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SERVICE BRAKE OPERATION AND ELECTRONIC STABILITY CONTROL SYSTEMS

APPLICATION

This examination applies to all vehicles.

VEHICLES REQUIRED TO BE FITTED WITH ANTI-LOCK BRAKING SYSTEMS ARE: -

ITEM	TYPE OF VEHICLE	DATE
2	Coaches with a design GVW exceeding 12000kgs. And which do not have a load sensing valve.	First used on or after 1st April 1983 to 12th April 1992
3	Coaches with a design GVW exceeding 12000kgs.	First used on or after 13th April 1992
4	Motor vehicles with design GVW greater than 3500kg or with more than 8 passenger seats. And which do not have a load sensing valve.	First used on or after 1st April 1983 to 20th May 2004
5	Motor vehicles with design GVW greater than 3500kg or with more than 8 passenger seats	First used on or after 21st May 2004

Note: Where only the year of manufacture is known, the date of manufacture should be taken to be the first day of that year.

PROCEDURE AND STANDARDS

Air pressure systems and vacuum systems with reservoirs.

- With reservoir at maximum pressure or vacuum, fully depress the pedal and note the change in gauge readings to see if they give indications of a leak in the system.

Hydraulic systems (other than full power systems).

- Fully depress the pedal and keep it depressed under steady pressure. Check for sponginess and whether the pedal creeps down under full pressure.

Note:
For some brake systems a small amount of creep may be due to elasticity in the brake components.

Brake systems assisted by engine vacuum.

- Deplete the vacuum, partly depress the pedal, start the engine, and check if the pedal can be felt to dip.

Full power hydraulic systems.

- Check that the system pressure is maintained when the brakes are off and the engine is stopped. Loss of pressure will be indicated by the operation of the low pressure warning device (warning light or appearance of semaphore "flag" device).

Anti-lock braking systems (ABS) and Electronic Braking System (EBS).

- Check whether the vehicle is required to be fitted with anti-lock brakes.

- Check the anti-lock warning lamp sequence of operation.

NON – TOWING VEHICLES

For non-towing vehicles, when the ignition is switched on, a single ABS/EBS warning lamp on the dashboard will go through one of the following sequences:

1. Lamp comes on and goes out within a few seconds.

2. Lamp comes on and will remain on until the vehicle is driven over a nominal speed of between 7 and 10 km/h.
3. Lamp comes on, goes out after a few seconds, after a few more seconds comes back on and will remain on until the vehicle is driven over a nominal speed of between 7 and 10km/h.

Electronic Stability Control Systems are commonly referred to as ESC, but may also be known as ESP/RSC etc. The dashboard warning lamp for these systems may take various forms and a vehicle should only be failed when the Examiner is certain that an illuminated lamp indicates an ESC malfunction.

The ESC lamp will be illuminated when the system is switched off or if a fault is present. It is not required to light up on system energisation, but if it does this is acceptable provided it then goes out after a short period or when the engine is started.

Multifunctional MILs

Some type approved ABS/EBS/ESC systems, will only illuminate a MIL when the vehicle detects a fault. The MIL will not illuminate during its system energisation check, as it is often a multifunctional MIL, which may differ from the standard recognised MILs for ABS/EBS/ESC systems.

If the multifunctional MIL remains on after energisation, the system affected will display a fault message in an information screen on the dashboard. This should be considered a reason for failure under 6b.

REASONS FOR FAILURE

		Deficiency Category
1.	Air pressure or vacuum systems gauge reading drops when pedal depressed indicating a leak in the system.	MAJOR
2.	Hydraulic systems (other than full power systems):	
	a. Pedal creeps down when depressed.	MAJOR
	b. Sponginess when pedal depressed.	MAJOR
3.	a. Servo unit defective or ineffective.	MAJOR
4.	b. Pedal does not dip when engine started, indicating lack of assistance for brake system assisted by engine vacuum.	MAJOR
5.	Full pressure hydraulic system is not maintained for 10 minutes when the brakes are off and the engine is stopped.	MAJOR
6.	Vehicle fitted with anti-lock brakes, EBS or ESC:	
	a. Anti-lock braking system not fitted on a vehicle on which it is a mandatory requirement.	MAJOR
	b. ABS/EBS/ESC warning lamp not operating or following the correct sequence.	MAJOR
	c. ABS/EBS/ESC warning lamp not extinguishing when vehicle is driven over 10km/h, indicating a fault.	MAJOR
	d. A warning light not fitted or not visible to the driver.	MAJOR
	e. A defect that would obviously render the ABS inoperative.	MAJOR
	f. An ABS, EBS or ESC system component obviously missing or excessively damaged.	MAJOR
	g. ABS, EBS or ESC system wiring excessively damaged.	MAJOR
	k. An ABS, EBS or ESC system component inappropriately	MAJOR

repaired or modified.

l.	An ESC system switch missing, insecure or faulty.	MAJOR
m.	An ESC system switch insecure or faulty or which does not allow automatic resetting of the ESC function to “on” at system energisation.	MAJOR