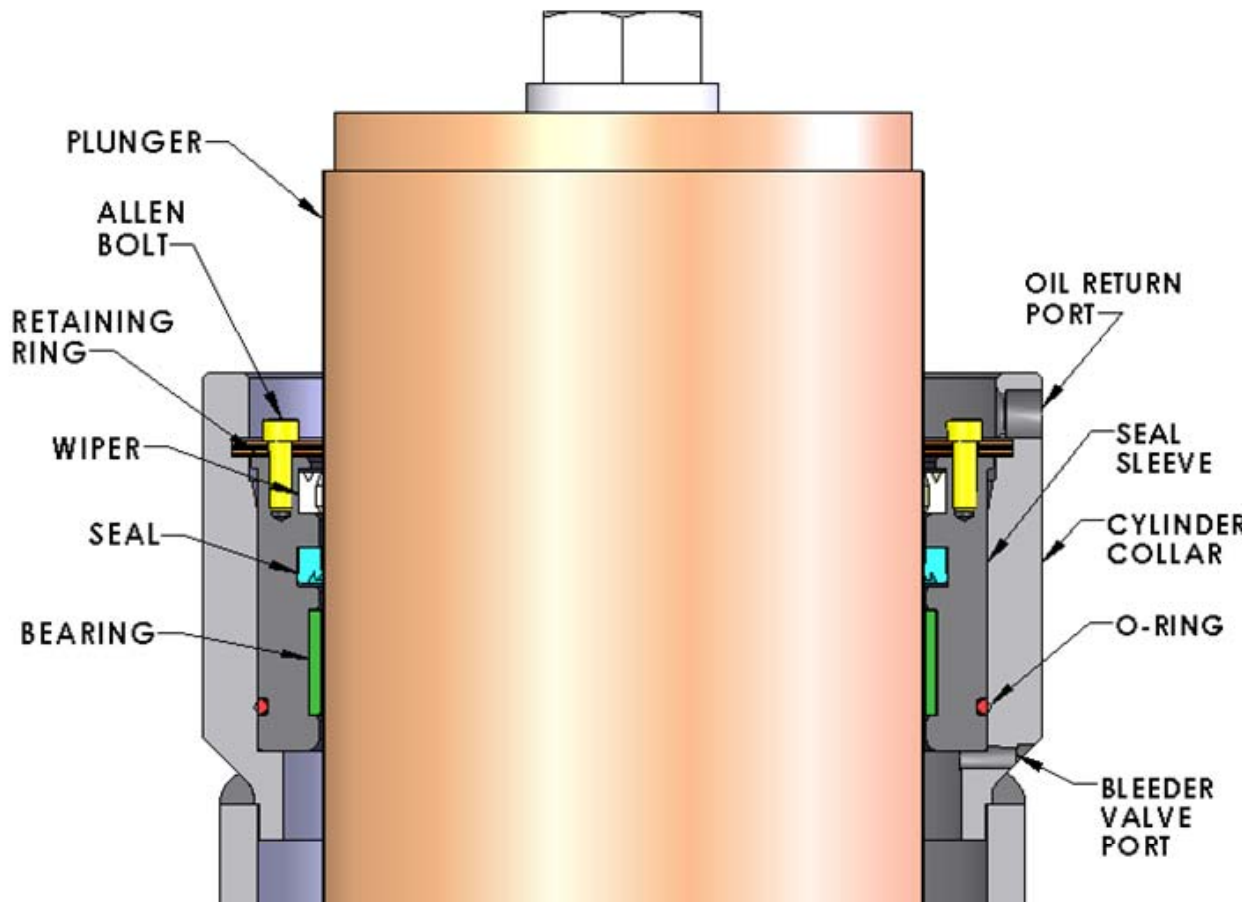




# INGROUND, ROPED, AND HOLELESS JACK SEAL REPLACEMENT



**TYPICAL HYDRAULIC JACK HEAD ASSEMBLY**

### **TOOLS REQUIRED:**

- 1) Container to hold hydraulic fluid.
- 2) Clean rags and protective covers as required.
- 3) Prying tool—If made from a wide-bladed screw driver, file the tip until all sharp edges are rounded.
- 4) Seal housing puller—contact D. L. Martin Company for information on pullers.
- 5) Blocking pipes or timbers.
- 6) Hammer.
- 7) Portable Light.
- 8) Sandpaper (very fine).
- 9) Two Screwdrivers.
- 10) Allen wrench for shoulder bolts.

### **PREPARING THE JOBSITE:**

#### **WARNING**

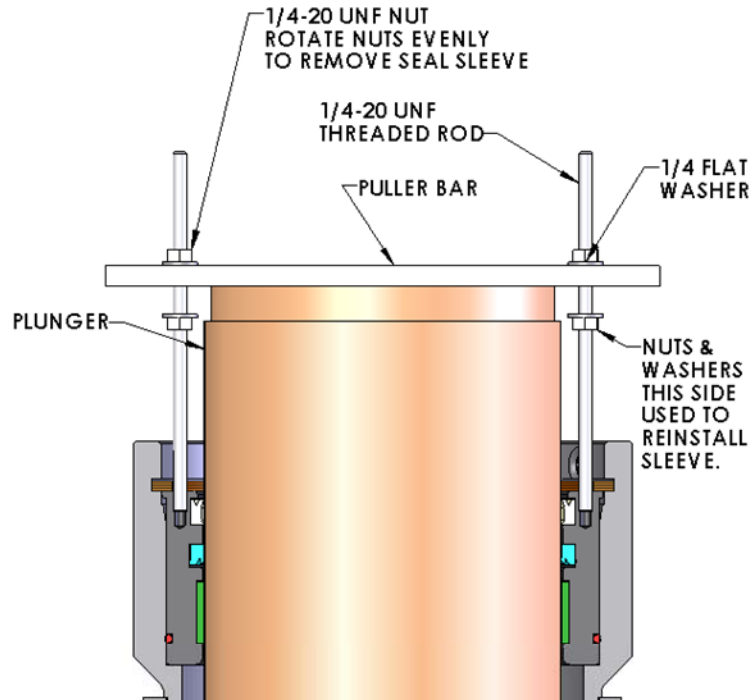
**Use safety equipment, safety barriers, and protective clothing while working on equipment. Failure to use required safety apparatus can result in injury or death.**

- 1) Run car above bottom floor to gain access to the pit. Run car from machine room or have a helper run it on hand control.
- 2) Run the car and inspect plunger for the following:
  - Pits or corrosion—Fill with liquid steel and sand with very fine emery cloth.
  - Plunger joint uneven mating—Polish joint before changing seals.
  - Sharp edges at plunger top—Sand to remove before disassembling jack.
- 3) Position blocking pipes or timbers beneath car to support its weight.
- 4) Disconnect plunger from platen plate and lower all the way.
- 5) **CLOSE** all safety valves. **OPEN** and tag mainline disconnect. Turn pit switch to **OFF**.
- 6) Drain oil from the top of the cylinder through the oil return port. Using rags clean any remaining oil and dirt from the top of the jack.

### **SEAL SLEEVE REMOVAL:**

- 1) Unscrew the bleeder valve and drain oil into container. Do not drop bleeder into jack hole.
- 2) Remove two allen bolts from the seal sleeve.
- 3) Using the notched end of the retaining ring, gently pry the end of the retaining ring out of the cylinder collar groove with one of the screwdrivers. Work the end upwards with the other screwdriver. Remove 4 to 5 inches of the retaining ring out of the cylinder. Retaining ring should slide out easily by turning while pulling it out. Excess force will stretch the retaining ring and require its replacement. Next, pull the retaining ring by hand to remove it completely from the cylinder collar.
- 4) Clean and inspect top of seal sleeve. Note the kind of debris (steel or dirt). Steel particles indicate rubbing that needs to be corrected.
- 5) Make sure the bleeder valve is opened or removed.
- 6) Inspect 1/4-20 UNF threads in seal housing and clean with tap as required.

- 7) Screw 1/4-20 threaded rod into allen bolt tapped holes.
- 8) Place slotted bar across plunger and insert over threaded rods. Attach bar with flat washers and nuts as shown. Snug top nuts down, keeping bar level with seal sleeve.
- 9) Remove seal sleeve by gradually turning both top nuts on the threaded rod.
- 10) Remove o-ring, wiper, seal and bearing. Inspect for softness and cuts.

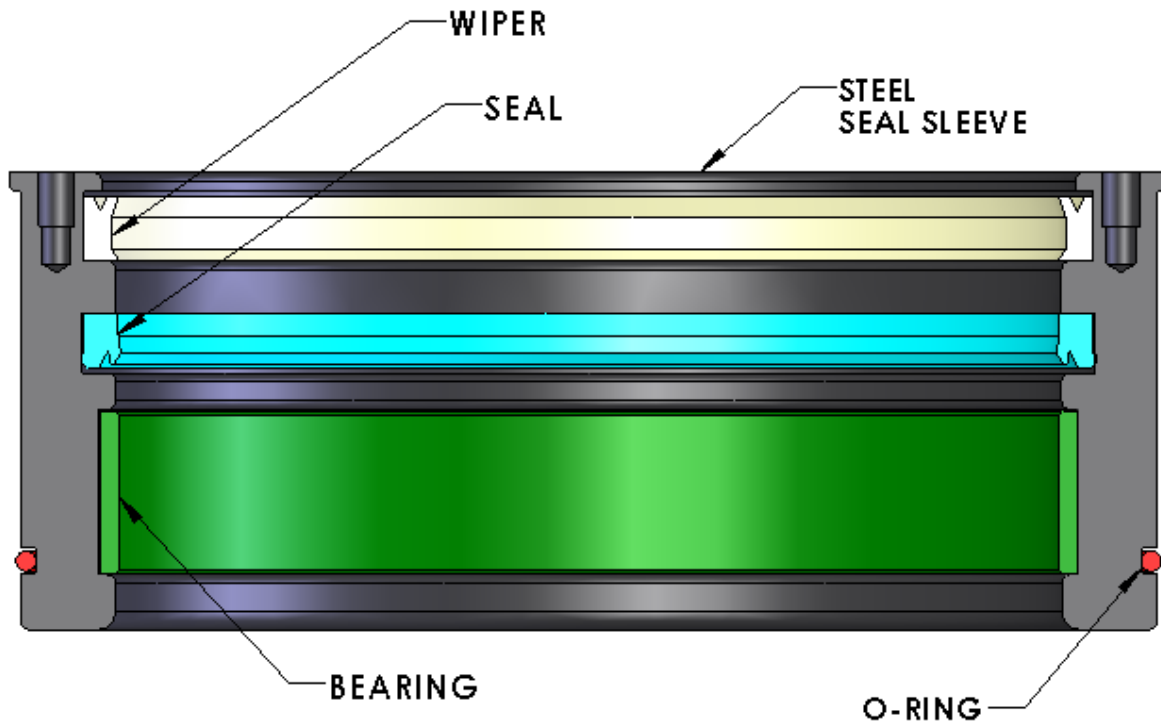


**Random cuts on the inside surfaces are usually caused by the following common problems:**

- Pits or corrosion on the plunger. Fill with liquid steel and sand lightly with very fine emory cloth when jack is returned to service.
  - Uneven plunger joint. Take an emory cloth or scotch-brite pad and using an around circumference motion (never up-and-down) blend in the area 6 to 12 inches above and below the joint.
  - Steel chips caught in the seal sleeve or plunger surface. Clean all parts and thoroughly wipe down plunger surface when jack is returned to service.
  - Steel chips in oil line from construction that have worked their way into the jack. Inspect oil and replace as required.
- 11) Clean seal sleeve grooves and collar with mineral spirits.
  - 12) Install wiper with protruding lip on top. Install seal with protruding lip on the bottom. Install bearing gland in the bottom groove. Install o-ring on outside of sleeve.
  - 13) Check used o-ring for cuts or nicks. If o-ring is damaged remove any burrs or sharp edges inside the cylinder collar using emory paper. Then clean the inside of the collar with a clean rag and mineral spirits.

**SEAL SLEEVE INSTALLATION:**

- 1) If seal sleeve puller was removed, reinstall and tighten nuts on both sides of the slotted bar.
- 2) Position seal sleeve over plunger. Push down on the slotted bar slowly and evenly until seal sleeve bottoms in the cylinder head.
- 3) Install retaining ring. Spread bottom wrap of retaining ring and insert in groove. Work ring in about one turn.
- 4) Install and snug allen bolts.
- 5) Install bleed valve using pipe sealant on threads.

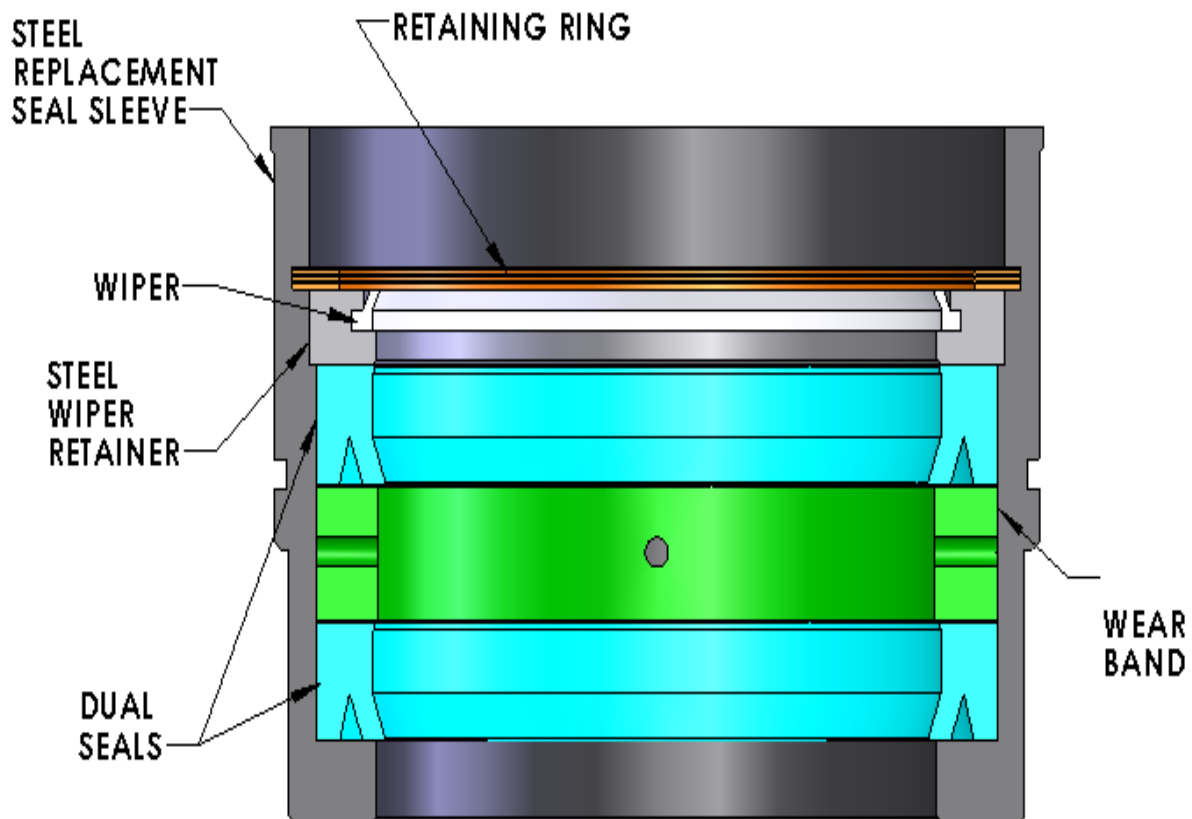


## PROPER SEAL ORIENTATION

### TESTING THE JACK:

- 1) Make sure elevator is on hand control.
- 2) Open all safety valves.
- 3) Close mainline disconnect and set pit switch to **ON**.
- 4) Open bleeder valve about one half turn.
- 5) Jog car on hand control to prebleed air from jack. Close valve when all air is removed.
- 6) Raise jack to platen plate and refasten.
- 7) Remove blocking from pit channel.
- 8) Bleed jack while running car through entire hoistway.
- 9) Check plunger for even oil film while running car through entire hoistway. Remove any debris sticking to the plunger. If jack is multi-piece, check plunger for smooth joints and blend as required.
- 10) Set pit switch to **OFF**.
- 11) Clean oil spills and pit area. Empty overflow bucket. Make sure hose to overflow bucket runs downhill.
- 12) Remove tools, rags, old parts, etc. from pit area.
- 13) Set pit switch to **ON**. Close hoistway door, and run car on automatic.

# SEAL REPLACEMENT- DUAL SEAL SLEEVE



REPLACEMENT SLEEVE  
WITH DUAL SEALS AND LARGER WEAR  
BAND.

Steps to replace seals on this sleeve are the same through the removal of the sleeve from the cylinder collar. Once the sleeve is out of the collar, a second retaining ring inside the sleeve needs to be removed. When this retaining ring is removed, the steel wiper retainer can be slid out of the sleeve. At that point the seals and wear band can be pushed out of the sleeve and the wiper can be popped out of the retainer. Thoroughly clean sleeve and wiper retainer with mineral spirits, inspect for damage and reassemble with new seals, wear band, wiper and o-ring. Install the sleeve and test the jack per previous instructions. **(Dual Seal Sleeve is used on all Roped jack assemblies manufactured after 3-1-07.)**