# RH3 & RH4 Relief Valve
## Maintenance Instructions

### Spring Kit Instructions
1. Remove valve from system.
2. Loosen lock nut and remove cap from bonnet.
3. If installed, remove and discard old spring and spring support.
4. Insert new spring support into bonnet. Important: Large dimpled (beveled) surface must face toward stem.
5. Insert the new spring.
6. If different, replace old label with new label.
7. Thread the cap onto the bonnet. (See chart)
8. If replacing the spring only, proceed to Adjusting the Set Pressure.

### Seal Kit Instructions
1. Remove valve from system.
2. Loosen bonnet.
3. Remove bonnet from body.
4. Remove stem and O-Ring from bonnet. Discard O-Ring.
5. RH3 Only: Remove retainer and discard.
6. Remove quad seal and discard.
7. Remove seat retainer with hex wrench. (RH3 - 5/16" / RH4 - 7/16").
9. Make sure all parts are clean before reassembly.
10. Install new seat O-Ring onto insert. (Lubricate with system compatible lubricant). Insert assembly into body.
11. Install seat retainer into body and tighten to • RH3: 200 in.-lb (22.6 N·m)
      • RH4: 300 in.-lb (33.9 N·m)
12. Install new quad seal (lubricate with system compatible lubricant).
13. RH3 Only: Install new retainer (teeth of retainer must face away from quad seal).
15. Lubricate tip of stem and insert into bonnet.
16. Thread bonnet into body and tighten to • RH3: 400 in.-lb (45.2 N·m)
      • RH4: 600 in.-lb (67.8 N·m)
17. Proceed to Adjusting the Set Pressure.

### Manual Override Kit Contents
- Handle
- Pull Rod

### WARNING
If the valve is disconnected from a system, it must be depressurized, cycled, and purged.

### CAUTION
Care should be taken to not scratch or damage sealing surfaces.

### Spring Kit Contents

<table>
<thead>
<tr>
<th>Component</th>
<th>RH3</th>
<th>RH4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring</td>
<td><img src="image1" alt="Spring" /></td>
<td><img src="image2" alt="Spring" /></td>
</tr>
<tr>
<td>Spring Support</td>
<td><img src="image3" alt="Spring Support" /></td>
<td><img src="image4" alt="Spring Support" /></td>
</tr>
<tr>
<td>Lock Wire Hole</td>
<td><img src="image5" alt="Lock Wire Hole" /></td>
<td><img src="image6" alt="Lock Wire Hole" /></td>
</tr>
<tr>
<td>Lock Nut</td>
<td><img src="image7" alt="Lock Nut" /></td>
<td><img src="image8" alt="Lock Nut" /></td>
</tr>
<tr>
<td>Cap</td>
<td><img src="image9" alt="Cap" /></td>
<td><img src="image10" alt="Cap" /></td>
</tr>
</tbody>
</table>

### Seal Kit Contents

<table>
<thead>
<tr>
<th>Component</th>
<th>RH3</th>
<th>RH4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quad Seal</td>
<td><img src="image11" alt="Quad Seal" /></td>
<td><img src="image12" alt="Quad Seal" /></td>
</tr>
<tr>
<td>O-Ring</td>
<td><img src="image13" alt="O-Ring" /></td>
<td><img src="image14" alt="O-Ring" /></td>
</tr>
<tr>
<td>Seat O-Ring</td>
<td><img src="image15" alt="Seat O-Ring" /></td>
<td><img src="image16" alt="Seat O-Ring" /></td>
</tr>
<tr>
<td>Retainer (RL3 Only)</td>
<td><img src="image17" alt="Retainer" /></td>
<td><img src="image18" alt="Retainer" /></td>
</tr>
</tbody>
</table>

### Manual Override Kit Contents

<table>
<thead>
<tr>
<th>Component</th>
<th>RH3</th>
<th>RH4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handle</td>
<td><img src="image19" alt="Handle" /></td>
<td><img src="image20" alt="Handle" /></td>
</tr>
<tr>
<td>Pull Rod</td>
<td><img src="image21" alt="Pull Rod" /></td>
<td><img src="image22" alt="Pull Rod" /></td>
</tr>
</tbody>
</table>

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**RH3 & RH4 Relief Valve**

- **RH3**
- **RH4**

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**Seal Kit Contents**

- **Quad Seal**: ![Quad Seal](image11)
- **O-Ring**: ![O-Ring](image13)
- **Seat O-Ring**: ![Seat O-Ring](image15)
- **Retainer (RL3 Only)**: ![Retainer](image17)

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**Manual Override Kit Contents**

- **Handle**: ![Handle](image19)
- **Pull Rod**: ![Pull Rod](image21)
Manual Override Conversion

**Use With:**
- RH3 - A, B and C Springs only.
- RH4 - A Spring only.

1. Remove valve from system.
2. Loosen **lock nut** and remove **cap** from **bonnet**.
3. Remove **plug** from **cap** and discard.
4. Remove **spring** from **bonnet**.
5. Remove **spring support** and discard.
6. Install **pull rod** into **bonnet**.
7. Place **spring** over **pull rod**.
8. Place **cap** over **pull rod**, resting it on **bonnet**.
9. Screw **handle** onto **pull rod**. Tighten set screw on **handle** to 10 in.-lb (1.1 N·m) with 5/64 in. hex bit.
10. Thread the **cap** onto the **bonnet**. (See chart)
11. Proceed to Adjusting the Set Pressure.

**Adjusting the Set Pressure**

**NOTE:** Adjust the set pressure before installing the valve in a system.

1. Tighten **lock nut** against the **cap**.
2. Test set pressure.
3. Adjustment of set pressure:
   - Relieve system pressure and loosen **lock nut**.
   - Turn **cap** clockwise to increase set pressure.
   - Turn **cap** counterclockwise to decrease set pressure.
4. Repeat steps 1 through 3 until desired pressure is obtained.
5. With backup wrench on **cap**, tighten **lock nut** to 100 in.-lb (11.3 N·m).
6. Attach lock wire with lead seal.
7. Install valve in system.

<table>
<thead>
<tr>
<th>Spring Designator and Color</th>
<th>Set Pressure Range psig (bar)</th>
<th>Initial Cap Position (number of turns)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RH3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Blue</td>
<td>50 to 350 (3.4 to 24.1)</td>
<td>9</td>
</tr>
<tr>
<td>B Yellow</td>
<td>350 to 750 (24.1 to 51.7)</td>
<td>8.5</td>
</tr>
<tr>
<td>C Purple</td>
<td>750 to 1500 (51.7 to 103)</td>
<td>9</td>
</tr>
<tr>
<td>D Orange</td>
<td>1500 to 2250 (103 to 155)</td>
<td>6</td>
</tr>
<tr>
<td>E Brown</td>
<td>2250 to 3000 (155 to 206)</td>
<td>6</td>
</tr>
<tr>
<td>F White</td>
<td>3000 to 4000 (206 to 275)</td>
<td>6</td>
</tr>
<tr>
<td>G Red</td>
<td>4000 to 5000 (275 to 344)</td>
<td>6</td>
</tr>
<tr>
<td>H Green</td>
<td>5000 to 6000 (344 to 413)</td>
<td>6</td>
</tr>
<tr>
<td>RH4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Blue</td>
<td>50 to 350 (3.4 to 24.1)</td>
<td>9</td>
</tr>
<tr>
<td>B Yellow</td>
<td>350 to 750 (24.1 to 51.7)</td>
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