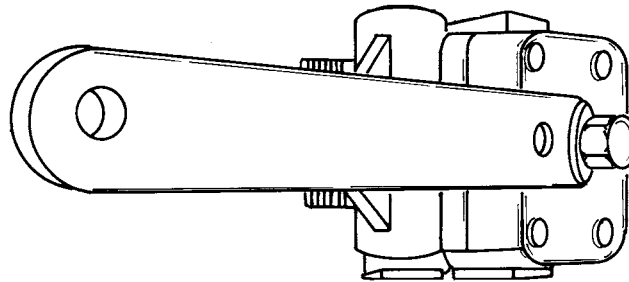


This Service Bulletin is a supplement to Service Manual, Group 72, Volvo Air Suspension VNL, VNM, Publication Number PV776-TSP27725/1.

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Volvo Air Suspension
VNL, VNM

Suspension Leveling Valve Check



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This information provides the recommended procedure for checking for air pressure “leak down” in a Volvo Air Suspension leveling valve.

See [“Guidelines for Leveling Valve Check”](#) page 2; also see [“Air Suspension Leveling Valve, Checking”](#) page 6.

General

Guidelines for Leveling Valve Check

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.

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.

Battery Test

- 1 Disconnect the digital multimeter (DMM) and the module.
- 2 Connect 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 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.

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!

Test Kit (P/N 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. 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 properly assembled and thoroughly tested for leaks, the leveling valve can be tested.

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 (\pm 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 (\pm 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 kPa | <7.25 psi | Good |
| 0.050 | 50 kPa | 7.25 psi | Good |
| 0.051 | 51 kPa | 7.40 psi | Good |
| 0.052 | 52 kPa | 7.54 psi | Good |
| 0.053 | 53 kPa | 7.685 psi | Good |
| 0.054 | 54 kPa | 7.83 psi | Good |
| 0.055 | 55 kPa | 7.975 psi | Good |
| 0.056 | 56 kPa | 8.12 psi | Bad |
| 0.057 | 57 kPa | 8.265 psi | Bad |
| 0.058 | 58 kPa | 8.41 psi | Bad |
| 0.059 | 59 kPa | 8.555 psi | Bad |
| 0.060 | 60 kPa | 8.70 psi | Bad |
| > 0.060 | > 60 kPa | > 8.70 psi | Bad |

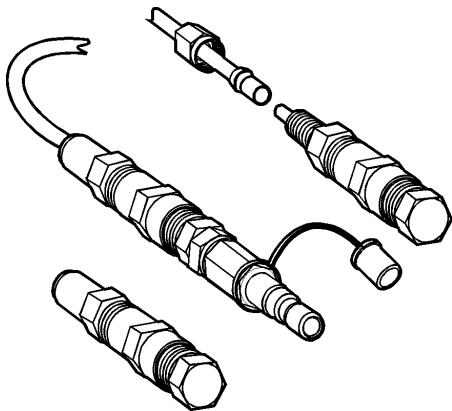
Tools

The following tools are used:

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

Test Kit Contents (P/N 3949200)

| 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 |



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Test kit cap plugs (left, right) and adaptor (center)

Service Procedures

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

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.

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

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.

Before beginning this procedure refer to "Guidelines for Leveling Valve Check" page 2.

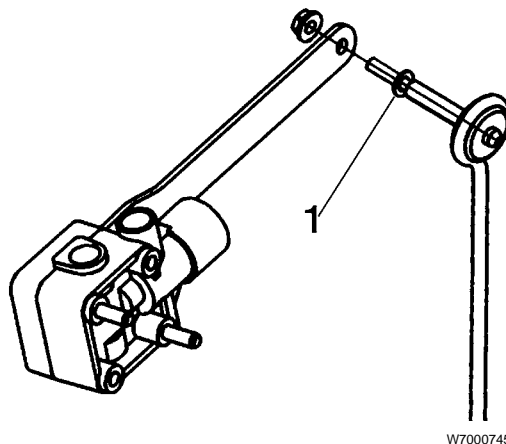
Special tools: J39200, 3949200, 9998496, 9998495

1
Chock the front wheels on the vehicle and release the parking brakes.

⚠ 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.

2



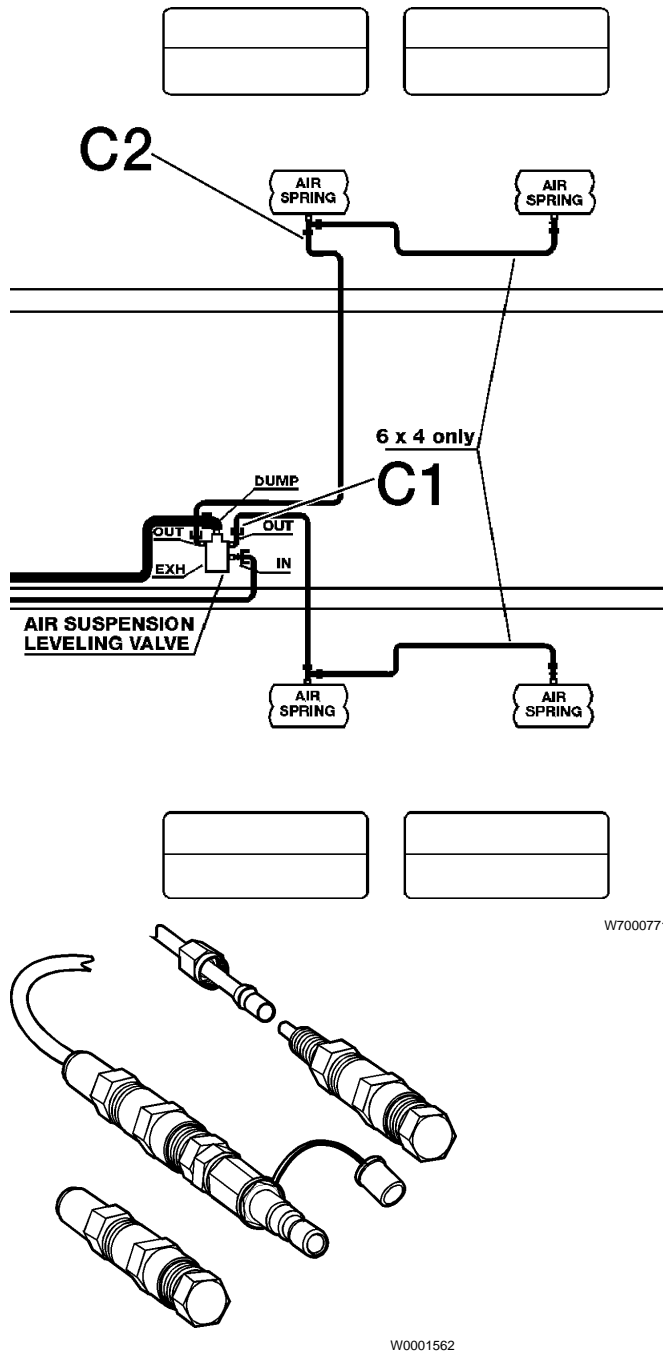
Remove the link rod (1) from the leveling valve arm. Lower the leveling valve arm to exhaust the air spring pressure, until the axle stops rest on the axle housing and air spring pressure is completely exhausted.

Note: To gain better access to the leveling valve, the fifth wheel should be in the most rearward position.

⚠ DANGER

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

3



⚠ 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 #1 with push lock connector from test kit 3949200 on the air line.

4

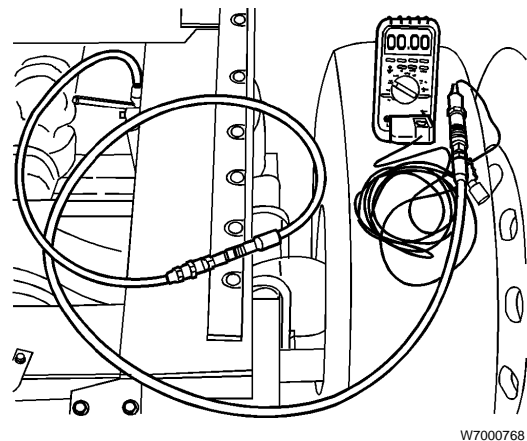
Disconnect air line (C1) port on top of the leveling valve and install tube #1 and test adaptor from the test kit 3949200, to connect to blue test hose 9998495.

5

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

Note: Pressure gauge (transducer) must be zero'd out before performing this test; see "Guidelines for Leveling Valve Check" page 2.

6



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

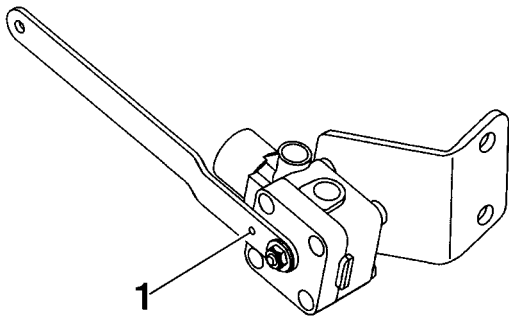
Note: To perform this test, the digital multimeter J39200 must be set to "V/dc."

7

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

Note: Initial reading should be approximately 0.0870 or higher.

8



W7000748
J39200

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.

Note: DO NOT overshoot the neutral position, or the procedure will have to be repeated.

9

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 Service Manual PV776–TSP27725/1 for service procedures.

10

To ensure the accuracy of this test, repeat steps 6 through 9 and average the results.

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.

11



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.

12

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