



Tools/Equipment Required:

- 5mm Allen wrench (VW14 and MW14 ONLY)
- 6mm Allen wrench (VW18, MW18, and VW25 ONLY)
- 0-500 psi Δp -gauge (Optional: Two, 0-600 psi pressure gauges or transducers)
- For VW14 and MW14:
 - P/N 000.914.5495, 0.8mm shim (as required)
 - P/N 000.914.5496, 1.0mm shim (as required)
 - P/N 000.914.5497, 1.4mm shim (as required)
- For VW18 and MW18:
 - P/N 9289.003.470, 0.1mm shim (as required)
 - P/N 9289.003.472, 0.3mm shim (as required)
 - P/N 9289.003.473, 0.5mm shim (as required)
 - P/N 000.914.5492, 0.8mm shim (as required)
 - P/N 000.914.5493, 1.0mm shim (as required)
 - P/N 000.914.5494, 1.4mm shim (as required)



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- For VW25:
 - P/N 000.914.5489, 0.8mm shim (as required)
 - P/N 000.914.5490, 1.0mm shim (as required)
 - P/N 000.914.5491, 1.4mm shim (as required)

Note:

This procedure is valid for LSC valve sizes VW14, VW18, VW25, and is valid for monoblock sizes MW14 and MW18.

WARNING:

If performing this procedure on a vehicle, care must be taken. The pump will be put on stroke during this procedure, hence all personnel should be removed from the area of the machine. If using the pump for a propelling function, then the vehicle must be safely elevated to allow the propel motor to free-wheel.

Adjustment Procedure for the LSC Valve Regulation Begin Pressure:

1. Select one valve section to work on.
2. Connect the "HI" side of the Δp -gauge to *Port "X"*.
3. Connect the "LO" side of the Δp -gauge to *Port "Y"*.
4. Slowly supply pilot pressure into *Port "X"*. Simultaneously monitor the Δp -gauge and the function being actuated.
5. Record the pressure on the Δp -gauge when the function just starts to move. This is the regulation begin pressure for *Workport "A"*.
6. To adjust the regulation begin pressure:
 - a. Remove the valve end cap on the opposite side of *Workport "A"* (the end cap containing the "*B*" Side Shims) by removing the two socket-head cap screws (SHCS).
 - b. Make sure that the *O-Ring* remains in the end cap o-ring groove.
 - c. Remove the *Spool Cap* and the *Spool Centering Spring* from the end cap.
 - d. As required, **ADD** shims to the end cap to **increase** the regulation begin pressure or **REMOVE** shims to **decrease** the regulation begin pressure.



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Note:

Refer to the end of this Service Bulletin for some useful shim data.

Note:

Reference the section above titled "Tools/Equipment Required" for the part numbers corresponding to the size valve section you are working with. Please note that each size valve section has multiple shim thicknesses available.

- e. Reinstall all of the parts removed in steps b and c. Make sure that the *O-Ring* is properly installed into the end cap o-ring groove to avoid damaging it.
 - f. Reinstall the two *SHCS* from step a. The proper torque for each *SHCS* is:
 - (For VW14 and MW14).....9.5 N-m (7 ft-lb)
 - (For VW18, MW18, and VW25).....25 N-m (18 ft-lb)
 - g. Repeat steps #4 and #5 to verify that the desired regulation begin pressure has been acquired.
7. Connect the "HI" side of the Δp -gauge to *Port "Y"*.
 8. Connect the "LO" side of the Δp -gauge to *Port "X"*.
 9. Slowly supply pilot pressure into *Port "Y"*. Simultaneously monitor the Δp -gauge and the function being actuated.
 10. Record the pressure on the Δp -gauge when the function just starts to move. This is the regulation begin pressure for *Workport "B"*.
 11. To adjust the regulation begin pressure:
 - a. Remove the valve end cap on the opposite side of *Workport "B"* (the end cap containing the "*A*" Side Shims) by removing the two socket-head cap screws (*SHCS*).
 - b. Make sure that the *O-Ring* remains in the end cap o-ring groove.
 - c. Remove the *Spool Cap* and the *Spool Centering Spring* from the end cap.
 - d. As required, **ADD** shims to the end cap to **increase** the regulation begin pressure or **REMOVE** shims to **decrease** the regulation begin pressure.



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Note:

Refer to the end of this Service Bulletin for some useful shim data.

Note:

Reference the section above titled "Tools/Equipment Required" for the part numbers corresponding to the size valve section you are working with. Please note that each size valve section has multiple shim thicknesses available.

- e. Reinstall all of the parts removed in steps b and c. Make sure that the *O-Ring* is properly installed into the end cap o-ring groove to avoid damaging it.
- f. Reinstall the two *SHCS* from step a. The proper torque for each *SHCS* is:
 - (For VW14 and MW14).....9.5 N-m (7 ft-lb)
 - (For VW18, MW18, and VW25).....25 N-m (18 ft-lb)
- g. Repeat steps #9 and #10 to verify that the desired regulation begin pressure has been acquired.

12. Remove the Δp -gauge from the valve section.

13. Select another valve section and repeat steps #2 through #12.

Reference Data:

For LSC valve sections containing "standard" *Spool Centering Springs*, the following spring-rate data can be used as a reference to help you determine the thickness of shims needed to increase or decrease the regulation begin pressure to the desired setting:

- (For VW14 and MW14) 26 psi/mm
- (For VW18 and MW18) 22 psi/mm
- (For VW25) 18.5 psi/mm

For LSC valve sections NOT containing "standard" *Spool Centering Springs*, please consult Linde Engineering to see if data is available.



******* ATTENTION *******

You have been provided information on conversion, repair and/or service of Linde components. Proper application of the information requires specific training and may require use of specialized tooling and equipment. If you choose to proceed with the conversion, repair and/or service of the Linde component(s) absent the necessary training and/or these specialized tools, you do so at your risk.

Linde Hydraulics Corporation will accept no claim for warranty or other consideration resulting from deficiencies in the conversion, repair and/or service done in accordance with the guidance offered herein when the necessary training has not been conducted and/or required specialized tooling and equipment has not been utilized.

All requests for training must be coordinated through your Linde Account Manager. He can also provide you price and availability of any specialized tooling.

Questions regarding the information provided or this disclaimer should be addressed to the Warranty & Service Department, Linde Hydraulics Corporation.

5089 Western Reserve Road
Canfield, OH 44406
330.533.6801 (Telephone)
330.533.9873 (Facsimile)
www.lindeamerica.com (Web Site)