

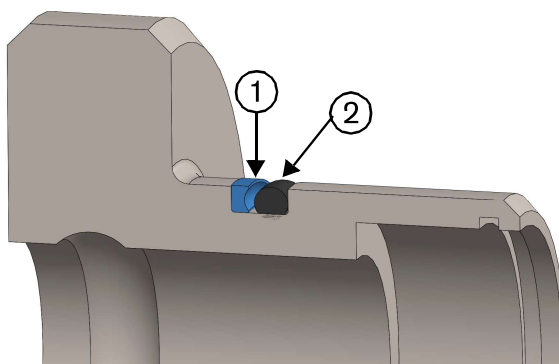
Assemble the intensifier

- Flip the high-pressure cylinders every 1,500 hours.
- Replace the spacer tubes every 12,000 hours.



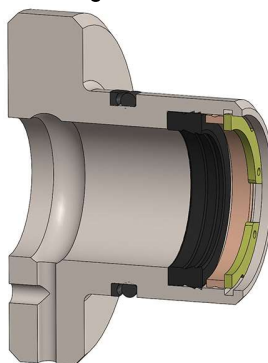
Before assembling high-pressure or hydraulic parts, clean the parts to remove grease and other contamination.

1. Put high-vacuum grease on the seal housing O-ring backup and the seal housing O-ring.
2. Put the seal housing O-ring backup and the seal housing O-ring on the seal housing.



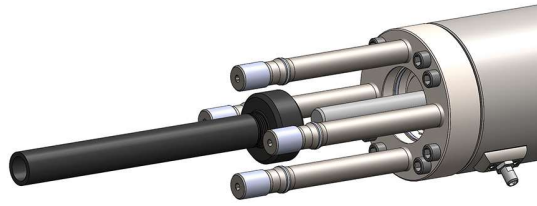
The seal housing O-ring backup ① has a flat side and a concave side. Make sure the flat side of the O-ring backup faces the wide end of the seal housing. The O-ring ② fits into the concave groove on the O-ring backup.

3. Put the new components in the seal housing as shown.



4. Use snap-ring pliers to install the snap ring. Make sure that the snap ring is installed correctly in the groove.
5. Put the cylinder locator tool and the seal installation tool together.
6. Put the tool on the seal housing and turn it clockwise so that the threads engage.

7. Put the seal housing on the plunger with the narrow end of the seal housing toward the center of the intensifier.



8. Turn the seal housing so that the weep hole faces down.
9. Push the seal housing tightly against the hydraulic end cap until it clicks.
10. Remove the tool from the seal housing.
11. Put the cartridge in the seal installation tool.



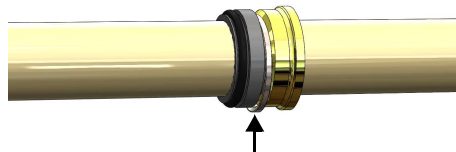
The O-rings in the seal cartridge assembly are lubricated at the factory. Do not use grease when installing this assembly.
Using too much grease or using an incorrect type of lubricant can decrease seal life.

12. Hold the seal installation tool with both hands and push the cartridge and the tool onto the plunger in a smooth motion. Push until the cartridge is touching the seal housing.
13. Remove the seal installation tool, leaving the cartridge on the plunger.



Part of the cartridge stays inside the seal installation tool. This is by design.

14. Make sure that the cartridge parts are tight and none of the components are hanging down on the plunger.



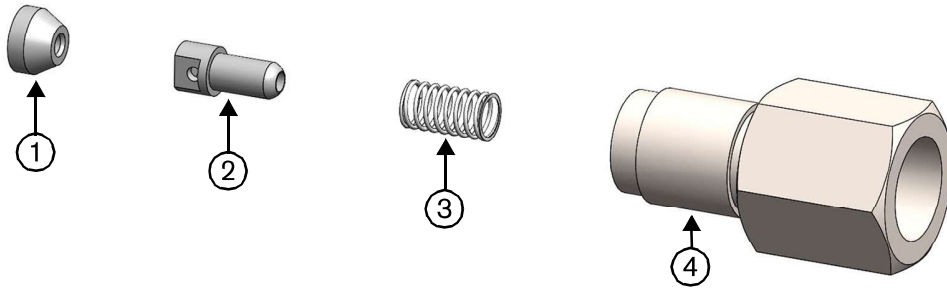
15. Put the spacer tube on the plunger.
16. Find the end of the high-pressure cylinder that was repaired with the nonabrasive pad. Put the high-pressure cylinder over the spacer tube with that end facing the center of the intensifier. Push the cylinder in as far as possible.



Flip the high-pressure cylinder every 1,500 hours to promote even wear.

17. Use a cotton-tipped applicator to put high-pressure antiseize lubricant in the recess in the bottom of the check valve.

- 18.** Use a cotton-tipped applicator to guide the high-pressure poppet seat into the check valve. The wide end of the poppet seat faces toward the check valve.



1 High-pressure poppet seat

2 High-pressure poppet

3 High-pressure poppet spring

4 Output adapter

- 19.** Push the high-pressure poppet seat into the high-pressure antiseize lubricant in the check valve.
- 20.** Put high-pressure antiseize lubricant on the threads of the output adapter.
- 21.** Put the high-pressure poppet spring and the high-pressure poppet in the output adapter.
- 22.** Put the output adapter in the check valve and tighten it by hand. Use a torque wrench to tighten the output adapter to 115 N·m (85 lbf·ft).



CAUTION

Tightening the output adapter with the high-pressure poppet in an incorrect position can cause damage.

When the output adapter is correctly installed, the gap between the wide part of the output adapter and the check valve is 2.5 mm (3/32 inch) and no threads are visible.



Good gap

Bad gap

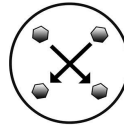
If the gap is too large or if threads are visible, make sure that the poppet parts have not moved.

- 23.** Put the check valve in the end of the high-pressure cylinder. Make sure that the weep hole faces down toward the ground.
- 24.** Put the high-pressure end cap over the check valve and onto the studs. Push the endcap until it is tight against the check valve. Make sure that the low-pressure water connection points toward the attenuator.
- 25.** Use a clean rubber mallet to tap the exposed part of the check valve until the cylinder is fully seated in the end of the hydraulic end cap.
- 26.** Lubricate the stud threads with antiseize bolt lubricant (white lithium grease).

27. Put the nuts on the studs by hand. Use a torque wrench to tighten the high-pressure end cap nuts to 375 N·m (275 lbf·ft).



Tighten each end cap nut in 68 N·m (50 lbf·ft) increments. Use a repeating cross pattern.



28. Use a torque wrench to tighten the high-pressure water fitting to 68 N·m (50 lbf·ft).
29. Repeat this procedure on the other end of the intensifier.
30. Connect the high-pressure tubing.



Make sure that some of the threads on the high-pressure tubing are visible at the fitting. Refer to [Install a gland nut](#) on page 132.

31. Connect the low-pressure water lines.