



**For:**

- RTA Inspectors, Vehicle Regulations
- RTA Motor Registry Managers
- Engineering Signatories
- AIS Examiners
- AIS Proprietors
- AUVIS Examiners
- AUVIS Proprietors

# Anti-Lock Braking Systems (ABS) - Special Inspection Requirements

## Introduction

Anti-lock Braking Systems (ABS) are now fitted, as an optional item, to some vehicles (mostly heavy vehicles). This Bulletin sets out checks and precautions to be followed by Inspectors, Vehicle Regulations and Authorised Examiners when inspecting vehicles fitted with ABS.

## Description of ABS

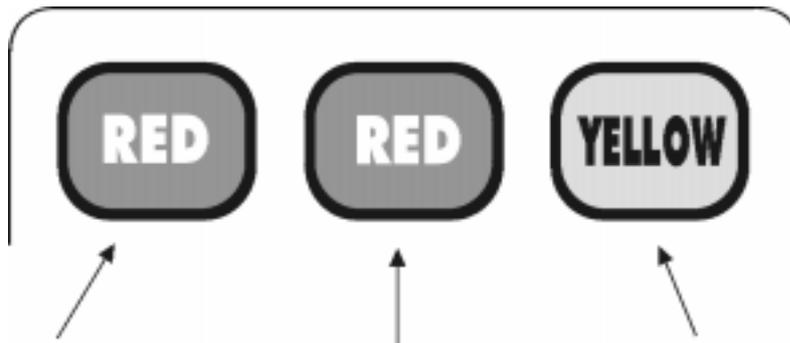
ABS consists of sensors mounted on some or all wheels of the vehicle. The sensors detect wheel speed and send a signal to a control unit. The control unit decides whether wheel lock-up is about to occur and sends a signal to a solenoid control valve in the hydraulic/air lines for the brake attached to that wheel or axle. The brakes on that wheel are momentarily released so that wheel lock-up is avoided. A feedback cycle then occurs where the brakes are repeatedly applied, up to the point of wheel lock-up, and released - this might be noticeable as chattering of the brakes.

# Checks of ABS Operation

The ABS is designed to be maintenance-free. No adjustment or other maintenance is required unless indicated by a warning lamp, as described below. If a problem is indicated then specialised test equipment is required to isolate and rectify the fault. This is beyond the scope of the Inspector's, Vehicle Regulations/Authorised Examiner's activities.

Current ABS systems have up to three warning lamps on the dashboard:

## a) Three lamp systems

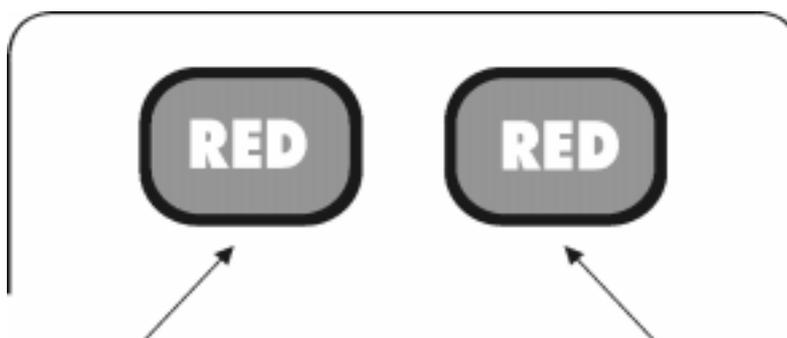


The first (left most) lamp is red and indicates the correct functioning of the prime vehicle's ABS system.

The second (middle) lamp is red and indicates the correct functioning of an ABS trailer attached to the prime vehicle.

The third (right most) lamp is yellow and warns when a trailer without ABS is attached.

## b) Two lamp systems



The first (left most) lamp is red and indicates the correct functioning of the prime vehicle's ABS system.

The second lamp is red and indicates the correct functioning of an ABS trailer attached to the prime vehicle.

### c) Single lamp system



The single lamp is red and indicates the correct functioning of the prime vehicle ABS system and, in some cases, a trailer ABS system.

## Checking lamp operation

**The first lamp** must come on when the ignition is first switched on. It must stay on until the vehicle reaches a speed of about 7km/h. At this speed the ABS activates and the lamp should extinguish. If it does not (or if it comes on again after extinguishing) then a fault is indicated.

**The second lamp** (where fitted) should only come on if an ABS-equipped trailer is hooked up. As a check of lamp operation, it must come on when the ignition is first switched on and an ABS trailer is attached. It must extinguish when the vehicle reaches a speed of about 7km/h. If the lamp does not extinguish then a fault in the trailer ABS is indicated. If the lamp comes on with no trailer attached or a non-ABS trailer attached then it is possible that there is a fault in the prime vehicle ABS.

**The third lamp** (where fitted) should only come on when a trailer without ABS is attached. It must stay on, irrespective of vehicle speed, as a warning to the driver that a non-ABS trailer is attached. It is possible that some rewiring of the trailer's electrical system might be necessary for this warning light to function correctly. In the circumstances, the non-activation of this warning light, with a non-ABS trailer attached, is not a reason for rejection of either the prime vehicle or the trailer at this stage. The driver should be advised to contact the prime vehicle manufacturer for advice about possible rewiring of the trailer.

## Roller brake testing machines

Most roller brake testing machines (including those used by the RTA) operate at low speeds. ABS is not effective at these speeds and it should be possible to achieve maximum braking force (even wheel lock-up) without the ABS activating. That is, it should not be evident during roller brake tests that an ABS is fitted. Unusual roller brake test results on a vehicle fitted with ABS should be reported to the RTA Technical Enquiries Officers (for contact telephone numbers refer to "Further Information" on page 4).

## Road tests - brake meter readings

During a road test the wheels fitted with ABS should not lock-up under heavy braking. Note however that it is not always easy to identify which wheels have ABS fitted.

Vehicles fitted with ABS must achieve the minimum brake meter readings specified in the Rules for AIS. However, care should be exercised in interpreting the results of such road tests because the chattering effect of the ABS system can give abnormally high brake meter readings. Apply the brakes steadily and look for a smooth increase in the meter reading. Any sudden rise in the reading or noticeable chattering of the brakes probably indicates an invalid test. Note that the prescribed minimum meter readings will normally be achieved well before the ABS system comes into operation. Vehicles with ABS can usually achieve much higher deceleration than these minimum levels, which cover all classes of vehicle.

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### FURTHER INFORMATION

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