

## BERTOCCO LEVELLING VALVES FITTING TWO LEVELLING VALVES PER AXLE

In an air suspension system, levelling valves and their linkages are designed to maintain the vehicle ride-height as loads increase and decrease. Proper set up is critical to the system performance, particularly when two levelling valves are being fitted to one axle, as shown here.

### INSTALLATION INSTRUCTIONS FOR TWIN BERTOCCO LEVELLING VALVES

Prior to installation, rotate the control arm of each levelling valve four or five times 360° in both directions to remove any adverse effects of storage.

**NOTE:** Bertocco levelling valves are designed to work vertically or horizontally, and with the linkage on either the left or the right of the valve. The valves shown in the diagram are mounted vertically, with one linkage on the left and the other one on the right. To change from left-hand to right-hand configuration, or vice-versa, simply rotate the control arm 180° so that the linkage is on the opposite side of the valve; the valve's internal mechanism will compensate.

1. Prepare the vehicle for installation. The vehicle should be UNLADEN before starting the installation procedures. Be certain all dump switches are off. Park the vehicle, making sure that all the vehicle wheels are on a HARD, LEVEL SURFACE. (This is important; the installation cannot be carried out accurately if the ground is rough or uneven.)

Raise and properly support all auxiliary axles. Do not set the parking brakes, instead use safety wheel chocks to secure the vehicle. **WARNING:** Failure to support auxiliary axles could allow the axle to drop, causing death or serious personal injury. Failure to use wheel chocks could allow the vehicle to roll, resulting in death or serious personal injury.

Check to make sure there is enough room to work around and under the vehicle where the levelling valve linkages are attached.

2. Determine the location of the linkage ends mounted to the vehicle's axle so that when the linkages are connected to the control arms of the levelling valves, proper ride-height can be achieved. Both linkages must be in good condition with no perceptible slackness.

3. If possible, install the air fittings into the levelling valves before mounting to the vehicle.  
4. Mount the levelling valves on to the vehicle

chassis or mounting brackets.

5. a) Connect the air lines from the air bags into port no. 2 (delivery port) on the levelling valves. A pressure-gauge adaptor (test point) may also be fitted into a vacant port no. 2 on each valve, if desired.

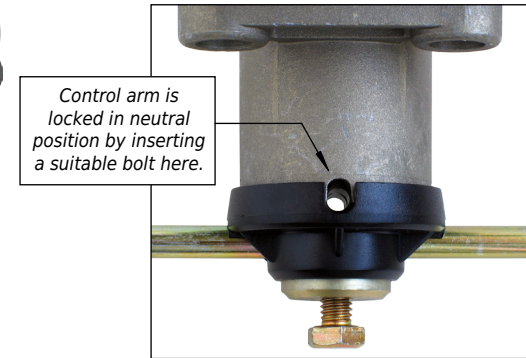
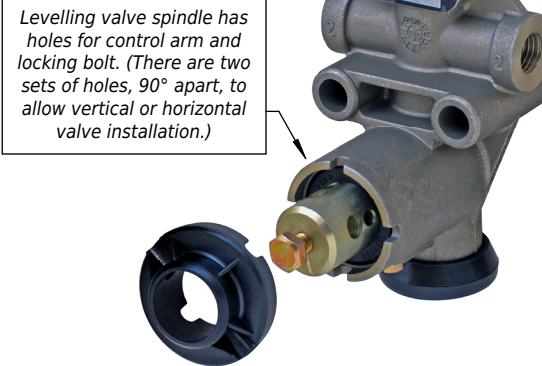
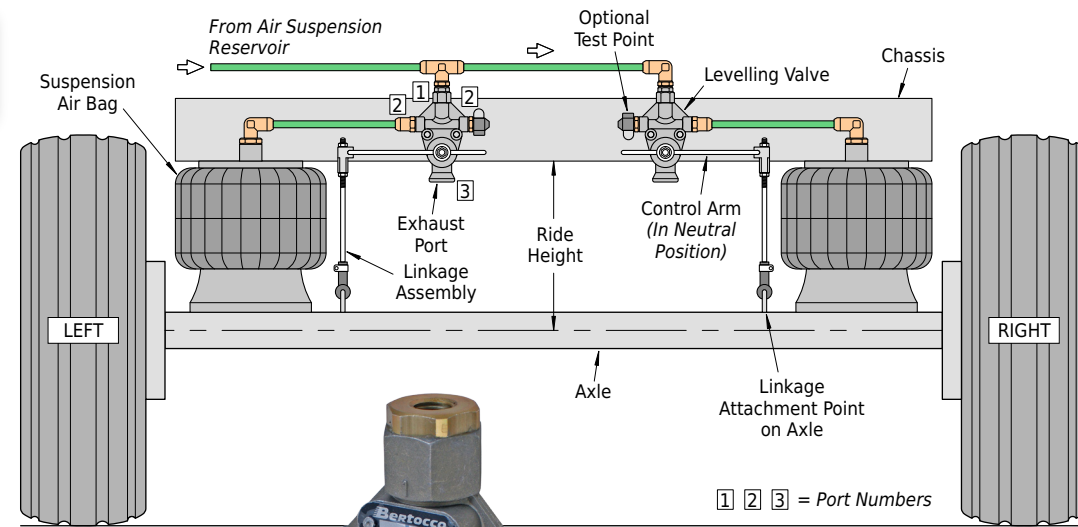
b) Connect the air lines from the air suspension reservoir into port no. 1 (inlet port) on the levelling valves.

6. Charge up the vehicle's air system to normal working pressure, and check all fittings for leaks.

7. Raise the suspension by moving the control arm of each levelling valve upwards. Either place spacer blocks between the the chassis and the axle, or axle stands between the vehicle chassis and the ground. The spacer blocks or axle stands should be at a height which will allow the vehicle to come to rest on them at the correct suspension ride-height, which is measured from the underside of the chassis to the centre-line of the axle.

**CAUTION:** Spacer blocks or axle stands must be of sufficient strength to support the vehicle. With spacer blocks or axle stands in position, lower the vehicle by moving the control arm of each levelling valve downwards, and deflate all air from the air bags and system. Recheck for proper ride-height. It may be necessary to shim the spacer blocks or axle stands to achieve the proper ride-height.

8. Once the proper ride-height has been achieved, rotate the control arm on each levelling valve 45° downwards and hold for 10 to 15 seconds. Return the control arms slowly to the centre (neutral) position. Both control arms now need to be locked temporarily in this position while the linkages are attached. For this purpose the Bertocco levelling valve has a hole in the spindle and a corresponding slot in the valve body into which a bolt can be inserted (see pictures).



9. With the suspension at ride-height and the control arms both locked in the neutral position, install and adjust each linkage from the control arm to the pre-determined location (Step 2) for the linkage connection to the vehicle's axle.

**NOTE:** It is important that the neutral position is set accurately for both valves. If, for example, the right-hand levelling valve was in the neutral position and the left-hand valve was below neutral, air would exhaust from the left-hand air bag and the right-hand side would try to compensate by inflating the right-hand air bag. A leaking left-hand levelling valve might then be diagnosed as the reason for the loss of air from the left-hand air bag, an incorrect assumption.

10. Remove the locking bolts that were installed in Step 8. To remove the spacer blocks or axle stands, disconnect the linkages at the vehicle's axle and move the control arms upwards to

inflate the air bags. Then remove the spacer blocks or jack stands and reconnect the linkages. The suspension will return to and maintain its proper ride-height.

11. If the proper ride-height is not obtained or the air bags do not inflate properly, check air pressure, check for proper piping and/or repeat Steps 6-9. As a final check, soap-spray test all air line connections for air leaks and verify that all fasteners are tight.

If the system is still not functioning properly (or you need any other help or advice) please contact Erentek Technical Services on:

**01522 720065**

#### PERIODIC MAINTENANCE:

Drain all moisture from the air reservoir at regular intervals. Normal air system maintenance should be practiced.