

2010-01 – Tractor Protection Systems

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Summary

This Inspection Bulletin provides guidance for testing the tractor protection system on a vehicle having air brakes equipped to tow another vehicle with air brakes during a roadside inspection. It provides information on the procedure and assists in identifying when a vehicle is in violation.

Requirements for Tractor Protection Systems

- Every commercial motor vehicle equipped with an air brake system and used to tow a trailer with air brakes must be equipped with a tractor or towing-vehicle protection system.
- The test will only be performed on a vehicle that is towing a trailer equipped with an air brake system.
- Trucks and buses that are incapable of towing trailers are not required to have these systems.
- Air-braked power units converted to tow trailers equipped with air brakes from a non-towing operation must have these systems properly retrofitted into the air brake system.
- Air escaping from either the supply/emergency or service/control gladhand line of any vehicle equipped to tow an air brake-equipped trailer indicates the unit has a defective tractor protection system and the vehicle is in an out-of-service (OOS) condition.

Standard CVSA Roadside Inspection/Test Procedure

When conducting a roadside inspection, the officer will confirm that the towing vehicle protection system (tractor protection system) is functioning properly in the event of trailer separation.

Testing of the towing vehicle protection system is done under pressure with the engine off and shall be conducted as follows:

1. The system must be within its normal operating pressure range (i.e., between compressor cut-out and cut-in).
2. Wheels must be chocked and all brakes must be released (all dash valves pushed in).
3. Explain to the driver that the supply/emergency and the service/control gladhand couplings must be removed to simulate a trailer breakaway event and to determine compliance of the towing vehicle protection system under this condition. Always have the driver perform this step and make sure to advise the driver to be careful and to take protective action to avoid injury from the high-pressure air, water, oil or dirt that could escape from the supply/emergency gladhand coupling upon separation.

2010-01 – Tractor Protection Systems

4. Air will immediately escape from the supply/emergency gladhand line. Listen for and ensure that the air stops escaping from the supply/emergency gladhand line. In most cases, the air will stop almost immediately. In some systems, the air will escape for a period of time and then stop; but in no case, should the valve fail to close once the gauge pressure drops to 20 psi (138 kPa) in either the primary or secondary system. When the valve fails to close before the pressure drops below 20 psi (138 kPa), the power unit's trailer supply valve (TSV) is defective. This vehicle has a violation* that is an OOS condition.
5. When the gladhand couplings are disconnected, the trailer emergency (spring) brakes must also apply automatically. Failure to do so indicates that the breakaway system on the trailer is defective. The trailer has a violation* that is an OOS condition.
6. When the gladhand couplings are disconnected, the trailer system must close automatically. Check the supply/emergency gladhand coupler on the trailer for air bleeding back. Air leaking from the gladhand coupling on the trailer indicates that the trailer's spring-brake control valve is defective. The trailer has a violation* but this is not an OOS condition.
7. Once the air has stopped and you have checked the pressure, have the driver return to the cab of the power unit and instruct the driver to apply the service brakes and hold it.
8. Check for any air escaping from either the supply/emergency or the service/control gladhand line. When air escapes from either gladhand line, the towing protection valve (TPV) is defective. This vehicle has a violation* that is an OOS condition.
9. Once the test has been completed, instruct the driver to reconnect the gladhands.

*U.S. – 49 CFR §393.43, Canada – NSC Standard 11b

2010-01 – Tractor Protection Systems

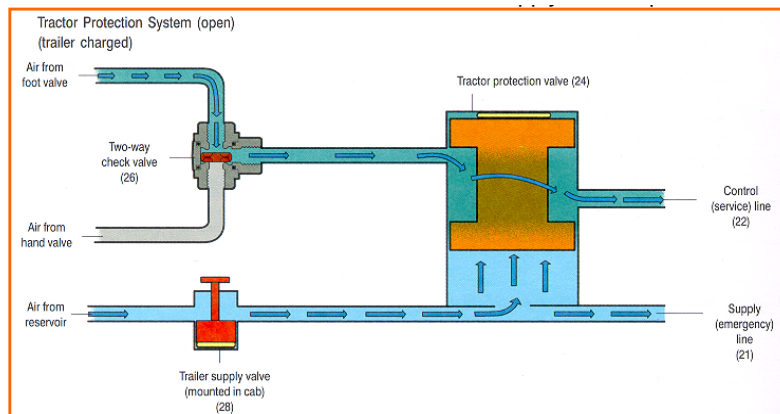
System Description

The tractor protection system consists of two valves. One is the trailer supply valve (TSV), a push/pull valve located on the instrument panel. The other is the tractor protection valve (TPV), located on the towing vehicle's frame or body. The TPV is also called a towing vehicle protection valve.

The TSV has a red-colored, eight-sided knob and is controlled by the driver. The driver opens (pushes in) the TSV when a trailer is being towed and closes it (pulls out) when there is no trailer present. The TSV can also be used to set the trailer's parking brakes. The TSV is sometimes also referred to as the tractor protection control valve.

The TPV serves as the on/off port for signaling service brake air going to the trailer. It is the connection point for both the trailer supply/emergency line and the trailer service line. The TPV passes service brake control signals only when it is open and blocks the signals when it is closed.

Tractor Protection Valve and Trailer Supply Valve Open



Tractor Protection Valve and Trailer Supply Valve Closed

