



### Tools/Equipment Required:

- 17mm wrench
- 5mm Allen wrench
- 0-7000 psi pressure gauge (Optional: 0-7000 psi pressure transducer)



# Monoblock Safety Relief Valve, Load Sense Relief Valve, and System Relief Valve Adjustment Procedure

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## **IMPORTANT:**

All relief valves that could open or "crack" during the adjustment of the monoblock relief valve must be set at least 300 psi higher than the desired pressure setting for the monoblock relief valve. This must be done prior to performing any adjustments to the monoblock relief valve.

The relief valve on the monoblock can be set up in three configurations: (1) Safety Relief Valve, (2) Load Sense Relief Valve, or (3) System Relief Valve. Besides the external differences between these configurations, there are internal plumbing differences in the monoblock housing which allows the relief valve to function uniquely to each configuration. If you require a different relief valve configuration other than what was provided by Linde, you must consult Linde Engineering for detailed instructions on how to convert the monoblock to the alternate relief valve configuration.

## **Note #1:**

The *Safety Relief Valve* is non-adjustable and is preset in the factory. This relief valve is preset to open when the pressure difference between the pump output pressure and the load sense pressure reaches 870 + 87 psi. Once opened, the relief valve allows pump output pressure to relieve to tank. It is not possible to field test the *Safety Relief Valve* setting.

If a lower or higher setting is desired for the *Safety Relief Valve*, shims can be removed or added as illustrated above. Removing shims from the *Safety Relief Valve* will lower the setting while adding shims will raise the setting. There are two different shim thicknesses available - 0.1mm and 0.5mm. It is important that all of the thicker shims be placed adjacent to each other and all thinner shims be placed adjacent to each other. Additionally, it is important that the thinner shims be placed against the spring while the thicker shims be placed against the relief valve housing. If all shims are of the same thickness, then this important note can be disregarded.

## **Note #2:**

It is not recommended that the *Safety Relief Valve* be disassembled. However, if it is disassembled, care should be taken during the reassembly. As illustrated above, correct positioning of the "o-ring" and "backup ring" is absolutely critical for proper operation of this relief valve. Be sure to reference the illustration above during the reassembly of the *Safety Relief Valve*.

## **Note #3:**

It is not recommended that the *Load Sense/System Relief Valve* be disassembled. However if it is disassembled, care should be taken during the reassembly. As illustrated above, this relief valve **MUST NOT** have an "o-ring" or "backup ring" for proper operation. Instead, this relief valve must have a solid metal ring. Be sure to reference the illustration above during the reassembly of the *Load Sense/System Relief Valve*.



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## **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 swinging or propelling function, then this function must be secured as to prevent the motor from rotating.

## **Adjustment Procedure for the *Load Sense Relief Valve* Configuration:**

1. Install the pressure gauge to measure load sense pressure.
2. Select a function to actuate that is within the same load sense circuit as the monoblock *Load Sense Relief Valve*. A cylinder function is recommended, but any function that can be deadheaded will suffice.
3. Start the prime mover and set it to operating speed.
4. Actuate the function and hold it deadheaded. Read the pressure on the gauge - This is the *Load Sense Relief Valve* setting.
5. To adjust the *Load Sense Relief Valve*:
  - a. While holding the "adjustment stud" stationary with the 5mm Allen wrench, loosen the "seal nut" with the 17mm wrench.
  - b. Turn the "adjustment stud" **IN** to **increase** the setting or **OUT** to **decrease** the setting.
  - c. Once the desired setting is acquired, hold the "adjustment stud" stationary and tighten the "seal nut". The proper torque for the seal nut is 29 N-m (21 ft-lb).
6. Remove the pressure gauge from the load sense circuit.

## **Adjustment Procedure for the *System Relief Valve* Configuration:**

1. Install the pressure gauge to measure pump output pressure.
2. Select a function to actuate that is within the same circuit as the monoblock *System Relief Valve*. A cylinder function is recommended, but any function that can be deadheaded will suffice.
3. Start the prime mover and set it to operating speed.



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### **WARNING:**

During this procedure, pump output pressure and flow will be relieved past the *System Relief Valve* to tank. Thus, the hydraulic oil will be rapidly heated. To avoid overheating the hydraulic oil, the following steps should be performed quickly. If this is not possible, care should be taken to avoid overheating of the hydraulic oil. This can be done by waiting for several minutes between pressure measurements.

4. Actuate the function and hold it deadheaded. Read the pressure on the gauge - This is the *System Relief Valve* setting.
5. To adjust the *System Relief Valve*:
  - a. While holding the "adjustment stud" stationary with the 5mm Allen wrench, loosen the "seal nut" with the 17mm wrench.
  - b. Turn the "adjustment stud" **IN** to **increase** the setting or **OUT** to **decrease** the setting.
  - c. Once the desired setting is acquired, hold the "adjustment stud" stationary and tighten the "seal nut". The proper torque for the seal nut is 29 N-m (21 ft-lb).
6. Remove the pressure gauge from the pump output pressure circuit.



**\*\*\*\*\*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.

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