

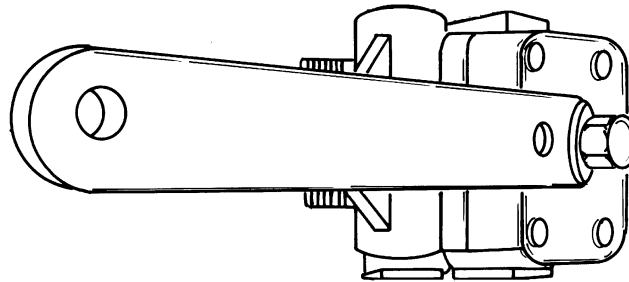
This Service Bulletin is a supplement to Service Manual, Volvo Air Suspension, WX, WG, WIA, AC, Publication Number PV776-726-610SM.

Date
4.98

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Volvo Air Suspension
WX, WG, WIA, AC

Suspension Leveling Valve Check



W7000759

(Effective 4/1998)

This bulletin is a supplement to Service Manual, Volvo Air Suspension, WX, WG, WIA, AC, and contains the following information:

- "" page 2
- "Leveling Valve Check Specifications" page 4
- "Levelling Valve Check, Tools" page 5
- "Air Suspension Leveling Valve, Checking" page 6

General

Guidelines for Leveling Valve Check

 **DANGER**

Personal injury hazard. Never work under the vehicle unless the wheels are securely chocked and the transmission is in neutral. Failure to chock the wheels can result in the vehicle rolling, which can cause serious injury or death to anyone under or near the vehicle.

 **DANGER**

Stay clear when suspension air is released. Chassis may drop quickly and can cause serious injury or death to anyone under the vehicle.

 **WARNING**

Personal injury hazard. Disconnecting air lines before air pressure has been depleted can cause air lines to separate violently. This can cause serious bodily injury or component damage.

 **CAUTION**

DO NOT try to adjust the leveling valve. DO NOT disassemble the leveling valve. DO NOT lengthen or shorten the leveling valve arm (handle). Attempting to do so can permanently damage the leveling valve.

Battery Test

- 1 Disconnect the digital multimeter (DMM) and the module.
- 2 Connect pressure gauge (9998496) to the digital multimeter.
- 3 Switch on the digital multimeter and choose the measuring range “mV/dc.”
- 4 If the digital multimeter displays less than 100 mV, replace the battery.

Calibrating the Gauge

- 1 Connect pressure gauge (9998496) to the digital multimeter (the red polarity point to the volt input) and choose the measuring range "V/dc" on the digital multimeter.
- 2 Check the battery voltage (see "Battery Test" page 2).
- 3 Set the switch to the ON position.
- 4 Before the pressure is connected, set the module to ZERO by turning the ZERO potentiometer until the digital multimeter displays zero.

Specifications

Leveling Valve Check Specifications

To check the leveling valve, subtract the final reading from the initial reading. The result is the “change in reading.”

The valve is GOOD with a “change in reading” of 0.055 (± 0.002) or less.

For example, a valve with an initial reading of 0.877 and a final reading of 0.875 has a “change in reading” of 0.002. This valve is good.

The valve is DEFECTIVE with a “change in reading” of greater than 0.055 (± 0.002).

For example, a valve with an initial reading of 0.877 and a final reading of 0.817 has a “change in reading” of 0.060. This valve is bad.

Use the following chart to convert changes in reading to the corresponding pressure drop.

| Pressure Conversion Chart | | | |
|----------------------------------|------------|------------|------------------|
| Change in Reading | kPa | psi | Valve Is: |
| <0.050 | <50 | <7.25 | Good |
| 0.050 | 50 | 7.25 | Good |
| 0.051 | 51 | 7.40 | Good |
| 0.052 | 52 | 7.54 | Good |
| 0.053 | 53 | 7.685 | Good |
| 0.054 | 54 | 7.83 | Good |
| 0.055 | 55 | 7.975 | Good |
| 0.056 | 56 | 8.12 | Bad |
| 0.057 | 57 | 8.265 | Bad |
| 0.058 | 58 | 8.41 | Bad |
| 0.059 | 59 | 8.555 | Bad |
| 0.060 | 60 | 8.70 | Bad |
| > 0.060 | > 60 | > 8.70 | Bad |

Tools

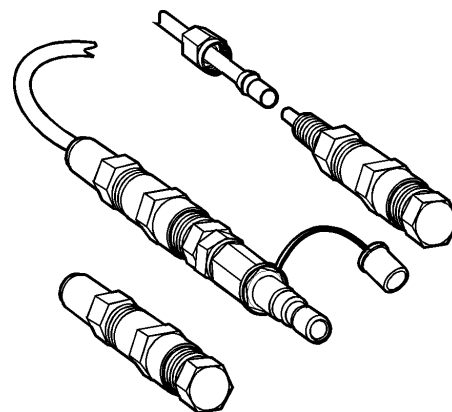
Levelling Valve Check, Tools

The following tools are used:

- J39200** Fluke 87 (DMM)
- 9998496** Pressure Gauge
- 9998495** Test Hose
- 3949200** Test Kit

Test Kit, Assembly and Check

Note: Teflon tape must be used in test kit assembly to ensure the accuracy of the leveling valve test. Tight assembly of the test kit is critical to the accuracy of the test!



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Fig. 1: Test kit cap plugs (left, right) and adaptor (center)

Test Kit (3949200) Contents

| Part Number(s) | Description |
|---|--------------|
| 05240-0003 + 8397723 + 05050-0002 + 9998499 | Test Adaptor |
| 05240-0003 + 3082920 + 8397723 | Cap Plug #1 |
| 05240-0003 + 3082920 + 05170-0006 | Cap Plug #2 |
| N/A (3-ft nylon tube) | Tube #1 |
| N/A (3-ft nylon tube with ferrel and nut) | Tube #2 |

All parts to the test kit (3949200) should be assembled using teflon tape to ensure that there are no possibilities for leaks in the test equipment.

After assembly of the test kit, connect the blue test hose (9998495) to the test adaptor and the correct cap plug (see accompanying figure). Charge the test hose using work shop air pressure and submerge the hose in a bucket of water to test for leaks.

After the test kit has been assembled and thoroughly tested for leaks, the leveling valve can be tested.

7281-06-03-01 Air Suspension Leveling Valve, Checking

“Suspension Leveling Valve Check” page 1 (this reference is for use in electronic media only)

Additional Information

- “” page 2
- “Leveling Valve Check Specifications” page 4
- “Levelling Valve Check, Tools” page 5

Max: 8 PSI (55.16 kPa) drop in 60 seconds

Once the leveling valve is charged and the leveling arm has been returned to the neutral (dead band) position, it should be tested for air pressure drop during a 60-second interval.

If the air pressure drop is greater than 8 PSI (55.16 kPa) in 60 seconds, the leveling valve is considered defective by the manufacturer.

Note: To ensure accuracy, the following test should be performed twice.

Note: During the leveling valve check procedure, the air pressure (PSI) will be measured in “Volts DC” rather than in “PSI.”

Special tools: J39200, 3949200, 9998496, 9998495

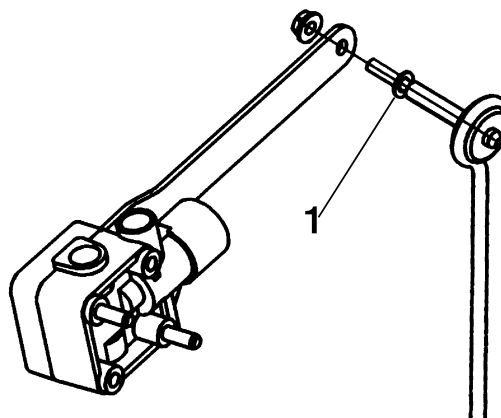
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DANGER

Personal injury hazard. Never work under the vehicle unless the wheels are securely chocked and the transmission is in neutral. Failure to chock the wheels can result in the vehicle rolling, which can cause serious injury or death to anyone under or near the vehicle.

Chock the front wheels on the vehicle and release the parking brakes.

2



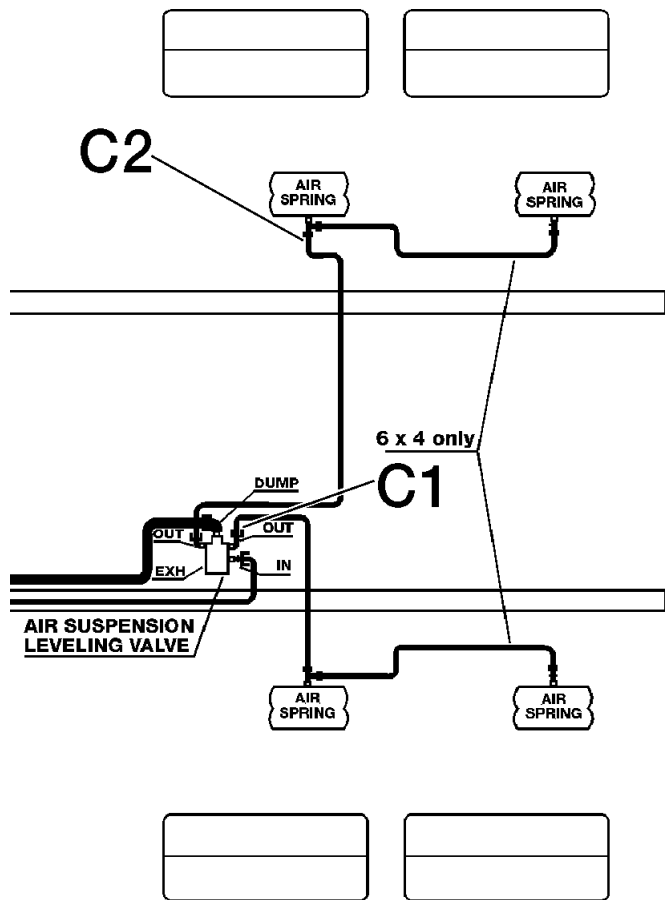
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DANGER

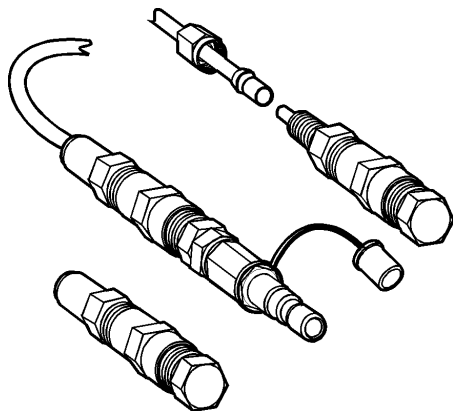
Stay clear when suspension air is released. Chassis may drop quickly and can cause serious injury or death to anyone under the vehicle.

Note: To gain better access to the leveling valve, the fifth wheel should be in the most rearward position. Remove the link rod (1) from the leveling valve arm. Lower the leveling valve arm to exhaust the air spring pressure, until the axle stops rest on the axle housing and air spring pressure is completely exhausted.

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⚠ DANGER

Personal injury hazard. Disconnecting air lines before air pressure has been depleted can cause air lines to separate violently. This can cause serious bodily injury or component damage.

Disconnect air line (C2) going into the tee on top of the right-hand air spring and install cap plug no. 2 with "ferrel and nut" type connector from test kit 3949200 on the air line.

4

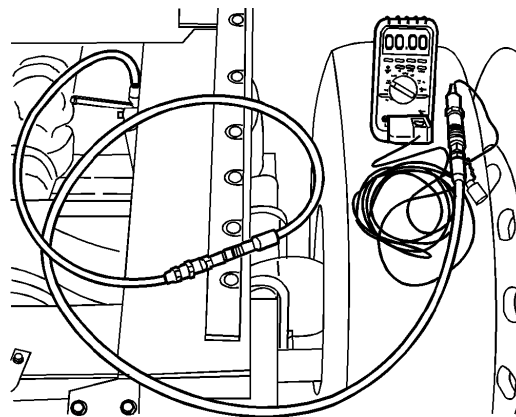
Disconnect air line (C1) port on top of the leveling valve and install tube no. 2 3949200 and test adaptor from the test kit (3949200), to connect to blue test hose (9998495).

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Note: Pressure gauge (transducer) must be zero'd out before performing this test; see "Calibrating the Gauge" page 3. 9998496 9998495 J39200

Connect the pressure gauge (transducer) (9998496) to the blue test hose (9998495). Then connect the pressure gauge to the digital multimeter (J39200).

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Note: To perform this test, the digital multimeter (J39200) must be set to "V/dc."

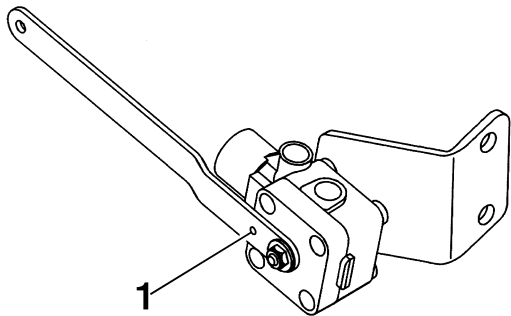
With test equipment connected, start vehicle and build maximum air system pressure.

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Note: Initial reading should be approximately 0.0870 or higher. J39200

Charge the leveling valve by moving arm up until the leveling valve is fully charged. Record the reading on the digital multimeter (J39200).

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J39200

Note: DO NOT overshoot the neutral position, or the procedure will have to be repeated. Once the leveling valve is fully charged, return the arm to its neutral position (dead band) position. Place a 5/32 Allen wrench or 5/32 drill bit through the hole (1) on the leveling valve arm and into the valve to lock it in position. AT THE SAME TIME, start a stop watch to test for a 60-second period.


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At the conclusion of 60 seconds, check and record the reading on the digital multimeter. Subtract the final reading from the initial reading. If the “change in reading” is less than 0.055 (± 0.002), the leveling valve is OK (see “Leveling Valve Check Specifications” page 4). If the reading is not within specifications, refer to Function Group 728, Service Info-Type “Repair” (Service Manual PV776–726–610) for service procedures.

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Note: If an abnormally fast or sudden drop in air pressure occurs, this indicates that there is a problem with the test procedure itself; the leveling arm either passed through the dead band, or there is an air leak in the test kit. Correct the error before restarting the test. To ensure the accuracy of this test, repeat steps 6 through 9 and average the results.

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| |
|--|
|  DANGER |
| Personal injury hazard. Disconnecting air lines before air pressure has been depleted can cause air lines to separate violently. This can cause serious bodily injury or component damage. |

After completing the test, deplete the air system pressure and disconnect test equipment. Connect air lines (C1) and (C2) to their original connectors and connect the link rod to the leveling valve arm.

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Start the vehicle and check for air leaks. Verify the proper operation of the leveling valve.