

# Power Cylinders

## 1965-72 IHC SEMI-INTEGRAL POWER STEERING

International Harvester (1965-72)

OVERHAUL

### DESCRIPTION

Power cylinder, mounted to steering linkage, acts as a hydraulic assist to manual steering linkage. Semi-integral type power cylinders consist of a piston-and-rod assembly mounted between part of the steering linkage and the frame. Cylinder control valve in this system is mounted to the steering gearbox. Control valve is linked to power cylinder by hydraulic lines. Five types of semi-integral power cylinders are used on International Harvester vehicle: Type "A" is mounted between tie rod and frame member, and has a threaded cap on one end which allows removal of piston and rod assembly. Type "B" is mounted between tie rod and frame, and can be distinguished from type "A" by a bearing welded onto one end. Type "C" is also mounted between tie rod and frame, and can be identified by a bearing welded to one end, and a ball socket assembly which is welded to the head end. Type "D" can be distinguished from the others by a two-piece piston and piston rod assembly, and lack of ball socket end. Type "E" is similar to type "D", but incorporates a ball socket end.

### LUBRICATION

Check fluid level in pump reservoir every 6,000 miles. Steering gear and fluid should be at normal operating temperature. If necessary, add power steering fluid at pump reservoir to bring level to proper mark on dipstick.

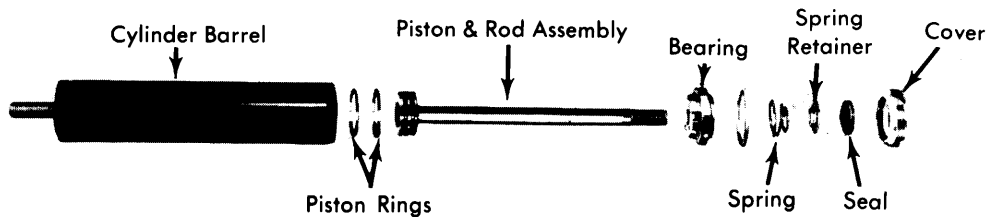
### TYPE "A"

**Disassembly** — Run piston assembly from end to end of cylinder several times to force all fluid from cylinder barrel. Using a suitable spanner wrench (SE-1792), loosen cover  $\frac{1}{8}$  turn. Tap staked areas of cylinder lightly to straighten out threads, then remove cover from cylinder assembly. Remove piston rod seal, spring retainer, and spring. Loosen packing around bearing, then remove packing, and piston and rod assembly. Remove piston rings from piston.

**Reassembly** — Install piston rings onto piston assembly. Using suitable installer sleeve (SE-1878-1), insert piston rod assembly into cylinder barrel. Install bearing, and insert new packing into cylinder. Seat spring in barrel, with large diameter coil next to bearing. Position spring retainer over spring, and install new piston rod seal. Using a suitable spanner wrench, install cover until face of cover is flush with end of cylinder barrel. Stake outer cylinder barrel into a wrench slot in cover, using a blunt nosed tool.

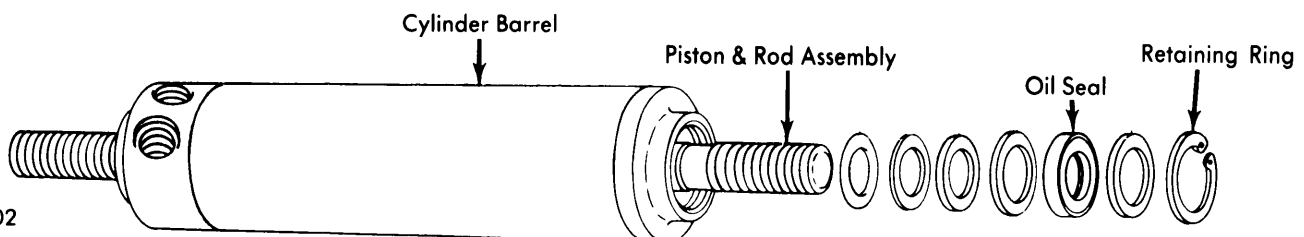
### TYPES "B" & "C"

**Disassembly** — Run piston rod assembly from end to end of cylinder barrel several times to force all fluid from cylinder barrel. Using suitable pliers, remove retaining ring from end of



41H01

TYPE "A" CYLINDER ASSEMBLY



41H02

TYPE "B" CYLINDER ASSEMBLY

## 1965-72 IHC SEMI-INTEGRAL POWER STEERING (Cont.)

cylinder. Pull piston rod outward to disengage seals from cylinder bearing. Remove seals, back-up ring, and retaining rings from piston rod assembly. On type "C" cylinders, remove socket plug, seats, and spring.

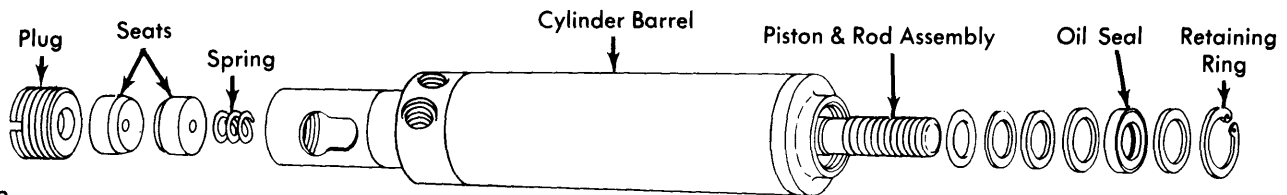
**Reassembly** — Install seat spring, inner socket seat (with concave side facing out), outer socket seat (with concave side facing in), and socket plug into socket end of type "C" cylinders. Cover threaded end of piston rod assembly with plastic tape, then install "O" ring seal. Install remaining seals, ensuring lip of large seal faces out. Install snap ring into groove in bearing, and remove tape from piston rod.

### TYPE "D"

**Disassembly** — Run piston rod assembly from end to end of cylinder several times to force all fluid from cylinder barrel. Remove cover screws, and remove cover from cylinder. Insert punch in hole along side of cylinder to disengage lock ring

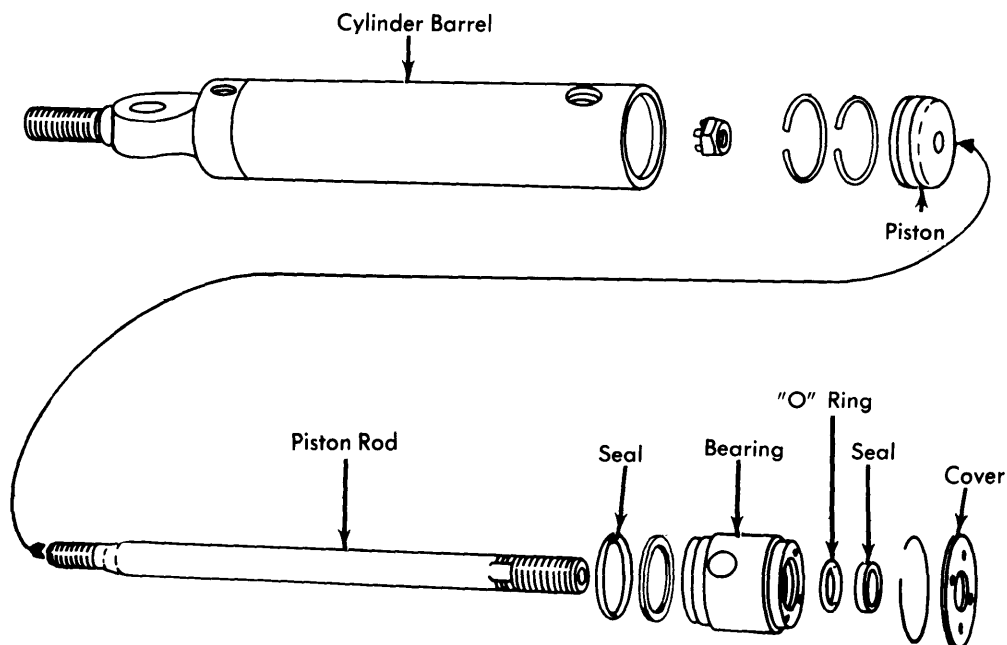
from its groove in cylinder, and pry lock ring from cylinder. Pull on piston rod end to remove piston rod assembly from cylinder barrel. Remove piston retaining nut, then remove piston and rings from rod. Remove "O" ring, and back up ring from outside of bearing. Remove seal and "O" ring from outside of bearing. Remove seal and "O" ring from inside of bearing.

**Reassembly** — *NOTE* — Assembly of piston rod parts should be made from the piston end of the rod. Install inner "O" ring and seal into bearing, then install back-up ring and "O" ring onto outside of bearing. Install bearing assembly onto piston rod. Install piston rings on piston assembly, then install piston on piston rod. Install piston retaining nut and tighten to 225-250 ft. lbs. Wrap piston rings with a piece of .010" shim stock to compress piston rings, and insert piston rod assembly into cylinder barrel, piston end first, withdrawing shim stock as soon as piston rings are within barrel. Force bearing assembly into barrel until it is clear of lock ring groove, and install lock ring. Pull back on piston rod until bearing contacts lock ring, and install cylinder barrel cover.



4IH03

### TYPE "C" CYLINDER ASSEMBLY



4IH04

### TYPE "D" CYLINDER ASSEMBLY