

BRAKING SYSTEMS AND ADDITIONAL BRAKING DEVICES

INFORMATION

This inspection applies to all vehicles.

This inspection applies to all types of braking system.

Repairs to the pressure lines of hydraulic brake systems are unacceptable unless suitable connectors are used. Compression joints of a type using separate ferrules are not suitable.

A missing brake pipe clip is not necessarily a Reason for Rejection provided the brake pipe remains adequately supported.

Certain alloy components may have a white surface deposit which is not to be regarded as 'excessive corrosion'.

Hydraulic brake fluid level checks are confined to transparent reservoirs or where an indicator is fitted. Reservoir caps should not be removed.

A brake fluid warning lamp may be a combined lamp for other aspects, such as worn brake pads or parking brake applied.

Additional Braking Devices are fitted to some vehicles to provide additional braking (e.g. electric or fluid retarders or exhaust brakes).

METHOD OF INSPECTION

A. ALL BRAKING SYSTEMS

1. Check for leaks in any part of the braking system, with and without the brakes being applied.
2. Check all components for security, condition and operation.
3. Check all braking system components for any inappropriate repair or modification.

Note:

For vehicles fitted with vacuum servo or power operated brakes, the engine must be idling during these inspections.

Note:

On some vehicles, a complete inspection of the service brake system requires the bonnet to be opened, therefore this inspection would have been done at a previous stage.

B. BRAKE PIPES AND FLEXIBLE HOSES

1. Check that rigid brake pipes are securely held and not free to vibrate.
2. Check all accessible rigid brake pipes for:
 - Fouling by a moving part,
 - Kinks,
 - Chafing, corrosion and damage,

Note:

To assess correctly the condition of corroded metal 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.

3. Examine flexible hoses for signs of weakness.
4. Examine all flexible hoses for:
 - Room to move as necessary without fouling any part of vehicle,
 - Kinks,
 - Stretching or twisting,
 - Chafing, damage or deterioration,

Note:

A hose should be rejected for cracking or chafing only if that is severe enough to expose the reinforcement.

- Exposure to excessive heat.
- Condition of ferrules

C. SERVOS AND MASTER CYLINDERS

1. Check servos for:
 - a. Presence

- b. vacuum pipe deteriorated, kinked, split, collapsed or excessively chafed
 - c. leaks.
- 2. Where an adjustment indicating rod is provided, check if brake adjustment is necessary.
- 3. Examine the condition of chassis or body structure and panelling around the master cylinder or combined master cylinder / servo mounting.

D. RESERVOIRS (AIR/VACUUM) (INCLUDING ACCUMULATORS, PRESSURE AND VACUUM VESSELS)

- 1. Check reservoir mountings and securing straps:
 - a. are free from cracks, fractures and excessive corrosion
 - b. do not chafe the reservoir or other fittings.
- 2. Check that the reservoir capacity is not unduly reduced by deformation.

E. VALVES

- 1. Check for excessive discharge of oil from pedal exhaust valve, unloader valve and/or governor valve, quick-released valve, etc.
- 2. Check that a load sensing valve is present and connected, if it is a standard item.
- 3. Check the condition and operation of the load sensing valve where fitted, including any operating linkage.

F. PUMPS AND COMPRESSORS

- 1. Check the security of the vacuum pump or air compressor.
- 2. Check the condition of the vacuum pump or air compressor drive system.

G. HYDRAULIC SYSTEMS

- 1. Check fluid reservoirs for:
 - a. presence of cap
 - b. fluid level.
- 2. Check that the brake fluid warning lamp is not illuminated or defective.
- 3. Check where possible brake fluid for contamination

H. AIR SYSTEMS

1. Check each brake cylinder/actuator for travel of operating pistons/diaphragms and mechanisms.
2. Check the presence and condition of dust covers on brake actuators.

I. ADDITIONAL BRAKING DEVICES

1. Examine the device, its contacts and other components for condition and security.
2. Check for adequate clearance between the device and other components.
3. Check for presence and condition of heat shields if required.
4. Check for signs of overheating of a component or its surroundings.
5. Check for condition, position and security of electrical wiring and switchgear.
6. Check for exhaust gas or oil leaks.

J. ELECTRONIC BRAKING SYSTEMS

1. On vehicles fitted with an electronic braking system, check that a warning device:
 - a. is fitted
 - b. is operative
 - c. does not indicate a fault

REASON FOR REJECTION

	Deficiency Category
A. ALL BRAKING SYSTEMS	
1. A leak in any part of a braking system.	DANGEROUS
2. A braking system component:	
a. insecurely mounted	MAJOR
b. excessively weakened by corrosion	MAJOR
c. damaged to the extent that its function is impaired	DANGEROUS

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| d. inoperative | DANGEROUS |
| e. retaining or locking device missing or insecure. | MAJOR |
| 3. A braking system component inappropriately repaired or modified. | MAJOR |

B. BRAKE PIPES AND FLEXIBLE HOSES

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|---|-------|
| 1. A rigid brake pipe inadequately clipped or otherwise supported. | MINOR |
| 2. A rigid brake pipe likely to become detached or damaged | MAJOR |
| 3. A rigid brake pipe: | |
| a. Fouled by moving parts, | MAJOR |
| b. Kinked, | MAJOR |
| c. Excessively chafed, corroded or damaged or excessively built up with rust. | MAJOR |

Note:

Chafing, corrosion, or damage to, a rigid brake pipe so that its wall thickness is reduced by 1/3rd (e.g., approximately 0.25 mm for typical hydraulic brake pipe) is a reason for rejection.

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| d. Inadequately repaired or with unsuitable joint fittings. | MAJOR |
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Note:

Repairs to the pressure lines of hydraulic brake systems are unacceptable unless suitable connectors are used. Compression joints of a type using separate ferrules are not suitable.

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| 4. A flexible hose bulged. | MAJOR |
| 5. A flexible hose: | |
| a. Has insufficient room to move, resulting in fouling on any part, | MAJOR |
| b. Slightly damaged or slightly twisted | MINOR |
| c. Kinked, | MAJOR |
| d. Stretched or twisted, | MAJOR |
| e. Excessively chafed or deteriorated, | MAJOR |

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| f. | Exposed to excessive heat. | MAJOR |
| g. | Brake hose ferrules excessively corroded | MAJOR |
| h. | Brake hose damaged and likely to fail | DANGEROUS |

C. SERVOS AND MASTER CYLINDERS

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|----|---|-------|
| 1. | A servo: | |
| a. | Missing when fitted as standard | MAJOR |
| b. | Insecurely mounted, | MAJOR |
| c. | Excessively weakened by corrosion, | MAJOR |
| d. | Damaged to the extent that its function is impaired, | MAJOR |
| e. | Vacuum pipe deteriorated, kinked, split, collapsed, excessively chafed or disconnected, | MAJOR |
| f. | Leaking. | MAJOR |
| 2. | Adjustment indicating rod shows brake adjustment is necessary or does not move freely. | MAJOR |
| 3. | Deliberate modification which significantly reduces the original strength, excessive corrosion, severe distortion, a fracture or an inadequate repair of a load bearing member or its supporting structure or supporting panelling within 30 cm of the master cylinder/servo mounting, that is, within a 'prescribed area', see Appendix A. | MAJOR |

D. RESERVOIRS (AIR/VACUUM) (INCLUDING ACCUMULATORS, PRESSURE AND VACUUM VESSELS)

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|----|---|-------|
| 1. | Reservoir mountings and securing straps: | |
| a. | Cracked, fractured or excessively corroded | MAJOR |
| b. | Chafing reservoir or other fittings. | MAJOR |
| 2. | A significant reduction in reservoir capacity as a result of deformation. | MAJOR |
| 3. | Reservoir: | |
| a. | Has minor damage or corrosion | MINOR |

- b. Heavily damaged, heavily corroded or leaking. MAJOR
- 4. Drain device on an air brake system:
 - a. Operation affected MINOR
 - b. Inoperative MAJOR
- 5. Reservoir insecure or inadequately mounted MAJOR

E. VALVES

- 1. Excessive discharge of oil from a compressor or brake valve. MINOR
- 2. Damaged or excessive air leak MAJOR
- 3. Leaking such that brake functionality is affected. DANGEROUS
- 4. Valve insecure or inadequately mounted.
- 5. Hydraulic Fluid:
 - c. Leak from a brake valve MAJOR
 - d. Leak from a brake valve such that brake functionality is affected. DANGEROUS
- 6. A load sensing valve or its operating linkage obviously:
 - a. removed where it is known to be fitted as standard DANGEROUS
 - b. seized or inoperative and ABS functioning MINOR
 - c. seized or inoperative and ABS not fitted or inoperative functioning MAJOR
 - d. defective so that its function is impaired, DANGEROUS
 - e. incorrectly adjusted. MAJOR

F. PUMPS AND COMPRESSORS

- 1. A pump or compressor insecure. MAJOR
- 2. A pump or compressor drive system missing or defective. MAJOR

Note:

If more than one drive belt is fitted as standard then it is not a

reason for rejection unless all belts are missing.

G. HYDRAULIC SYSTEMS

1. A fluid reservoir:
 - a. cap missing MAJOR
 - b. level below the minimum indication when this is shown. MINOR
 - c. level significantly below the minimum indication when this is shown. MAJOR
 - d. level so low that it is not visible DANGEROUS
2. A brake fluid warning lamp is illuminated or inoperative. MINOR
3. Brake fluid contaminated MAJOR

H. AIR SYSTEMS

1. A brake cylinder/actuator
 - a. has excessive travel of the operating mechanism indicating need for adjustment. MAJOR
 - b. inoperative MAJOR
2. A brake actuator dust cover missing, insecure or damaged to the extent that it no longer prevents the ingress of dirt etc. MAJOR
3. Air or antifreeze leaking, but not affecting the function of the system MINOR

I. ADDITIONAL BRAKING DEVICES

1. A device, contacts or mountings insecure, but unlikely to detach. MINOR
2. A device, contacts or component damaged, contaminated, insecure or obviously inoperative. MAJOR
3. Inadequate clearance between the device and other components. MAJOR
4. A heat shield missing or damaged. MAJOR

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| 5. Overheating of a component or its surroundings. | MAJOR |
| 6. Wiring in poor condition, badly positioned or not secure. | MAJOR |
| 7. Exhaust gas or oil leaking from the device. | MAJOR |

J. ELECTRONIC BRAKING SYSTEMS

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|------------------------|-------|
| 1. The warning device: | |
| a. is missing | MAJOR |
| b. inoperative | MAJOR |
| c. indicates a fault | MAJOR |