufacturer's limits.

b) Any nut, bolt, or locking device is not secured or is missing.

c) With the wheels raised, the vertical free play of the wheel exceeds 3mm.



d) With the wheels raised, the free play of the wheel measured at the rim exceeds 6mm in total or 3mm from any component part.



NOTE: The free play measurement given is a guide only, and manufacturers' tolerances take precedence in all cases when performing these checks.

5. Visually inspect the inside and outside of each road wheel.

Reasons for rejection

a) Any wheel or rim is cracked, has pieces of a casting missing, or is buckled;

b) The wheel nut does not engage the thread of the wheel stud for the full length of the nut, or the fitting of the wheel nut does not match the taper of the wheel stud hole (where these can be seen without removing hubcaps);

c) Any hub has missing or broken wheel mounting nuts, studs or bolts (where these can be seen without removing hubcaps);

d) Any spoked wheel has missing, loose, cracked, broken or bent spokes;

e) The tyre or rim fouls any component at any point over its full range of travel.

6. Visually inspect each road tyre.

Reasons for rejection

a) The tyre has less than 1.5mm tread depth on the surfaces which normally contact the road.

b) The tyre has deep cuts, bulges, exposed cords or other signs of carcass failure.

7. Visually inspect body panels, chassis and frame.

Reasons for rejection

a) Exterior body work and fittings have sharp edges due to rusted panels or body damage, or protrusions that could cause injury to a person coming into contact with the trailer.

b) Any structural member such as chassis or frame, or, in the case of frameless trailers, any floor or side panel, is cracked or has advanced rust.

8. Visually inspect the number plate.

Reasons for rejection

a) Number plate is obscured, for example by a protective cover and/or frame.

b) The number plate is obscured, damaged or faded to the extent that the registration number is not legible.

c) The number plate is not issued or approved by the registrar of motor vehicles.

9. Visually inspect compulsory reflectors fitted to the vehicle.

Reason for rejection

a) reflector(s) are damaged, discoloured, deteriorated or missing

Note: reflectors may be incorporated in the lamp assembly.

10. Visually inspect and check the operation of all lights fitted to the vehicle.

Reasons for rejection

a) Any of the following lights do not work or has incorrect colour:

i) tail lights (red);

ii) brake light(s) (red);

iii) turn signal indicator lights (yellow);

iv) clearance lights (white/red);

v) side marker lights (yellow);

vi) number plate light (white).

b) Any of the above lights is damaged or deteriorated to the extent that white light shows to the rear of the vehicle, or in the case of any side marker lights, any white light shows to the front of the vehicle.

c) The number plate light is not directing light on to the surface of the rear number plate.

d) Any wiring for compulsory lights is frayed or bared or is insecure to the extent that it is likely to be damaged.

e) Lights as follows are not fitted to pre 3rd edition vehicles (passenger and light goods vehicles and light omnibuses) (dimensions at centre of lights):

At front of vehicle:

- 2 White clearance lights (if vehicle built after 6/88 and vehicle more than 2.2m wide), min 500mm and max 1500mm off ground, max 150mm inboard of vehicle side;

At Side of vehicle:

- 2 Yellow to front, red to rear side clearance lights (where vehicle is more than 2.2m wide and/or 7.5m long), min 500mm and max 1500mm off ground, max 150 inboard, max 300 mm from rear of vehicle (in middle if vehicle over 7.5m long);

At Rear of vehicle:

- 2 (1 prior to 7/88) Red tail lights, max 1500mm off ground, min 600mm apart, max 400mm inboard of side of vehicle (single light located in centre or right side of vehicle);
- 2 Red reflectors, max 1500mm off ground, max 400mm (250mm if vehicle more than 2.2m wide) inboard of side of vehicle;
- White registration plate lamp/s, to illuminate registration plate;
- 2 (1 prior to 7/88) Red stop lights, min 300mm and max 1500mm off ground (single light to be in centre or on right side of vehicle);
- 2 Yellow (red permitted prior to 1/73) turn signal indicators, min 400mm and max 1500mm off ground, min 600mm separation.

Checking for Rust

1. Classification of Rust

The extent of corrosion in a vehicle can range from light surface rust to the total breakdown of parent metal.
Depending on the individual vehicle's design, there are many different ways in which corrosion can begin and the degree to which a material or structure is attacked can vary widely. In general, though, the formation of rust and resultant loss of metal occurs in areas which retain moisture because (for example) of a build-up of road dirt and mud.
In order to simplify identification and classification when carrying out a motor vehicle inspection, this publication classifies the extent of corrosion in three different stages.

Stage 1 - Surface Rust

Light, powdery corrosion on the surface of a section of metal is termed surface rust and is sometimes the first indication of corrosion that can be observed; it should warn the owner of the vehicle to take steps for preventing the rust from spreading.
Surface rust can occur on or behind any body panel of a vehicle particularly if the protective coating is scratched or damaged.

Stage 2 - Advanced Rust

Surface rust, 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 rust reaction involves an increase in volume so that pitting or bubbling of paint is the usual indication of penetration.

Stage 3 - Extensive Rust

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

Classification of Vehicle Structures

Vehicle structural components can be categorised according to their importance to safety.
For instance, subframes and other basic structural sections have to be absolutely free of rust because their failure could make a vehicle difficult to control and might cause it to crash. As already mentioned, such failures will also probably reduce the chances of survival in a crash.

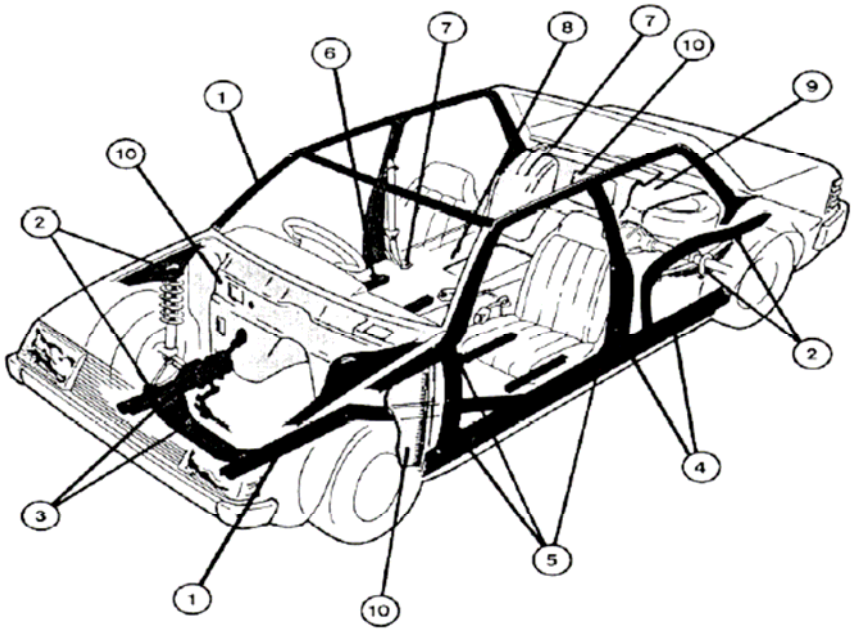
Primary Structure

This category includes any structure or component which, if it collapsed, would make the vehicle uncontrollable or would considerably reduce occupant

safety in a crash. Examples of components in this category are illustrated below.

Typical primary structure components

1. Main structural members such as subframes and chassis rails
2. Suspension mountings and parts
3. Steering component mounting points
4. Door sills and pillars
5. Door hinges and latch mounting points
6. Seat anchorage points
7. Seat belt anchorage points
8. All floor panels
9. Boot floor
10. Bulkheads



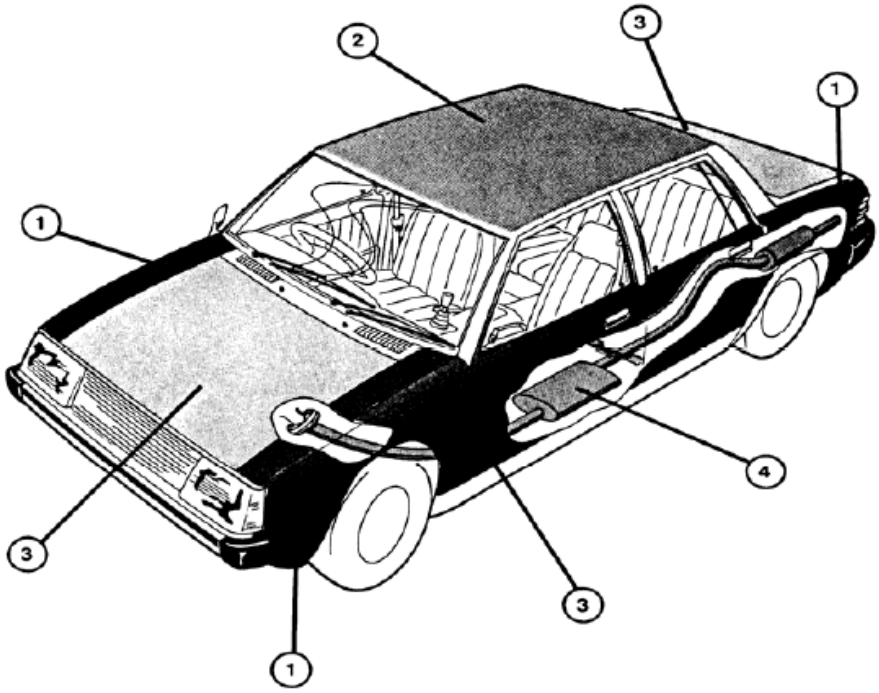
Secondary Structure

The second category includes any structure or component which, if it collapsed, would not immediately affect a vehicle's controllability or the protection provided by its built-in safety systems. Normally, surface rust or advanced rust would not be a cause for rejection in these components but extensive rust is usually either hazardous to persons in or near the vehicle

because of its sharp edges or because exhaust fumes can get into the vehicle. In such cases, extensive rust, must therefore be rejected. The illustration below shows examples covered by this category.

Typical secondary components

1. Mudguards or fenders
2. Roof
3. Bootlid, bonnet and doors (areas within 100mm of mounting and locking points are primary structures and must be free of advanced or extensive rust).
4. Exhaust system



Reasons for Rejection

The following table summarises the acceptability of rusted components in terms of the categories of rust and structures described so far. Remember that it is a general guide only and that in some cases it might be necessary to depart from the table.

Type of corrosion	Category of structure	
	Primary	**Secondary**
Surface Rust	Acceptable	Acceptable
Advanced Rust	Not Acceptable	Acceptable (See Note A)
Extensive Rust	Not Acceptable	Not Acceptable (See Note B.)

NOTE A: Areas within 100mm of hinges and locks (e.g. boot lid, bonnet and doors), are considered primary structures and must be free of advanced and extensive rust.
NOTE B: Extensive rust is not acceptable in secondary components, if it has resulted in hazardous conditions to persons in or near the vehicle e.g. sharp edges, loose panels or, in the case of exhaust system, gas leaks.

Inspection Method

Visual inspection is usually adequate since advanced corrosion is almost always associated with an eruption of oxidised metal and pitting or bubbling of paint.
However, this method may not be adequate in all cases. In underbody areas prone to rust such as steering and suspension mounting points and major structural components which include chassis, floor, structural sills and sub-frames presence of rust should be checked by probing with a rod. This method should also be used to check for presence of rust in other areas where cosmetic damage is not a problem, such as inside wheel arches.
In using this technique, great care must be taken to ensure that sound panels or paint work are not scratched or damaged in any way. It should be remembered that the purpose of such checks is to find out whether rust is present, not to determine its extent.
When checking for advanced rust, you should pay particular attention 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 rust holes are not an immediate danger.

Repairs

Surface rust on a component or structure is not immediately dangerous and is not a reason for rejection of a vehicle for the purpose of registration. However, if it is observed, the owner should be advised to have it rectified before it becomes serious. Rectification is simply a matter of completely removing the deposit and applying a rustproofing coating or oil as is appropriate (body panels should be repainted using a good quality refinishing system).

It should be noted that repairs made to primary structure components solely by using body filling compounds are not acceptable. However, plastic filler or fibreglass can be used to smooth a non-structural component. A vehicle must not be passed for registration if it is found that a repair to a primary component is carried out by methods which do not restore the original strength of the component or part. (A good way to check for continuity of structure, if a fibreglass repair is suspected, is to run a magnet over the surface.)
Extensive rust in structural members can only be repaired by replacing the affected member or by completely removing all rusted material and reinforcing it so that the original strength of the affected structural member is re-established.
Where a primary structure is found to be in need of repair and the repaired component would normally be coated with a bituminous coating or covered by another vehicle component such as a seat or a floor mat, it is quite in order to ask the owner to resubmit the repaired vehicle before the repairs are obscured so that the adequacy of the repairs can be assessed. A note to this effect should be made on the inspection report if this is required.

APPENDIX A

SPECIAL EQUIPMENT

To enable inspections of light vehicles to be carried out in accordance with the procedures detailed in this manual, an Authorised Inspection Station must have a minimum of the following items:

• A pit or hoist with adequate lighting for inspection under vehicles.
• Garage type jacks to raise vehicles to enable inspection of suspension components for wear or damage.
• A headlight-testing screen constructed in accordance with Appendix C6 or, a suitable headlight-testing device as detailed in appendix C5.
• Applicable safety equipment as required for a mechanical workshop

Technical Specifications

Headlight Aim Tester

Headlight Testing Screen

Headlight Aim Tester

1 Introduction

1.1 The Rules for Authorised Inspection Stations permit the use of approved headlight aim testers for checking the aim of vehicle headlights.
1.2 Headlight aim testers complying with the requirements of this specification are acceptable for the testing of the aim of vehicle headlights in accordance with those Rules.
1.3 This specification is restricted to headlight aim testers that employ a collimating lens: it does not apply to testers which use other methods of testing headlight aim.

2 Definitions

2.1 Unless otherwise stipulated, angles given in this specification refer to the included angle between the line drawn from the headlight centre to the intersection of the calibration screen axes and the line drawn from the headlight centre to the point of intersection of either the horizontal or vertical axis of the screen with the required respective vertical or horizontal line.
2 2 Headlight - A lighting source mounted on a vehicle to provide illumination of the road and objects ahead of a vehicle.
2.3 Hot Spot - The zone of the headlight beam which is of highest intensity as it appears to an observer viewing the beam on an image screen. For headlights with European beams or where the beam has a sharp angular cut-off, the top of the hot spot shall be taken as the “elbow point” or intersection of the horizontal and inclined cut-off zones.
2.4 HV Point - The intersection of the central horizontal axis (*H*) and the central vertical axis (*V*) of the image screen.
2.5 Vertical Median Plane - The plane passing through the longitudinal centre line of the vehicle, perpendicular to the plane on which the vehicle is standing.
2.6 *h* - The vertical height of the centre of the headlight above the plane supporting the vehicle (in millimetres).

3 General Requirements

3.1 The headlight aim tester shall consist of a lens which focuses the light beam onto a screen within the tester.
3.2 The screen shall be located in a position that will allow the operator of the tester to readily and conveniently see the image of the headlight’s light beam.
3.3 Provision shall be made for immediate adjustment to allow for different headlight heights and vehicle orientations.
3.4 The tester shall be mounted on at least one securely mounted locating guide rail which traverses the inspection lane and shall be easily movable to any point along this rail. The track followed by the tester (whether consisting of two rails, or one rail and a prepared surface) shall be such that the tester is always correctly aligned in the vertical plane.
3.5 Aiming of the tester shall be accomplished by either an electrical or mechanical device shall also be provided.

4 Design Requirements

Optical Characteristics

4.1 Headlight aim testers shall enable the headlight beam pattern to be examined on an image screen within the device. The resulting image must be equivalent to that which would be projected onto a flat screen placed in front of the headlight lens at a horizontal distance nominated by the manufacturer (*D* metres).-

4.2 The focused beam on the image screen shall be accurate to within 0.25 degree in the vertical direction at all declinations from horizontal to 3.25 degrees below horizontal.

Image Screen

The image screen shall have grid lines provided to assist aiming of headlights, comprising:

4.3 A central horizontal and a central vertical axis which intersect on the optical axis of the collimating lens, at the HV point.

4.4 A series of evenly spaced horizontal lines which allows estimation of angular declination below the HV point in the range 0 to 3.25 degrees with a spacing not more than 0.25 degrees. They must be labelled in degrees, or mm declination as measured on an equivalent flat screen as specified in specification 4.1.

4.5 A straight line inclined at 15 degrees to the horizontal axis for testing the aim of asymmetric European or Z-beam type headlights. The line shall originate at the intersection of the vertical axis and the horizontal line 0.5 degrees below the horizontal axis and shall project upwards and to the left of the point of origin.

4.6 The requirements of specification 4.2 may be met by movement of the horizontal axis by an external calibrated mechanism which indicates the equivalent angles of declination.

Device Alignment

4.7 The device shall be provided with an indicator or other means to enable an operator to locate rapidly the approximate centre of the headlight lens.

4.8 The following adjustments shall be provided to allow for different headlight positions:

Height adjustments

allowing the testing of headlights with centres located at or between 600 mm and 1400 mm above the surface supporting the vehicle. The device shall incorporate a means of determining the height (*h*) with a scale graduated in at least 5 mm increments.

Lateral horizontal adjustment

on guide rails (or one rail and prepared surface) to allow for the checking of headlights up to at least 2500 mm apart.

4.9 The following provisions shall be made for aligning the device with the longitudinal
axis of the vehicle:

• The optical axis must be able to be set parallel to the vertical median plane The adjustment mechanism must provide a range of rotational alignment about a vertical axis over a range of not less than 20 degrees in either direction. The adjustment must be able to be made without the use of tools. The adjustment mechanism must permit alignment to an accuracy of 0.25 degrees.

•The optical axis must be able to be set parallel with the plane supporting the vehicle. The adjustment mechanism must provide a range of rotational alignment about a horizontal axis over a range of not less than 5 degrees in either direction. The adjustment must be able to be made without the use of tools. The adjustment mechanism must permit alignment to an accuracy of 0.25 degrees.

5 Operating Instructions

5.1 The device shall be provided with a table or graph clearly informing the user of the acceptable declination of the headlight. This shall indicate the location of the top of the hot spot as a function of the vehicle‘s headlight height *h*.

5.2 The acceptable range of declination below the optical axis of the top of the hot spot can be determined from specification 6. An example is given below for a device graduated to a reading accuracy of 0.25 degrees.

Range of Headlight Height *h* in mm		Angular Declination Range in degrees	
From	To	From	To
600	709	0.25	0.9
710	819	0.25	I.75
820	929	0.25	2.00
930	1039	0.25	2.25
1040	1149	0.25	9.50
1150	1249	0.50	9.75
1250	1359	0.75	3.00
1360	1400	1.00	3.95

5.3 The device shall be provided with a label showing the distance the tester should be positioned from the headlight.

6 Location Of The Hot-Spot Band

6.1 Each headlight must be adjusted so that the top of its hot spot lies within a specified band of angle of declination. This band is a function of the headlight height, *h*.

6.2 To determine this 'band, the distance from the headlight *D* to the test screen must be known.

6.3 Application of the following formulae, with *D* fixed, defines the headlight dipping characteristics.

6.4 For a linear scale (with *h* in millimetres and *D* in metres):

- the top of the band is *D*(*h*-1000)/92 millimetres below the horizontal; and
- the bottom of the band is *Dh*/25 millimetres below the horizontal

6.5 For an angular scale (with h in millimetres):

- the top of the band is INV TAN(*h*-1000)122000) degrees below the horizontal and
- the bottom of the band is INV TAN(*h*/25000) degrees below the horizontal.

6.6 The above formulae may be approximated for tabulation purposes by using a step function such that the tabulated values do not deviate from the exact value by more than 0.25 degrees.

Headlight Testing Screen

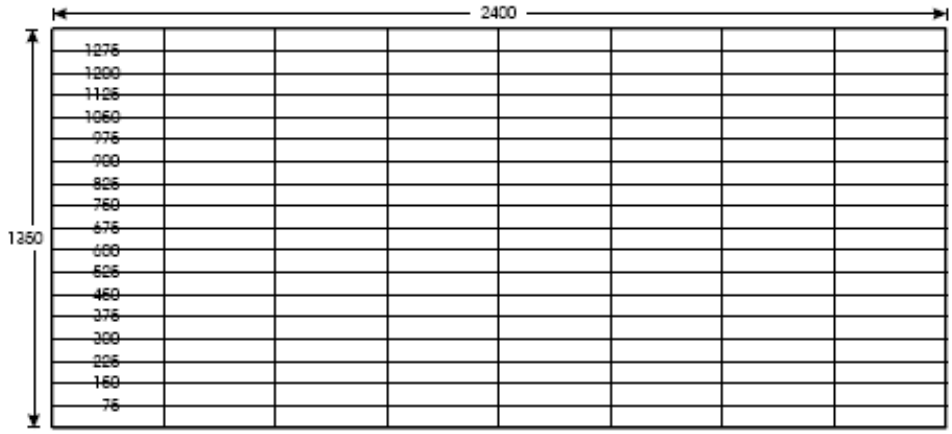
1 Scope

1.1 This Specification describes requirements for the headlight testing screen and the layout of the headlight testing space.

2 The Headlight Testing Screen

2.1 The surface of the screen should be 'flat' white (gloss finish should be avoided). The screen shall be at least 1300mm in height and 2400mm in width (screens for use with motorcycles only may be 1300mm in height and 1200mm in width) and shall be marked with horizontal and vertical lines. Horizontal lines shall be spaced 75mm apart and vertical lines shall be spaced 300mm apart. Horizontal lines shall be labelled with their height from the bottom of the screen.

Headlight Testing Screen Showing Size of Marking On The Screen



Front Elevation of Screen

3 Layout Of The Testing Space

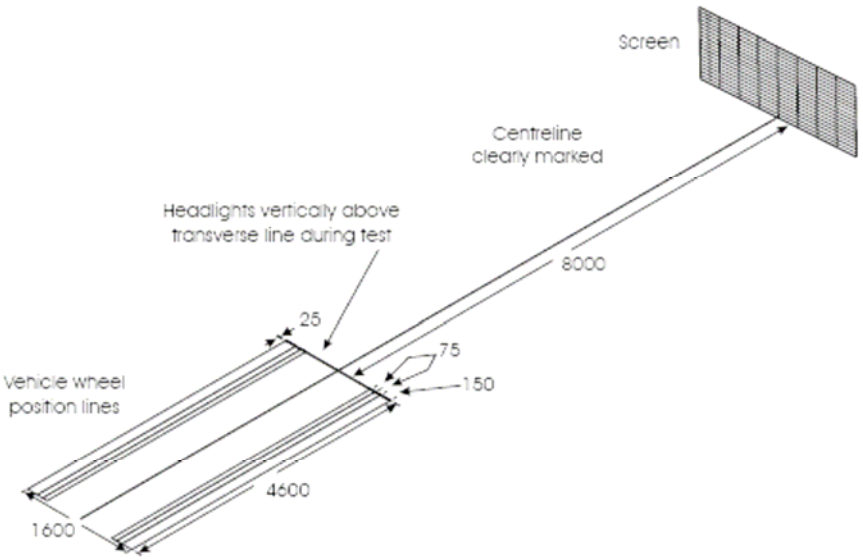
3.1 The ground on which the vehicle stands shall be marked with a centreline which passes through the centreline of the screen and a transverse line which intersects the centreline and is 8000mm from the screen (the headlights of the tested vehicle are positioned directly over this line). Additional longitudinal lines in the region where the vehicle standing would assist alignment and their use is recommended.

3.2 The bottom of the screen is at the same level as the surface on which the vehicle stands.

3.3 The screen and testing space must be adequately shielded from extraneous light.

3.4 The testing space must be clear of obstruction.

General Arrangement of the Headlight Testing Space



NOTE: All dimensions in the diagrams are in millimetres.