General Safety Instructions

WARNING

Only qualified personnel of a specialist workshop are authorized to perform repair work on a vehicle's brake devices.

Absolutely follow specifications and instructions of vehicle manufacturer.

Keep to company's relevant accident prevention regulations and national regulations.

Use only spare parts released by WABCO or vehicle manufacturer.

Always start repair or test work only when you have read and understood all information required for repair or testing.

Check each repaired equipment for functional efficiency and tightness on an adequate facility.

Load Sensing Valves 475 714 500 0 + 475 715 500 0 (Setting Instructions, replacement units only)

Load Sensing Valves on Air Suspension Trailers

When a truck or trailer is fitted with full air suspension, the load cannot be sensed by movement of the chassis relative to the axle as this remains, approximately, constant.
The air pressure in the air suspension bags changes with load so this is used to sense to load changes.

Due to suspension design and the range of weights involved there are an infinite variety of settings required, therefore each type of valve has to be set to suit the particular installation.

Replacement units are supplied, complete with alternative springs and distance pieces, so that the valve can be tailored to any requirement. The following instructions if followed correctly, will ensure the replacement unit performs to the same standard as the original fitment part.

Existing Unit

– After removal of the existing unit, measure the threads of the two adjustment bolts identified as L_2 and L_3.

– Record these measurements as they will be required for the replacement unit.

– Remove the end cover containing the control spring (the end cover through which the larger diameter adjusting bolt passes) by removing the two screws.

– Remove the spring and any distance pieces, record the number of distance pieces.
Inside the spring will be a „bobbin" which is positioned in a specific place.
This position is to be measured as it is required for the setting of the replacement unit.
This measurement L_1.

– Also note the wire diameter of the spring and ensure the correct spring is used on the replacement.

Replacement Unit

– Remove the end cover containing the control spring and check the dimensions against the one in the existing unit. If the spring is different use the alternative supplied with the replacement unit.
Using the information taken from the existing unit re-position the bobbin to give the correct L_1 dimension. (This can be done with a screwdiver.) The bobbin is a tight fit and will not require any locking.
The correct number of distance pieces should be placed between the bobbin and adjusting bolt and the unit re-assembled, the screws being tightened to 3 Nm.

After slackening the locknut adjust L_3 to the dimension found on the existing unit.

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Before the valve can be set the following must be known

1) Test pressure	$P_{1\ (6.0\ bar)}$	Stamped on L.S.V data plate, which is attached to vehicle
2) Laden brake pressure	$P_{2\ (laden)}$	
3) Unladen brake pressure	$P_{2\ (unladen)}$	
4) Bellows pressure for Laden condition	$P_{43\ (laden)}$	
5) Bellows pressure for unladen condition	$P_{43\ (unladen)}$	

A) 475 714 500 0

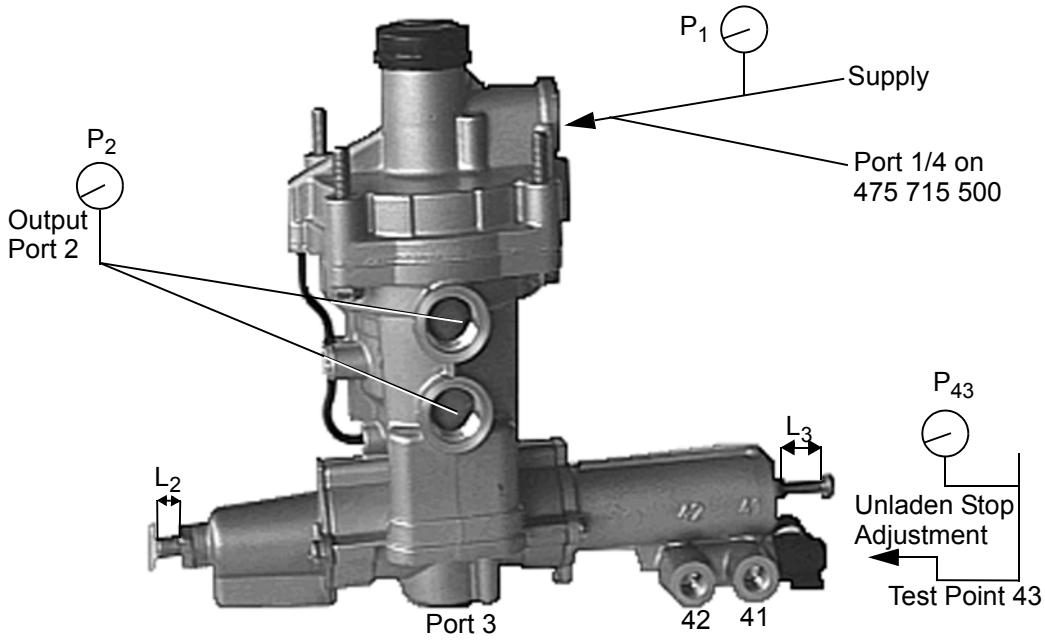
To test the valve, three test gauges and two adjustable air supplies are required. The air supplies are connected to ports 1 and 43 (by connecting to port 43 the supply will isolate ports 41 and 42 and will act as air bag pressure simulator).

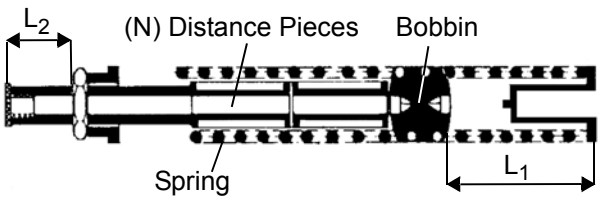
B) 475 715 500 0 (as above except)

Adjustable air supplies are connected to ports 4 and 43. An extra reservoir pressure air line is required connected to ports 1 and 12.

6) Load sensing valve spring length L1 and part number 896 512 360 4
(4.00 mm wire diameter) on 896 512 370 4 (3.20 mm wire diameter) existing unit.
7) Number of distance pieces (N)
8) Dimension L_2
9) Dimension L_3

Must be measured





Always release ALL PRESSURE after each test, As this valve physically "LOCKS-UP" under pressure setting adjustments when pressure is applied and can cause internal valve damage.

1) Unladen Stop

Initial conditions : Air Bag pressure = 0 bar (port 43)
Screw L_2 bolt in to ensure piston's are fully against stop, (i.e.) screw until spring resistance is felt.
Increase input pressure to 6 bar (port 1)
Output pressure (port 2) must equal unladen brake pressure. (see data plate)
Release all pressures.
If pressure is too high - Increase dimension L_3
If presure is too low - Reduce dimension L_3

Repeat until unladen output is achieved.
Tighten locknut on L_3 bolt and repeat

2) Unladen Setting

Initial conditions : Air Bag pressure = Laden Bellows Pressure + 0.2 bar
(Bag pressure must be increased to the required level from Zero NOT reduced from a higher value)
Screw L_2 bolt out to the dimension noted from the exsisting unit.
Increase Input pressure to 6 bar.
Output pressure must be greater than unladen brake pressure (by between 0.1 - 0.3 bar higher)
Release ALL pressures.
If pressure is too high - Reduce dimension L_2
If pressure is too low - Increase dimension L_2

Repeat until required output is achieved, Finally tighten L_2 locknut.

3) Laden Setting

Initial Conditions : Air bag pressure = Laden Bellows pressure - 0.2 bar.
(Bag pressure must be increased to the required level from Zero NOT reduced from a higher value.
Increase input pressure to 6 bar.
Output pressure must be lower than required laden brake pressure by between (0.1 and 0.3 bar)
You should find that the laden pressure is achieved without any further adjustment. (see data plate)
If Not :
Release ALL pressures.
If pressure is too high - Reduce dimension L_2
If pressure is too Low - Increase dimension L_2

If you have had to change L_2 at this step, go back to step 2) **Unladen setting**
check that the unladen pressure is still within tolerance band.

If OK tighten locknut and re-check ALL settings.

i If pressures do not change when you expect them to, cycle the bag pressure (P_{43}) from 0 to Max a few times.

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