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.

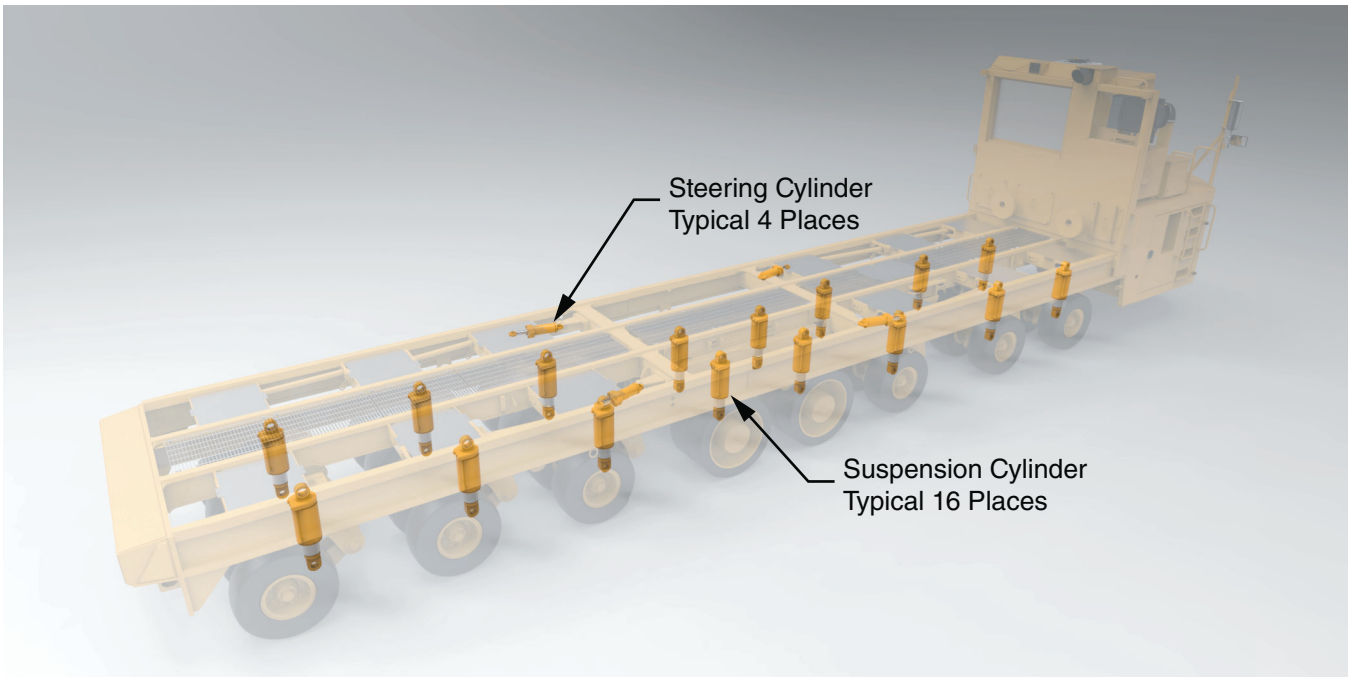


Figure 1 Hydraulic Cylinders, HLT185

Disassembly, Suspension Cylinder

Refer to Figure 2.

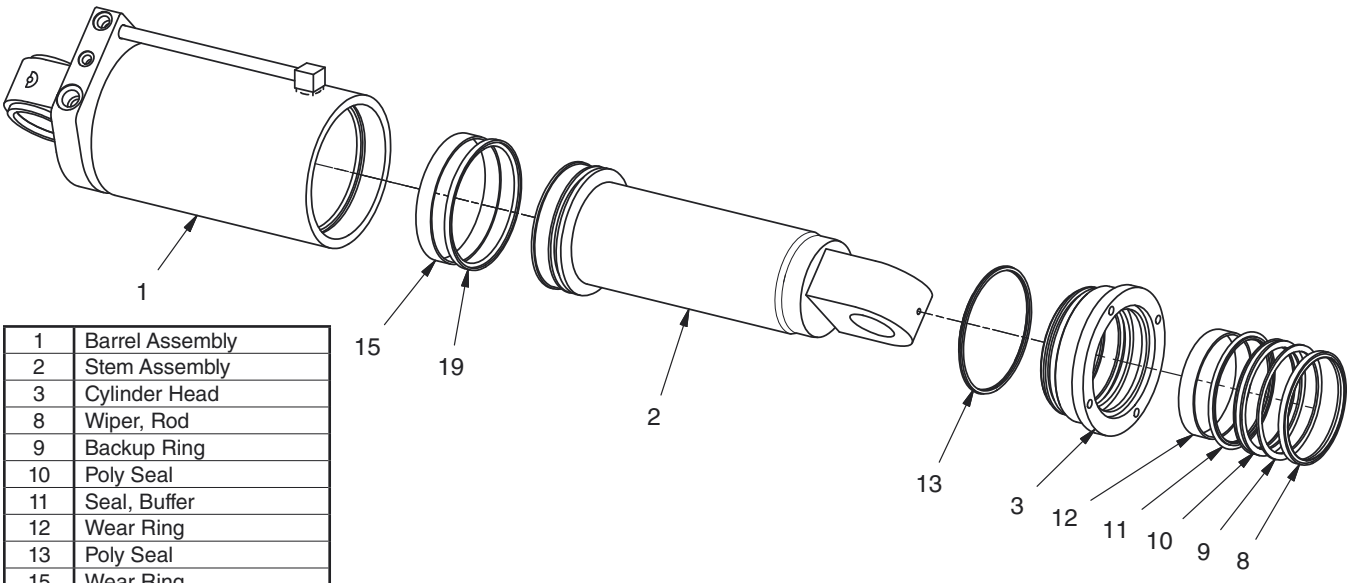
NOTICE

Be careful not to scratch or mar the stem (2) 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 stem assembly (2).
4. Use a spanner wrench to unscrew the cylinder head (3).
5. Slide the stem assembly (2) and cylinder head (3) assembly out of the barrel (1). Make certain that the stem assembly (2) remains parallel to the barrel (1) during removal.
6. Place this assembly on a clean work surface, and carefully remove the cylinder head (3) from the stem assembly (2).
7. Remove all seals (8-19) from the stem assembly (2) and the cylinder head (3).

NOTE: Remove the old seals by cutting with a knife. Careful heating with a flame will soften the seal, making removal easier.

8. 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.



1	Barrel Assembly
2	Stem Assembly
3	Cylinder Head
8	Wiper, Rod
9	Backup Ring
10	Poly Seal
11	Seal, Buffer
12	Wear Ring
13	Poly Seal
15	Wear Ring
19	Seal

Figure 2 Typical Suspension Cylinder Assembly

Disassembly, Steering Cylinder

Refer to Figure 3.

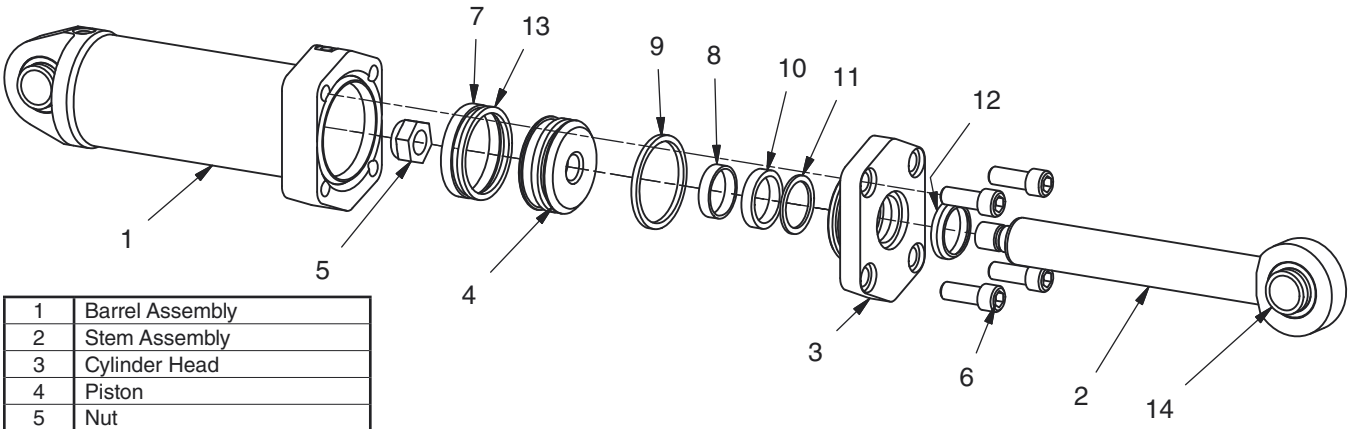
NOTICE

Be careful not to scratch or mar the stem assembly (2) 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 cylinder head (3).
4. Remove the cylinder head capscrews (6).
5. Slide the stem assembly (2), cylinder head (3), and piston (4) assembly out of the barrel (1). Make certain that the stem assembly (2) remains parallel to the 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 (5).
8. Remove the piston assembly (4) from the stem (2). Note and mark orientation of all removed components to aid with reassembly.
9. Slide the cylinder head (3) off the stem (2).
10. Remove all seals (7 through 13) from the piston and cylinder head.

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.



1	Barrel Assembly
2	Stem Assembly
3	Cylinder Head
4	Piston
5	Nut
6	Capscrew
7	Wear Ring
8	Wear Ring
9	Seal
10	Seal
11	Backup Ring
12	Wiper, Rod
13	Seal
14	Bearing, Sealed Self Aligned

Figure 3 Typical Steering 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 4 and Figure 5 for seal orientations.

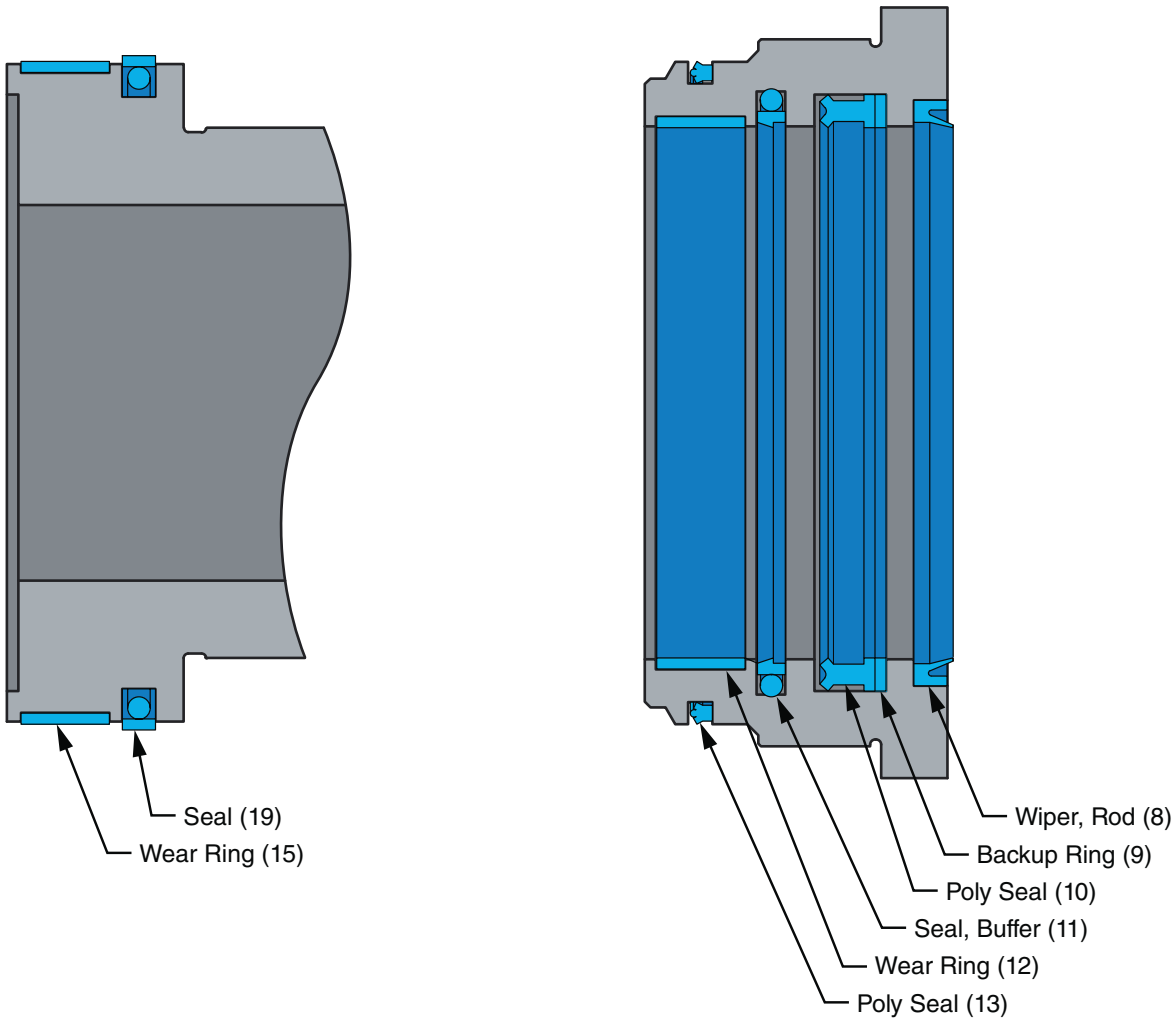


Figure 4 Suspension Cylinder Seals

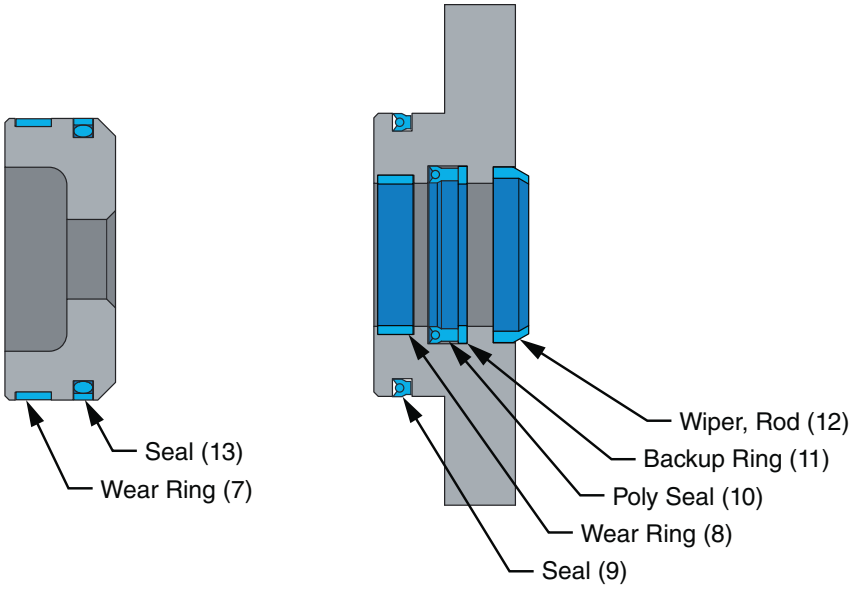


Figure 5 Steering Cylinder Seals

Reassembly, Suspension Cylinder

Refer to Figure 2.

1. Lubricate inside of cylinder head (3) with petroleum jelly and hydraulic oil. Coat base end of stem assembly (4) with hydraulic oil. Place cylinder head (3) on stem assembly (4).
2. Clean and lubricate inside of barrel (1) with hydraulic oil. Lubricate stem assembly wear ring (15) and seals with petroleum jelly and hydraulic oil. Press stem assembly (2) into barrel (1) until cylinder head (3) is flush with barrel.

⚠ CAUTION

Keep fingers away while pressing stem assembly into barrel to prevent injury.

3. Be careful not to damage wear rings and seals while pressing stem assembly (2) into barrel (1).
4. Apply anti-seize compound to cylinder head threads(3), and screw the cylinder head back into the barrel assembly (1) using a spanner wrench.

Reassembly, Steering Cylinder

Refer to Figure 3.

1. Lubricate inside of cylinder head (3) with petroleum jelly and hydraulic oil. Coat base end of stem assembly (2) with hydraulic oil. Place cylinder head on stem assembly.
2. Install piston (4) and nut (5) on stem assembly (2). Lubricate piston nut with hydraulic oil, and torque to 650 ft-lbs.
3. Clean and lubricate inside of barrel (1) with hydraulic oil. Lubricate piston wear ring (7) and seals with petroleum jelly and hydraulic oil. Press stem assembly (2) into barrel (1) until cylinder head (3) is flush with barrel.

⚠ CAUTION

Keep fingers away while pressing stem assembly into barrel to prevent injury.

4. Be careful not to damage wear ring and seal on piston assembly while pressing stem assembly (2) into barrel (1).
5. Apply anti-seize compound to cylinder head capscrews (6), install, and torque to 315 ft-lbs.

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