

## Wagner Hydraulic Cylinder Repair

### General

Allied Systems Company manufactures the hydraulic cylinders utilized on Wagner units. Close tolerances and quality materials have resulted in maximum service life. All seal material does, however, have a limited service life. These instructions detail seal replacement procedures.

### NOTICE

*We can not over-emphasize the importance of a clean hydraulic system. Many times mechanics have been blamed for improper servicing of hydraulic components that have failed after overhaul - when the fault was contaminated oil in the hydraulic system. Before installing rebuilt hydraulic components always replace the oil if it is in question and conduct a complete system flush.*

### Cylinder Removal

1. Prior to removing any cylinder, make certain that the component that is controlled by that cylinder is fully supported and secured (resting on the ground, its mechanical stops or temporary support stands), and that the cylinder is not supporting any weight.



### WARNING

**Crushing Hazard. Failure to secure components and/or failing to unload the cylinder prior to removal may result in severe injury or death.**

2. Once the cylinder is unloaded, shut down the machine and employ lockout/tagout procedures. Relieve all hydraulic pressure in the system.
3. Disconnect hoses at the cylinder. Plug or cap all lines and ports to prevent contamination. Tag all hose ends to aid with reinstallation.
4. Use an overhead hoist and lifting straps to fully support the weight of the cylinder.
5. Remove retaining pins using a slide hammer puller or drift pin.
6. Move the cylinder to a clean working area for disassembly.

### NOTICE

*Place cylinder in clean environment to prevent contamination. Contamination can cause damage to cylinder and entire hydraulic system.*

Disassembly

Refer to Figure 1, which illustrates a typical steering cylinder. Your cylinder, particularly the piston seals, may vary. Consult your parts manual.

NOTICE

Be careful not to scratch or mar the stem (4) during disassembly. A damaged cylinder stem surface will damage seals and may cause hydraulic oil to leak.

- 1. Clean the exterior of the cylinder completely prior to disassembly.
- 2. Drain oil from the cylinder.
- 3. Support the weight of the packing gland (2).
- 4. Remove the packing gland capscrews (7).
- 5. Slide the cylinder stem (4), packing gland (2), and piston (5) assembly out of the barrel (1). Make certain that the cylinder stem (4) remains parallel to the cylinder barrel (1) during removal.
- 6. Once this assembly is removed, place the cylinder stem eye in a vise or fixture capable of supporting the assembly firmly while removing the piston from the cylinder stem.

- 7. Remove the piston retaining nut (3).
  - 8. Remove the piston assembly (5), any spacers (6), etc from the stem (4). Note and mark orientation of all removed components to aid with reassembly.
  - 9. Slide the packing gland (2) off the stem (4).
  - 10. Remove all seals (8.1 through 8.8) from the piston and packing gland.
- NOTE: Remove the old seals by cutting with a knife. Careful heating with a flame will soften the seal, making removal easier.**
- 11. Clean and inspect all metal components for damage. Examine sealing surfaces of the stem end and barrel for cuts and scratches. Small scratches may be polished out with fine emery cloth. Deeply scratched or gouged components must be replaced.

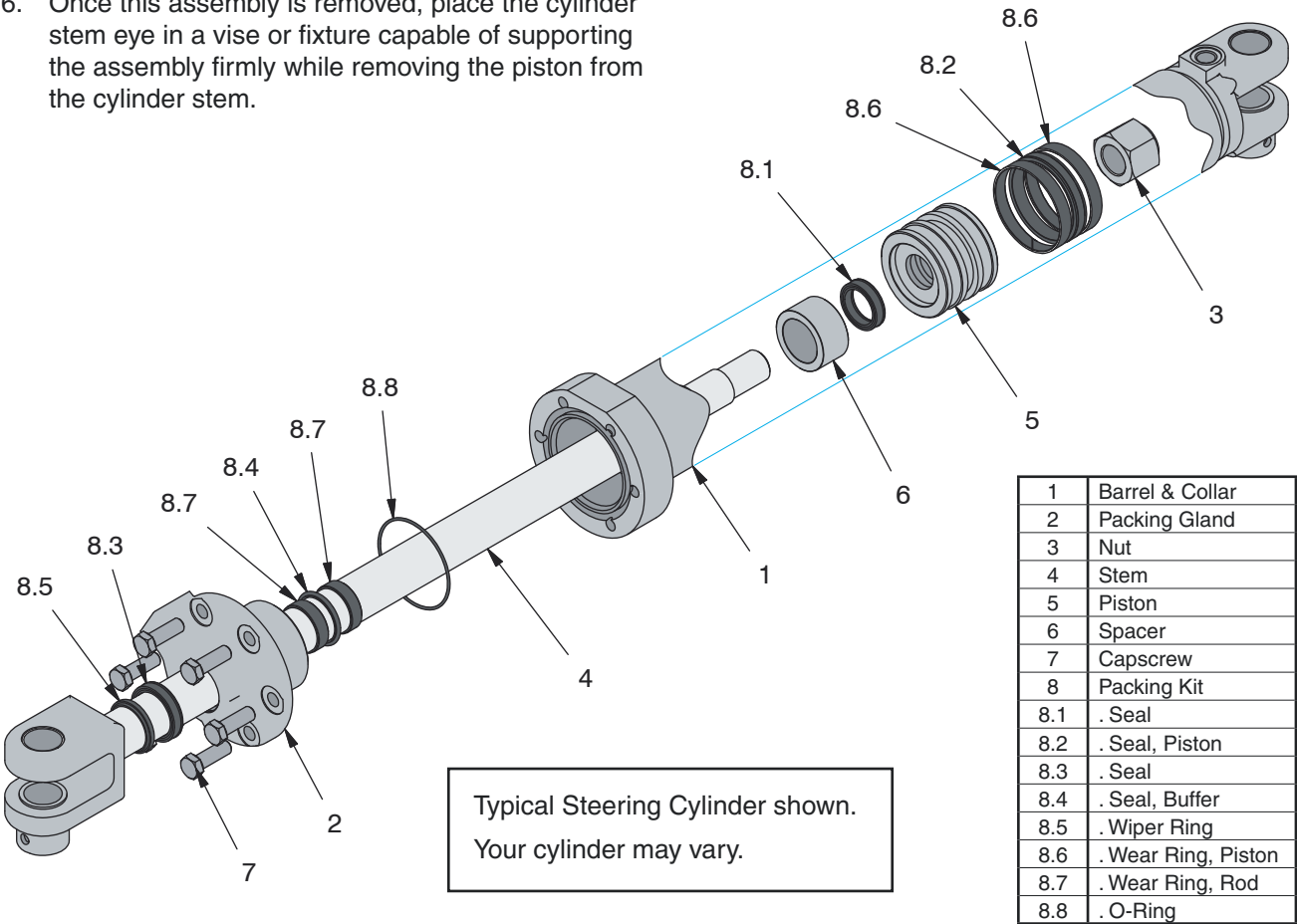


Figure 1 Typical Cylinder Assembly

## Replace Seals

1. Obtain the packing kit for your cylinder. Refer to your parts manual. Always replace all seals.
2. Replace all seals. Use petroleum jelly to aid with installation.

## NOTICE

*DO NOT USE GREASE, as some greases will not dissolve in oil and may wash off eventually accumulating in, and clogging, the return filter.*

3. Refer to Figure 2 and Figure 3 for typical seal orientations. Note that the seals on your cylinder may vary. Refer to the illustration in your parts manual for details.

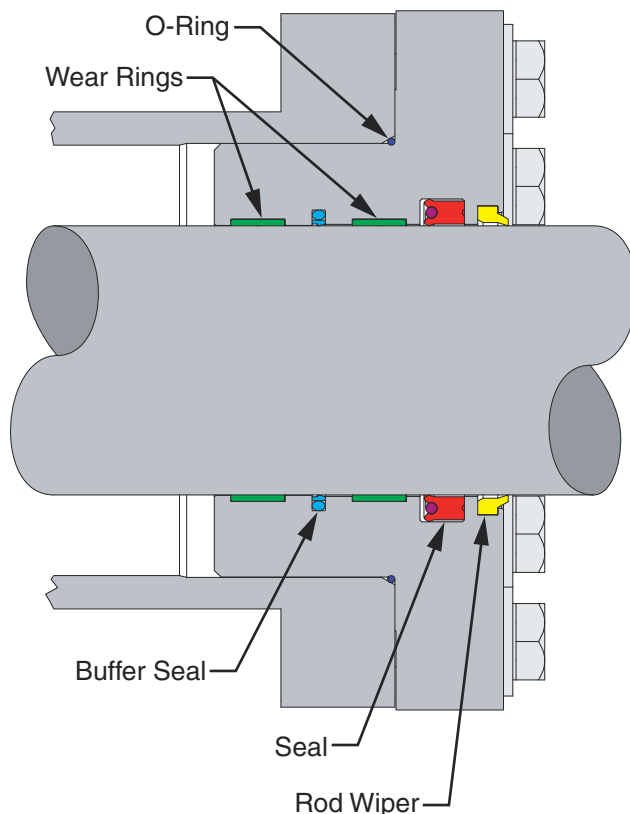


Figure 2 Packing Gland Seals

## Reassembly

1. Lubricate inside of packing gland (2) with petroleum jelly and hydraulic oil. Coat base end of cylinder stem (4) with hydraulic oil. Place packing gland on cylinder stem.
2. Install spacer (6), piston (5), and nut (3) on cylinder stem (4). Lubricate piston nut with hydraulic oil, and torque per Table 1.
3. Clean and lubricate inside of barrel (1) with hydraulic oil. Lubricate piston wear band (8.6) and seals with petroleum jelly and hydraulic oil. Press cylinder rod into barrel until packing gland is flush with barrel.



## CAUTION

**Keep fingers away while pressing cylinder rod into barrel to prevent injury.**

4. Be careful not to damage wear ring and seal on piston assembly while pressing rod assembly into barrel.
5. Apply anti-seize compound to packing gland cap-screws (7), install, and torque per Table 2.

### Torque Values, Piston Nut

Size	Torque
1-3/4" Esna	1,400 ft-lbs
3-3/4" Esna	3,500 ft-lbs

Table 1 Piston Nut Torque Values

### Torque Values, Packing Gland Capscrews

Size	Torque
M20	270 ft-lbs
M24	465 ft-lbs
M30	925 ft-lbs

Table 2 Packing Gland Capscrew Torque Values

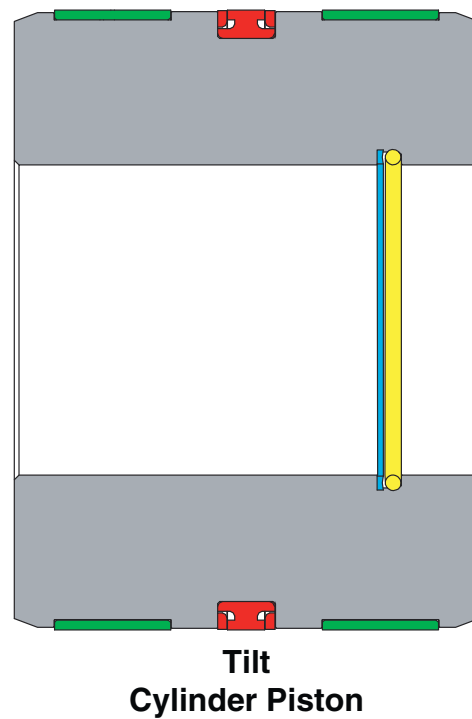
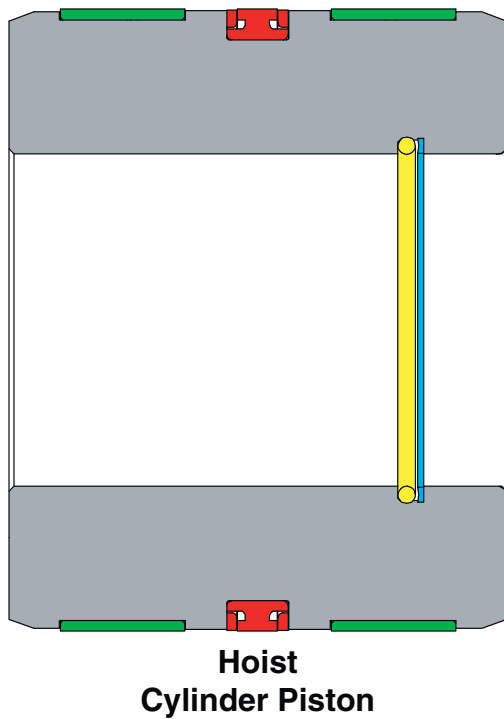
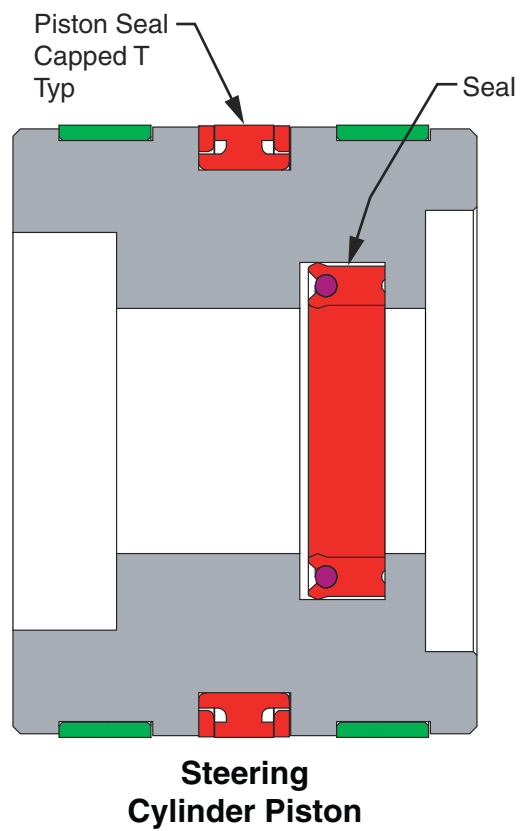
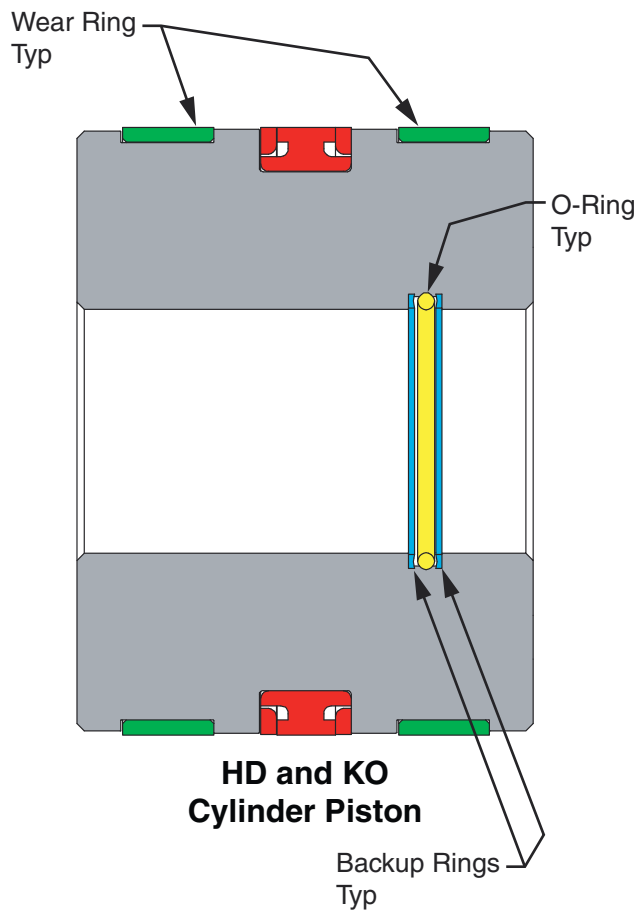


Figure 3 Typical Piston Seals. Your cylinder may vary...consult your parts manual.