

2012-02

February 1, 2012

Brake Pedal (Valve & Treadle Assembly) Inspections

Summary

This *Inspection Bulletin* describes inspection procedures for the brake pedal (valve and treadle assembly) on air brake-equipped vehicles.

Background



Broken Mounting Plate Ear / Pivot Support

Figure 1: A detached brake treadle illustrates a potential result of excessive corrosion damage.

In many vehicles, the brake valve and treadle (pedal) assembly is mounted to the cab floor where it is subject to abrasive dirt and sand, as well as corrosive chemicals such as road salt and water. As a result, a small amount of corrosion in the metal parts of the assembly is normal (such as light rust or oxidization). As vehicles age, the corrosion can cause pitting or reduction of component material, heavy rusting, etc., and can develop into operating or mechanical problems that can lead to brake malfunction, damage and/or failure as seen in Figure 1.

Partial Brake Application

Excessive corrosion or contamination with dirt and debris on the valve and treadle assembly can restrict motion of the treadle or the foot valve plunger. If this corrosion or debris prevents the full return of the valve or treadle, then brakes may remain partially applied with the foot off the treadle. This can cause brake drag, premature brake wear, and possibly overheating of the brakes. This condition requires visual inspection of the treadle and valve assembly and testing brake operation.

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The mounting plate ears / pivot supports can become damaged from corrosion and eventually even fail. When the mounting plate ear / pivot support on one side has broken off, the treadle can operate somewhat normally. When both mounting plate ears / pivot supports break, the treadle will detach from the mounting plate and valve. These conditions can be identified with a visual inspection.

Guidance

When inspecting air-braked vehicles with a floor-mounted brake pedal, valve and treadle assembly, visually inspect the condition of the treadle and pivot area of the mounting plate. Some corrosion on these components is normal. (You may want to have the driver get out of the vehicle to inspect the brake treadle.)

1. With brakes released, visually check the condition of the mounting plate ears / pivot supports of the valve and treadle assembly, for cracks or damage.
 - a. Confirm that the treadle is properly aligned and in its normal position.
 - b. Confirm that no mounting plate ear / pivot support is broken and both sides are free of cracks and damage.
 - c. Ensure the pivot pin is through both mounting plate ears / pivot supports and the pin retaining hardware (cotter pin, ring, clip, etc.) is in place.
 - d. Have the driver make a full brake application. When fully applied, confirm that the treadle (pedal) does not make contact with the floor or firewall.
2. Check for evidence of excessive corrosion or binding of the pivot pin and mounting plate ears / pivot supports. When excessive treadle corrosion appears possible, inspect with the brakes released (foot-off) as follows:
 - a. Confirm that the brake lamps are off. If they are on, check that the trailer hand valve is fully released.
3. Lift on the treadle by hand and listen for air exhausting from the brake foot valve or anywhere else on the vehicle(s).
4. Brake lamps that remain on when the brakes are released, air exhausting when the treadle is lifted or stiffness in the treadle pivot pin area can all be indications of excessive corrosion. If there is any indication of a problem, inform the driver of this condition and advise that the vehicle needs repair.

NOTE: A partial brake application should also be detectable at the brakes at one or more wheels. While inspecting the brakes at each wheel end, always ensure the brakes are releasing. Any tension in the linkage warrants closer inspection, and may indicate the treadle and valve assembly is not fully releasing. Also, if equipped, the brake application gauge should read zero with the brakes released.

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Violations

The following violations relative to brake foot valve treadle and mounting plate ears / pivot supports may be detected during this inspection.

1. A treadle/pedal sticks, binds, grabs during application or release. (396.3(a)(1))
2. Rear stop lamps remain lit when foot is released from treadle. (396.3(a)(1)) *(If the brake lights remain in the "on" position, and there are no brake valve/mounting plate treadle defects detected, a brake light violation under 393.9 should be recorded instead of 396(3)(a)(1).)*
3. Missing or damaged pivot pin and associated pin retaining hardware (i.e. cotter pin, ring, clip, etc.). (396.3(a)(1))
4. Pivot pin not fully engaged and held in place between the two mounting plate ears/pivot supports. (396.3(a)(1))
5. Cracked or broken mounting plate ears / pivot supports. (396.3(a)(1))
6. Cracked or broken mounting plate. (396.3(a)(1))

Examples

Below are images of an air brake foot valve and treadle assembly with mounting plate in new condition showing the pivot pin, mounting plate ears/ pivot supports, pin retaining hardware and mounting plate locations.



