



News Release

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FOR IMMEDIATE RELEASE
From the Bendix Tech Tips Series

BENDIX TECH TIPS: DASH VALVES, POP PRESSURES, AND REGULATIONS

Clearing up Confusion over Parking Brake and Tractor Protection Controls

ELYRIA, Ohio – Sept. 30, 2019 – Call them the questions that keep “popping” up over the years: What are the regulations for dash valve trip pressures, and how can fleets and owner-operators stay compliant and safe?

This installment of the Bendix Tech Tips Series will answer those questions with a focus on the familiar red and yellow dash control valves for tractor protection and parking brakes.

Regulated or Not?

“We periodically get questions about straight trucks, tractors, and buses being cited for dash control valves not automatically ‘tripping’ to the exhaust position at a predetermined system pressure,” said Brian Screeeton, technical training supervisor at Bendix. “And while it’s not something we’re asked about every day, the confusion goes back a long way. The good news is, it’s easily cleared up with a quick review of what these two dash valves do, and how to test them.”

The parking brake control valve – the one with the yellow button – has no Federal Motor Carrier Safety Administration (FMCSA) regulations specifying the pressure at which it must automatically trip to apply the vehicle parking brakes. Parking brake “pop pressure” isn’t addressed in Federal Motor Carrier Safety Regulations (FMCSR) for in-use vehicles, the Federal Motor Vehicle Safety Standard (FMVSS) for newly manufactured vehicles, or the out-of-

service criteria checked during inspections such as roadside checks by the Commercial Vehicle Safety Alliance (CVSA); although FMVSS 121 does require a single control for the park valves on a tractor-trailer and all the vehicles in a combination train. That said, the FMCSA Commercial Driver's License Manual includes a note in the air brake section that says the parking brake valve should close, or "pop out," at approximately 40 psi – a specification that isn't supported by regulation, and which can cause some confusion.

To check the trip pressure of the yellow parking brake control valve:

- Install an accurate pressure test gauge in the secondary service reservoir
- Release the parking brake by pushing the yellow button
- Charge the system to air governor cutout
- Turn off the engine
- Open the manual drain valve (petcock) on the primary service reservoir to completely empty the tank
- Open the secondary reservoir's manual drain valve and use the test gauge to create a bleed rate of 20-50 psi per minute
- Watch the test gauge and note the pressure at which the yellow valve pops out

The parking brake control valves used by most vehicle manufacturers – including the Bendix® PP-DC®, Bendix® PP-1®, and Bendix® MV-3® – will typically trip between 20 and 40 psi.

Seeing Red

When it comes to the red button, however – the trailer supply valve that controls the tractor protection control valve – there *is* an FMCSA regulation covering trip pressure. Title 49, Section 393.43, which addresses breakaway and emergency braking, establishes an "explicit requirement that the tractor protection valve or similar device operate when the air pressure – both primary and secondary reservoirs – on the towing vehicle is between [20 and 45 psi]." The regulation is intended to activate the tractor protection for safety reasons if there's a failure in the compressor or air reservoirs. It's not intended to cover downstream failures like a failed trailer supply coupling. Screeton noted, "When the reservoirs deplete, the driver gets a low-pressure warning before the button pops and the spring brakes apply."

"There's also a bit of confusion created by that use of the term 'breakaway,'" Screeton said. "Despite the wording, the 'breakaway' of the supply coupling is the most common means used to test the delivery function of the trailer supply valve and the tractor protection feature.

Although the red button may trip at the specified pressure interval, it's more common for it to trip instantaneously at 100-130 psi to protect the tractor service braking system.”

To check the trip pressure of the red tractor control protection valve:

- Install an accurate pressure test gauge in the secondary service reservoir
- With **both** the red and yellow buttons pushed in, charge the system to air governor cutout
- Turn off the engine
- Disconnect the service or control line (blue) to the trailer, leaving the supply or emergency line (red) coupled to the trailer or suitable sealed dummy coupling
- Take care to restrain the service coupling and direct the flow safely away, while making and holding a full-service brake application using the foot valve

As the service brake application is vented through the open control glad hand, the service system pressure will drop until the trailer supply valve – again, the red one – trips, shutting off the leak at the tractor protection valve created by the open control coupling. Record the pressure in the service reservoirs at this point and disconnect the trailer supply coupling to verify that the red coupling has been vented, thereby activating the trailer emergency feature.

“The CVSA tractor protection system check includes both the pop of the trailer supply valve – shutting off the trailer supply coupling flow – and the function of the tractor protection valve – shutting off the trailer control coupling flow,” Screeton said. “As noted, the tractor protection system is the one that is tested during roadside inspections and requires compliance – if the valve fails to close before 20 psi, it's an out-of-service violation.”

Screeton continued, “We're working continuously with partners across the industry to develop best practices for testing and maintaining air brake systems, and there may be different procedures used by some inspection agencies.”

Information in the Bendix Tech Tips series can be found in the Bendix multimedia center at knowledge-dock.com. Further instructional videos and interactive training on air systems and wheel-end technologies are available at the Bendix On-Line Brake School, www.brake-school.com. For more information on wheel-end and air dryer maintenance, contact the Bendix Tech Team at 1-800-AIR-BRAKE.

About the Bendix Tech Tips Series

Bendix, the North American leader in the development and manufacture of leading-edge active safety, air management, and braking system technologies, is committed to helping keep

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commercial vehicles on the road and in good working condition. The Bendix Tech Tips series addresses common commercial vehicle maintenance questions and issues concerning the total range of components found within foundation and air brake systems, as well as advanced safety systems.

About Bendix Commercial Vehicle Systems LLC

Bendix Commercial Vehicle Systems, a member of the Knorr-Bremse Group, develops and supplies leading-edge active safety technologies, energy management solutions, and air brake charging and control systems and components under the Bendix® brand name for medium- and heavy-duty trucks, tractors, trailers, buses, and other commercial vehicles throughout North America. An industry pioneer, employing more than 3,200 people, Bendix is driven to deliver solutions for improved vehicle safety, performance, and overall operating cost. Contact us at 1-800-AIR-BRAKE (1-800-247-2725) or visit bendix.com. Stay connected and informed through Bendix expert podcasts, blog posts, videos, and other resources at knowledge-dock.com. Follow Bendix on Twitter at twitter.com/Bendix_CVS. Log on and learn from the Bendix experts at brake-school.com. And to learn more about career opportunities at Bendix, visit bendix.com/careers.

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