

# SERVICE BRAKE CONTROL

## INFORMATION

This inspection applies to all vehicles.

### THE FOLLOWING INFORMATION ONLY APPLIES TO SECTION 'A' ONLY

Vehicles with smooth brake pedal pad which from manufacture did not incorporate grooves or the fitting of an anti-slip material should not be subject to refusal.

The provision of a pedal rubber which is itself an anti-slip material is not regarded as a reason for rejection if the design pattern is worn smooth.

Three wheeled mopeds, light quadricycles and motorcycle based tricycles and quadricycles may have handlebar mounted brake controls. These controls and their mountings should be examined.

### THE FOLLOWING INFORMATION ONLY APPLIES TO SECTION 'E' ONLY

1. This inspection applies to vehicles registered on or after 1 October 1937.
2. A vehicle of 3050 kg or less unladen, with
  - a reservoir coupled direct to the induction manifold, or
  - a reservoir integral in a servo unit

Is not necessarily required to be fitted with a warning device.
3. A defective audible warning device is not a reason for rejection if fitted in addition to an operational visual device.
4. For vehicles first used on or after 1 April 1983, a defective visual warning device is not a reason for rejection if fitted in addition to an operational audible device.

## METHOD OF INSPECTION

### A. ALL TYPES OF BRAKING SYSTEM

## 1. Check

- The condition of the brake pedal and brake actuating linkage (e.g., to remote master cylinders).
- The anti-slip face on the pedal pad.
- The security of the pedal pad to the pedal and the pedal to operating lever.
- The condition of the pedal bearing or pivot.
- For chafed rods or levers.
- For corroded, frayed or knotted cables.
- For any corroded or damaged rod, lever or linkage. Wear in eyes of relay levers, clevis joints, stationary pins or pivots.
- For abnormal movement of levers, indicating maladjustment or excessive wear.

## 2. Examine the vehicle structure near actuating linkage and mounting points for fractures, cracks, corrosion and distortion.

## 3. On vehicles used on or after 1<sup>st</sup> Jan 1968, check that a single brake control applies to all wheels (this may need to be substantiated during the brake test). An exception is three wheeled mopeds, light quadricycles and motorcycle based tricycles and quadricycles which may have two separate service brake systems each having a separate means of operation.

## 4. Depress the pedal and check for fouling on parts of the vehicle.

## 5. Depress the pedal fully and check the position of the pad relative to the floor.

## 6. Check the service brake control for any inappropriate repair or modification.

## **B. HYDRAULIC SYSTEMS (INCLUDING SERVO ASSISTED)**

## 1. Fully depress the pedal twice, first slowly and then rapidly each time to a point where sustained pressure can be held. Check for creep and sponginess.

## 2. If a vacuum servo is fitted, then with the engine off, totally deplete the stored vacuum by repeatedly applying the service brake. Fully apply the brake and hold at a constant pressure. Note whether the pedal can be felt to travel further when the engine is started.

## **C. VEHICLES WITH HIGH SERVO BOOST**

**Note:**

This inspection only applies to a diesel engined vehicle where pedal creep had been detected when pressurising the brakes with the engine running.

1. Where possible check the brake fluid level in the reservoir then pump the brake pedal several times and check that the fluid level in the reservoir is unchanged.

**Note:** Under no circumstances must the reservoir cap be removed.

2. With the vacuum depleted ensure the pedal is not spongy or does not creep.
3. With servo assistance fully depress the pedal.

#### **D. FULL POWER HYDRAULIC BRAKING SYSTEMS**

**Note:**

On some vehicles the low vacuum warning light will illuminate as soon as the ignition is switch on. In these circumstances it is not a reason for rejection unless the warning light stays on after the engine has been started.

1. Check that a warning device is fitted.
2. Check whether a warning device fitted is audible or visible to driver.
3. With the engine switched off, repeatedly apply the service brake until the warning device operates. Check that at least two further applications of the brakes are available. In case of doubt the availability of two further applications can be established by trying to move the vehicle forward while the foot brake is applied.

**Note:**

Hydraulic braking systems operate quietly, it is therefore normally necessary to try and move the vehicle to verify that the brakes are applied.

#### **E. AIR AND VACUUM SYSTEMS (INCLUDING 'OVER HYDRAULIC')**

1. Check that a visual warning device or, as an alternative for vehicles first used on or after 1 April 1983, an audible warning device is:
  - Fitted,
  - Working correctly.
2. Check that any visual warning device is:
  - Visible from the driving seat,
  - Illuminated, or otherwise visible from the driving seat in darkness.
3. For systems fitted with a pressure or vacuum gauge, with the reservoir at a maximum pressure or vacuum, note the reading on the gauge and then fully depress the pedal.

Keep the pedal depressed and watch the gauge reading.

**Note:**

All vehicles must also be checked for pressure or vacuum leaks during the under vehicle inspection of the brake system.

4. Check that the operation of any air or vacuum-powered system (e.g. wipers, etc does not adversely affect the operation of the braking system).
5. By applying the service brake repeatedly gradually empty the braking system, and
  - a. if a gauge is fitted, note that:
    - The reading on the gauge falls steadily each time the brake pedal is depressed, and
    - When the gauge needle has reached the 'warning mark', there is still enough pressure or vacuum in the system to allow the brake to be applied at least twice more with pressure or vacuum assistance.

**Note:**

**Pressure gauge**

If pressure gauge has no warning mark, use 45 psi (3.1 kg/sq. cm or 3 bar) as a reference.

**Vacuum gauge**

If the vacuum gauge has no warning mark, use 25 to 30 cm as a reference.

- b. If a warning light or other device is fitted, check that, after the warning has operated, there is still enough pressure or vacuum in the system to allow the brake to be applied at least twice more with pressure or vacuum assistance.
6. Completely empty the reservoir by repeatedly pressing the service brake pedal. Start the engine and if diesel run it at just below governed speed or 2000 rpm if petrol. Note the time it takes for the warning device to stop operating.

## REASON FOR REJECTION

**Deficiency  
Category**

### A. ALL TYPES OF BRAKING SYSTEM

1.
  - a. The pedal or actuating linkage fractured, excessively corroded or functionally incomplete. MAJOR

b.	The pedal or actuating linkage not releasing correctly	MINOR
c.	Pedal or hand lever pivot too tight	MAJOR
d.	The anti-slip provision on the brake pedal pad is missing, loose or worn smooth.	MAJOR
e.	A pedal pad or operating lever not secured to the pedal.	MAJOR
f.	Excessive side movement of the pedal at right angles to its normal movement indicating a badly worn pedal bearing pivot.	MAJOR
g.	A brake rod or lever reduced in thickness by more than 1/3rd.	MAJOR
h.	A brake cable corroded, knotted or with wires broken so that it is weakened significantly.	MAJOR
i.	Serious weakening of any part due to excessive wear, corrosion or damage.	MAJOR
j.	Abnormal movement of any part due to excessive wear.	MAJOR
<b>Handlebar mounted control</b>		
k.	Insecure	MAJOR
l.	Attachment screw loose or missing	MAJOR
m.	Excessively worn control lever	MAJOR
n.	Cracked or fractured	MAJOR
o.	Has inadequate reserve travel	MAJOR
p.	Inoperative or so damaged, positioned, bent or shortened that the brake cannot be readily applied	MAJOR
q.	Which cannot be applied and released smoothly	MAJOR
r.	Deliberate modified so the original strength is seriously reduced	MAJOR
s.	Excessively corroded	MAJOR
t.	Inadequately repaired	MAJOR
2.	Deliberate modification which significantly reduces the	MAJOR

original strength, excessive corrosion, severe distortion, a fracture of an inadequate repair of a load bearing member, its supporting structure or supporting panelling within 30 cm of an actuating linkage mounting point, that is, within a 'prescribed area' see Appendix A.

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|----|---|-------|
| 3. | On vehicles first used on or after 1 <sup>st</sup> Jan 1968 a brake is not applied to all wheels. | MAJOR |
| 4. | The pedal is fouling parts of the vehicle so that free movement of the pedal is obstructed.       | MAJOR |
| 5. | When the pedal is fully depressed, there is not enough reserve pedal movement.                    | MAJOR |

**Note:**

This does not apply to power operated braking systems, provided the foot valve is fully open before the pedal is fully depressed.

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|----|---|-------|
| 6. | A service brake control inappropriately repaired or modified. | MAJOR |
|----|---|-------|

**B. HYDRAULIC SYSTEM (INCLUDING SERVO ASSISTED)**

- |    |    |  |       |
|----|----|--|-------|
| 1. | a. | The pedal tends to creep down while the pedal is held under pressure.                                      | MAJOR |
|    | b. | Sponginess indicating air in the hydraulic system.   | MAJOR |
| 2. |    | No dip can be felt when the engine is started, indicating vacuum assistance is not working satisfactorily. | MAJOR |

**C. VEHICLES WITH HIGH SERVO BOOST**

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|----|---|-----------|
| 1. | After several applications of the brake pedal the fluid level in the reservoir has decreased. | MAJOR     |
| 2. | With the vacuum depleted the pedal is spongy or creeps.                                       | MAJOR     |
| 3. | With servo assistance the pedal creeps down and touches the floor                             | DANGEROUS |

**D. FULL POWER HYDRAULIC BRAKING SYSTEM**

- |    |                           |       |
|----|---------------------------|-------|
| 1. | No warning device fitted. | MAJOR |
|----|---------------------------|-------|

- |    |    |  |       |
|----|----|--|-------|
| 2. | a. | A warning device not visible (or audible) to the driver.   | MAJOR |
|    | b. | A visual warning device not readily visible to the driver in darkness.   | MAJOR |
| 3. | a. | A warning device not working correctly.  | MAJOR |
|    | b. | Insufficient reserve pressure to give at least two further applications of the brakes after the warning device has operated. | MAJOR |

**E. AIR AND VACUUM SYSTEM (INCLUDING 'OVER HYDRAULIC')**

- |    |   |  |           |
|----|---|--|-----------|
| 1. | A mandatory warning device  |  |           |
|    | a.  | not fitted or  | MAJOR     |
|    | b.  | not working correctly.   | MAJOR     |
| 2. | A visual warning device.  |  |           |
|    | a.  | Not visible from the driving seat.   | MAJOR     |
|    | b.  | Not illuminated, or its function not visible from the driving seat in darkness.                  | MAJOR     |
| 3. | The gauge reading drops whilst the pedal is kept depressed, indicating a leak in the brake system.  |  | MAJOR     |
| 4. | The repeated operation of any ancillary air or vacuum powered system completely depleted the stored air or vacuum for the braking system.                                   |  | MAJOR     |
| 5. | Insufficient pressure/vacuum assistance for less than:  |  |           |
|    | a.  | four brake applications after the warning device has operated (or gauge shows an unsafe reading) | MAJOR     |
|    | b.  | two brake applications after warning device has operated (or gauge shows an unsafe reading).     | DANGEROUS |
| 6. | The time between starting the engine and the warning device ceasing to operate, or the gauge showing a safe reading indicates that build-up of pressure/vacuum is too slow. |  | MAJOR     |

For example:

- More than 3 minutes for pressure systems.
- 1 minute for vacuum systems.

7. External damage likely to affect the function of the braking system

MAJOR