Barksdale Height Control Valve Troubleshooting Guide

For more information regarding the Barksdale Height Control Valve Troubleshooting Guide refer to Impact under Function Group 764.

Tags

barksdale height control valve mack volvo

rear suspension height control valve air loss

air leak

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Field Test Procedure to Diagnose Rear Suspension Height Control Valve

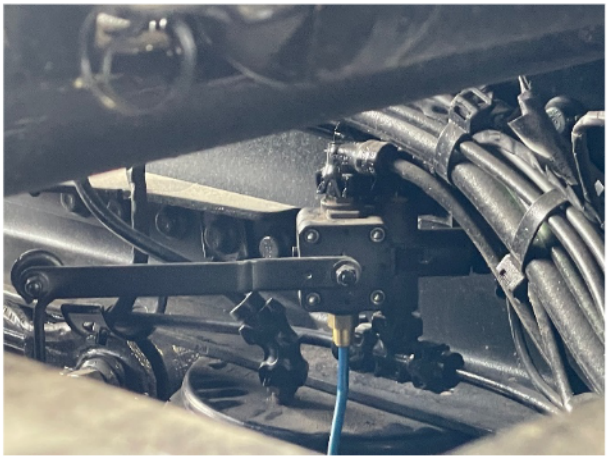
Scope: This test procedure uses simple tools to evaluate the condition of a rear suspension height control valve with integral air spring dump feature, and is useful in diagnosing customer reports of compressed air loss while the vehicle is not in use. This procedure does not require removal of the valve from the frame, disconnection of pressurized air tubing, or disturbance of the set ride height.

Required tools: Soap and water solution in a spray bottle, M12 to ¼" push to connect or compression fitting, wrenches for the fitting, several feet of ¼" air tubing, a clear bottle with water, and a smartphone with timer application or stopwatch.

Procedure: Part 1, internal valve leakage test

1) With the truck's compressed air system at operating pressure, park the truck and wait a minimum of 20 minutes to allow it to fully stabilize at set ride height. Do not disturb the vehicle suspension during this period.
2) See diagram in Part 2 for port identification. Install the M12 fitting in the valve's exhaust port and attach the ¼" air tubing.
3) Place the open end of the ¼" air tubing below the water level in the bottle.

Fitting and ¼" air tubing plumbed to exhaust port with water bottle



¼" air tubing in water bottle

4) Observe the formation of air bubbles at end of air tube. If more than a few bubbles appear, manually bump the valve arm up or down slightly to ensure the valve is in dead band.
5) Count the number of bubbles forming at the end of the ¼" tube for 10 seconds.
    a. Less than 30 bubbles forming in 10 seconds indicates leakage less than 20 cubic centimeters per minute and that the valve is functioning properly. Remove the ¼" air tube and fitting from the exhaust port and re-install any fitting previously removed from the exhaust port.
    b. More than 30 bubbles forming in 10 seconds (too many to count) indicates unacceptable leakage. Replace the leveling valve.

Procedure: Part 2, external valve leakage test

1) Spray soap and water solution on the valve and fittings.

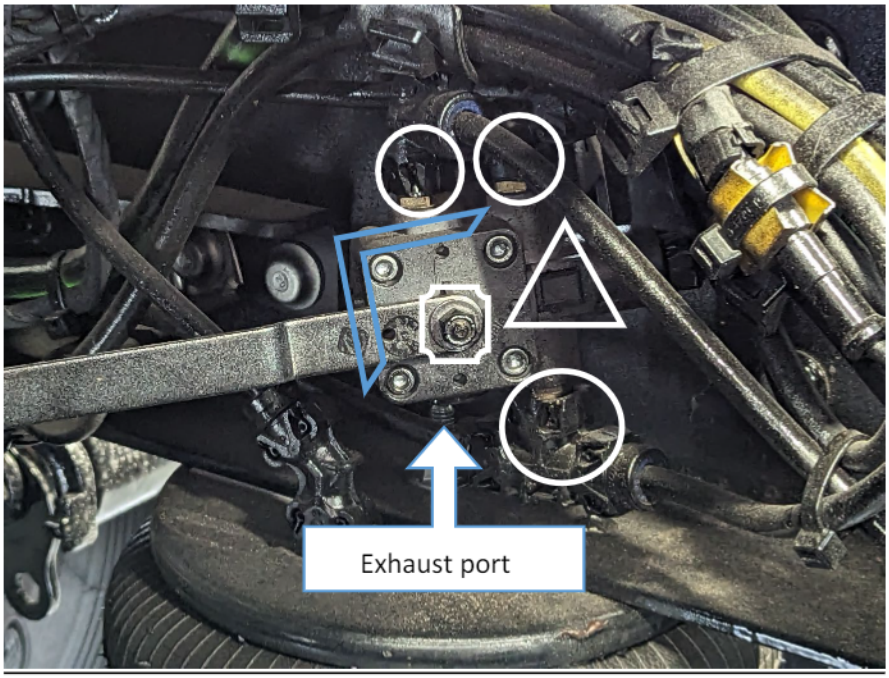
Typical valve assembly with potential leak points identified

a) Fitting

b) Dump port flapper

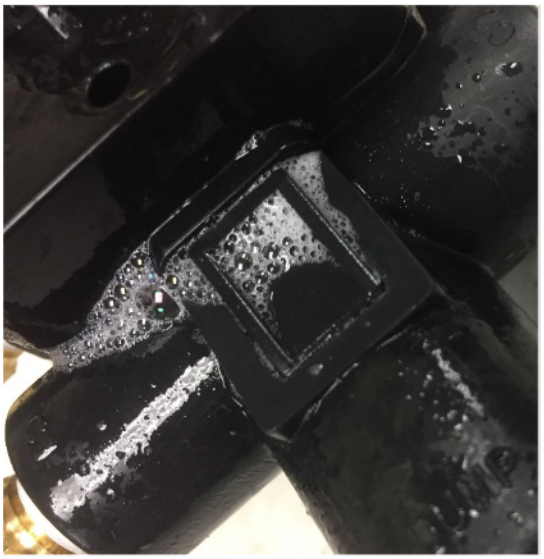
c) Valve arm to body

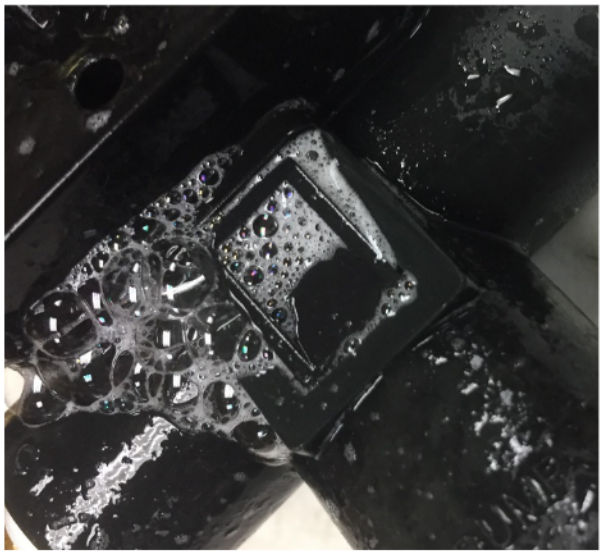
d) Joint in body



2) Look for the formation of bubbles at a) fittings, b) dump port flapper, c) valve arm where it meets the body, d) joint in valve body.
3) The formation of 20 or fewer ¼" soap bubbles in 10 seconds indicates acceptable leakage. The valve assembly is functioning properly.

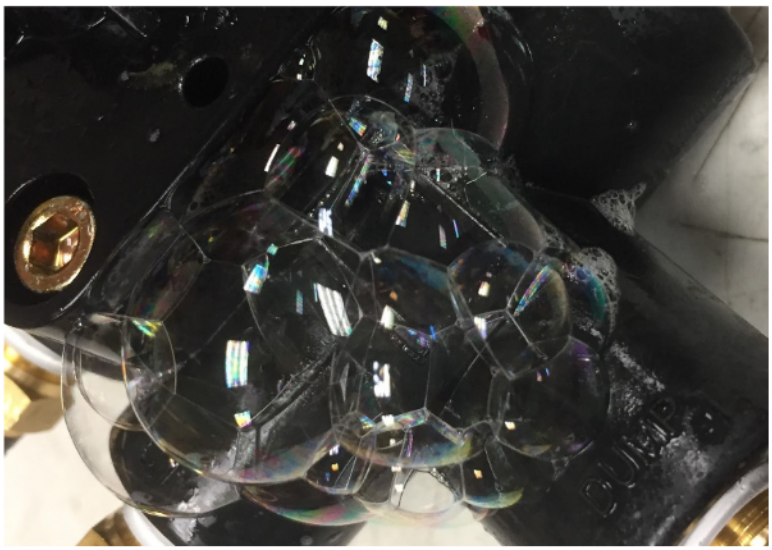
Examples of Acceptable Leakage at dump port flapper
Amount of bubbles applies to all locations





4) The formation of 30 or more ¼" bubbles (not able to count) in 10 seconds at any point on the valve or fittings indicates excessive leakage.

Example of Excessive Leakage at dump port flapper
Amount of bubbles applies to all locations



5) Correcting external leakage.
   a. If excessive leakage is detected at a fitting, replace the fitting and re-test for leakage.
   b. If excessive leakage is indicated at the dump port flapper, cycle the dump feature once from the truck cab. Re-test with soap solution. If excessive leakage continues, replace the valve.
   c. If excessive leakage is detected where the valve arm meets the body, replace the valve.
   d. If excessive leakage is detected at joint in valve body, replace the valve.

Conclusion: If the valve and fittings pass both internal and external leakage tests, compressed air loss is occurring elsewhere in the truck's air system. Diagnosis will need to continue until the cause(s) are located and corrected.