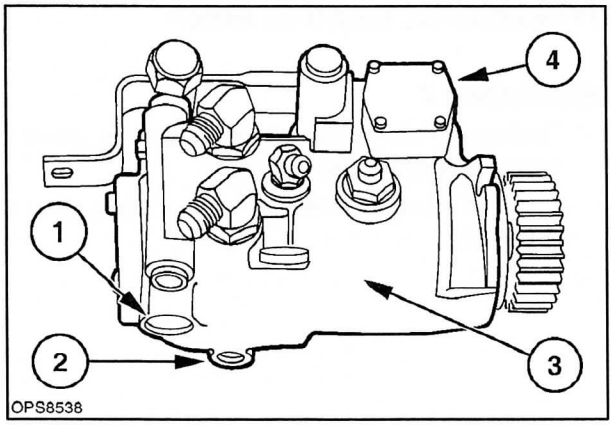
**Op. 29 100 46**

**DISASSEMBLY**

1. Thoroughly clean the complete pump assembly before teardown. Plug all ports so dirt and solvent do not enter the pump.

   The right hand hydrostatic pump consists of these main components; charge pump adaptor assembly, 1, backplate, 2, main pump housing, 3, and servo control assembly, 4.

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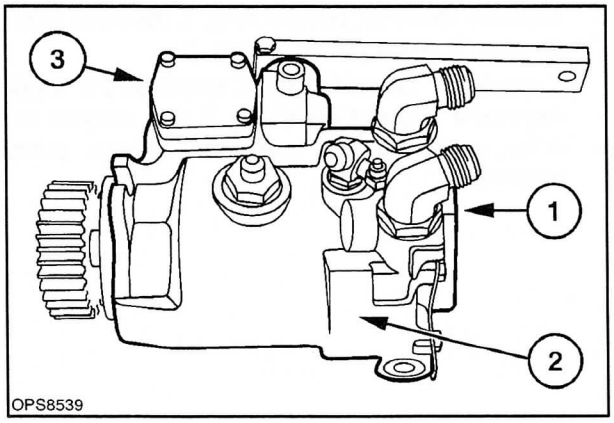
   The left hand hydrostatic pump consists of the backplate, 1, main pump housing, 2, and servo control assembly, 3.

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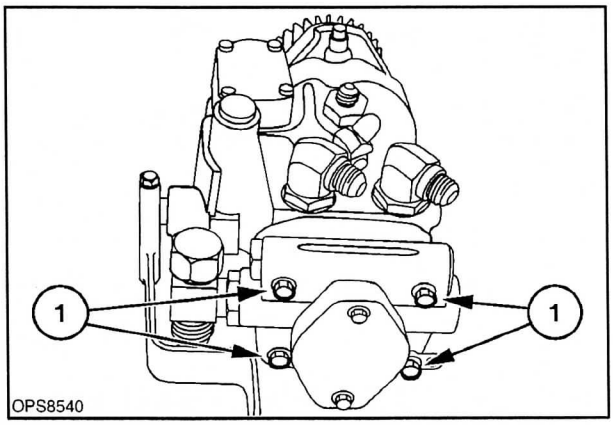
***NOTE:*** *Dealer warranty adjustment requests for any hydrostatic component repair must include the machine model, serial numbers, transmission model number, and date codes. These codes are stamped into the servo control end cap.*

   The following disassembly instructions apply to the right hand hydrostatic pump, with gerotor charge pump. When disassembling the left hand pump, disregard steps concerning the charge pump.

2. To ensure proper reassembly, mark the relationship between the servo control assembly, charge pump adaptor assembly, and main pump housing with a marker or scribe.
3. As the pump is being overhauled, lay the parts on a clean wooden bench top or heavy cardboard to prevent damage to the machined surfaces.
4. Position the pump into a protected jaw vise, clamping onto the outer portion of the mounting flange with the cap screws of the gerotor charge pump facing up.
5. Remove the four cap screws, 1, and tap the housings with a plastic or rubber mallet to separate the two pumps. Lift the charge pump adaptor assembly straight up off the shaft and backplate. The gerotor may stay in the adaptor or on the backplate.

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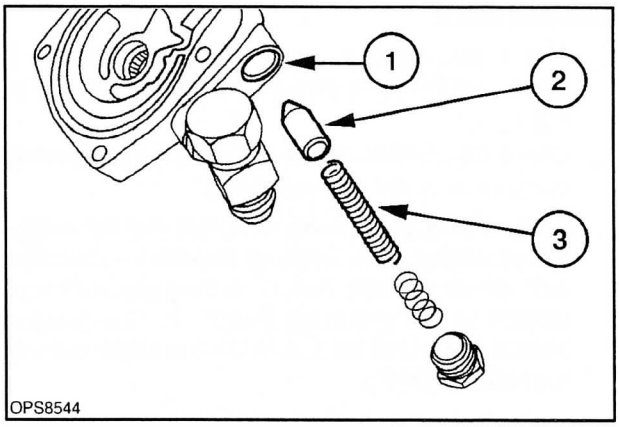
## PARTS INSPECTION

1. Clean all parts with a suitable solvent.
2. Inspect the relief valve seat inside the charge pump adaptor housing at 1. Check to make sure that the seat is smooth and free from burrs or other defects.
3. Inspect the relief valve poppet, 2, for damage and scratches in the seat contact area. Also check to make sure the relief valve spring, 3, is not broken.

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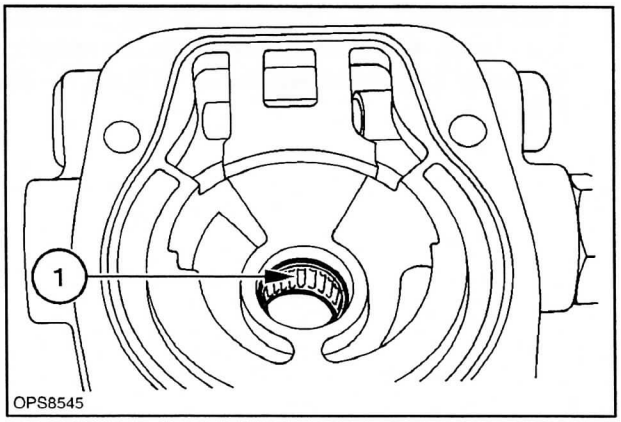
4. The shaft needle bearing assembly, 1, is a press fit in the charge pump adaptor housing and should not be loose. Inspect for looseness. Check for loose or missing needles in the bearing housing.

   Remove bearing assembly if any problems are found.

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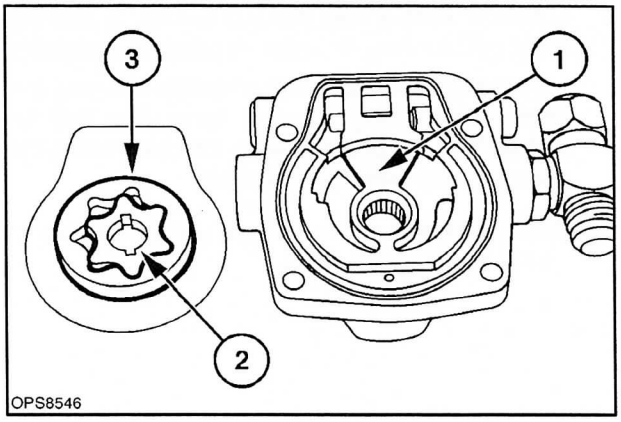
5. Check the gerotor pocket, 1, inside the charge pump adaptor assembly, the inner gerotor ring, 2, and the outer gerotor ring, 3, for scoring and excessive wear.
6. All seals should be replaced upon reassembly.
7. Inspect the drive key for wear or partial shearing.

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**Op. 29 100 46**

## HYDROSTATIC PUMP

### DISASSEMBLY

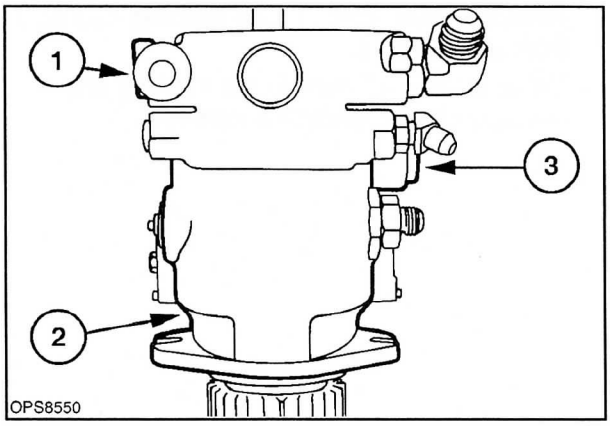
1. Thoroughly clean the complete pump assembly prior to teardown; plug ports so dirt and solvent do not enter the pump.

   After removal of the charge pump adaptor assembly, described earlier, the main pump consists of these main components: charge pump backplate, 1, pump body, 2, and servo control assembly, 3.

   The backplates carry high-pressure oil from the pumps to the motors via high-pressure hoses. The low-pressure return oil from the motors flows back to the pumps through the backplates to complete the closed loop circuit.

***NOTE:*** *Dealer warranty adjustment requests for any hydrostatic component repair must include the machine model, serial numbers, transmission model number, and date codes. These codes are stamped into the servo control end cap.*

2. To ensure proper reassembly, mark the relationship between the backplate, pump body and servo control assembly with a marker or scribe.
3. As the pump is being overhauled, lay the parts on a clean wooden bench top of heavy carboard to prevent damage to the machined surfaces.
4. With the pump still clamped in a protected jaw vise and the charge pump adaptor assembly removed, lift the backplate, 1, straight up and off the shaft and housing.

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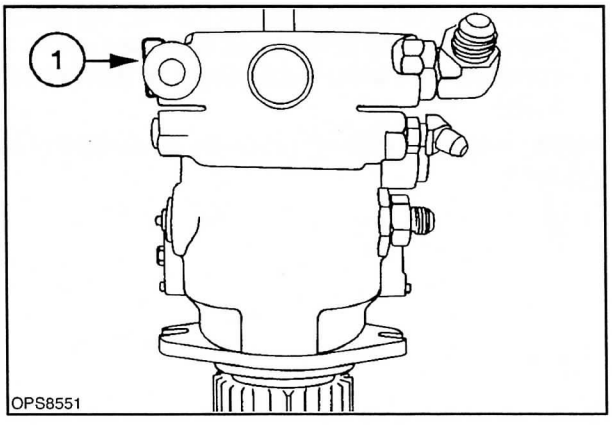


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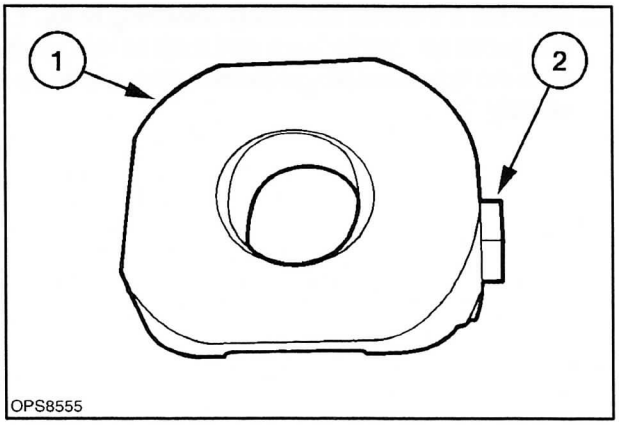
10. Remove the camplate, 1, from the pump housing by tilting the open end of the housing down and guiding the camplate to the opening. With the long end of the shaft pointing down and supporting the pump housing, rotate the camplate until the servo piston follower, 2, aligns with the notch in the housing, and remove.

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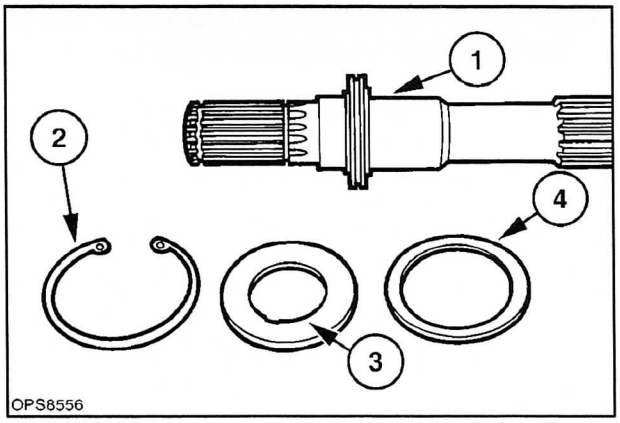
11. The pump drive shaft, 1, can be removed by doing the following:
    a. Remove the large retaining ring, 2.
    b. Use an arbor press or tap the internally splined end of the shaft with a soft faced mallet to remove the drive shaft.
    c. Remove seal, 3, and washer, 4. The seal may be damaged during removal.

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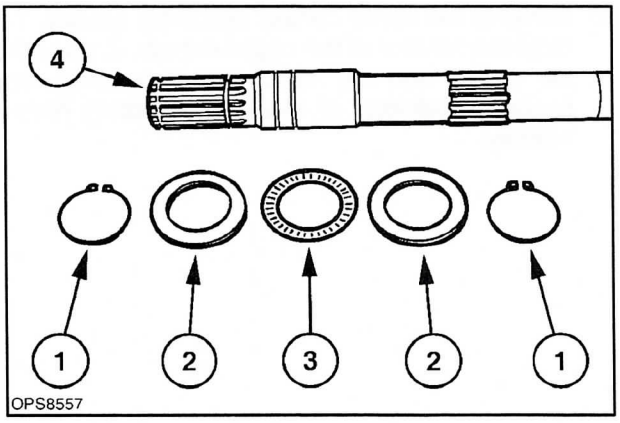
12. Remove both retaining rings, 1, thrust washers, 2, and thrust bearing, 3, from drive shaft, 4.
    Set all drive shaft components aside for inspection.

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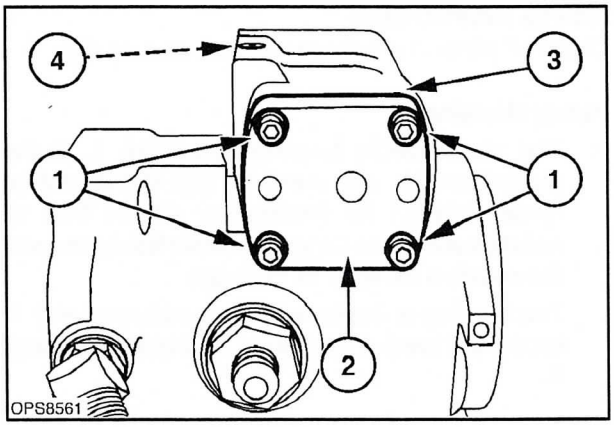
16. Remove the four socket head cap screws and flat washers, 1, from the servo piston cover plate. Remove the cover plate, 2, and gasket, 3. Remove the four remaining socket head cap screws and washers from the cover plate at the opposite end of the servo piston at 4.

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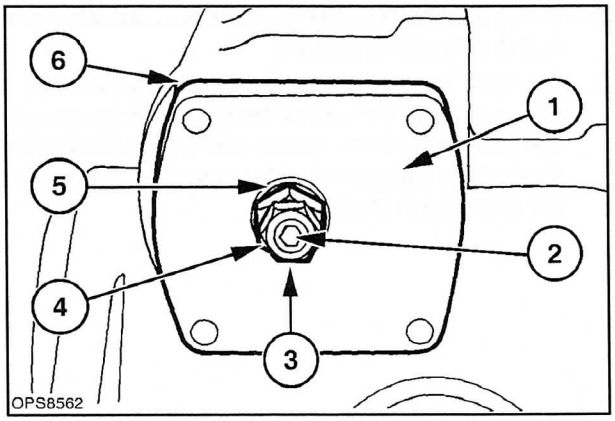
17. To remove the cover plate, 1, from the servo piston bolt, 2, remove jam nut, 3, washer, 4, and seal washer, 5. Hold the servo piston bolt, 2, with an allen wrench and unscrew the cover plate off the bolt. Remove gasket, 6.

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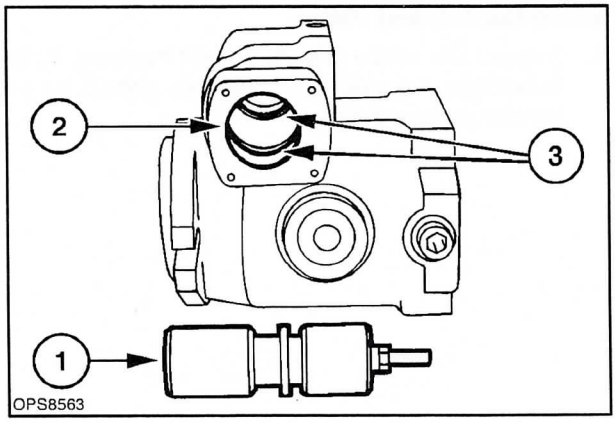
18. Use a wooden hammer handle to push the servo piston, 1, from the pump housing, 2.

    Remove the two servo piston seal assemblies, 3, from the pump housing, 2.

    Disassembly of the servo piston assembly is not required.

**⚠ CAUTION ⚠**

**Do not disassemble the servo piston, personal injury may occur. An internal spring inside the piston assembly is under pressure.**

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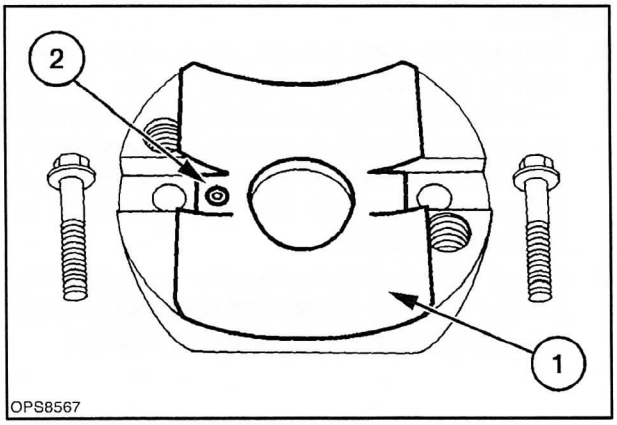
### Cradle Assembly

1. Inspect the cradle bushing, 1, for contamination embedded in the bushing surface from contact with the camplate.
2. If contamination is found, remove button head cap screw, 2, and remove cradle bushing. Replace bushing.
3. If bushing is replaced, torque the button head cap screw to 1.6 - 1.8 N·m (14 - 16 in. lbs).

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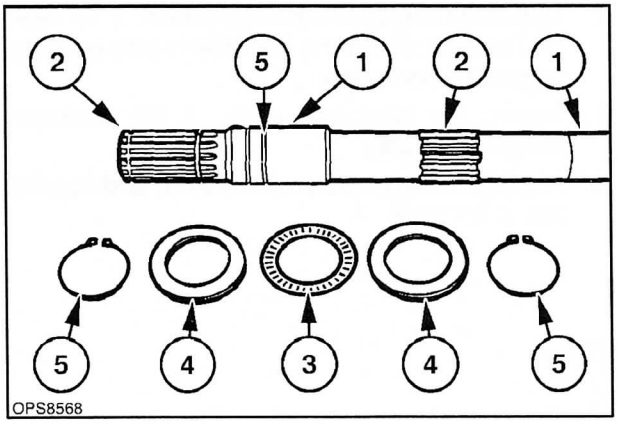
### Pump Shaft

1. Inspect the areas that contact the shaft needle bearings, 1, for wear or a rough bearing surface.
2. Check for a bent or worn shaft.
3. Check the spline areas, 2, for wear or twist.
4. Check the thrust bearing, 3, races, 4, and retaining rings and grooves, 5. If bearing or races show wear or roughness, they must be replaced.

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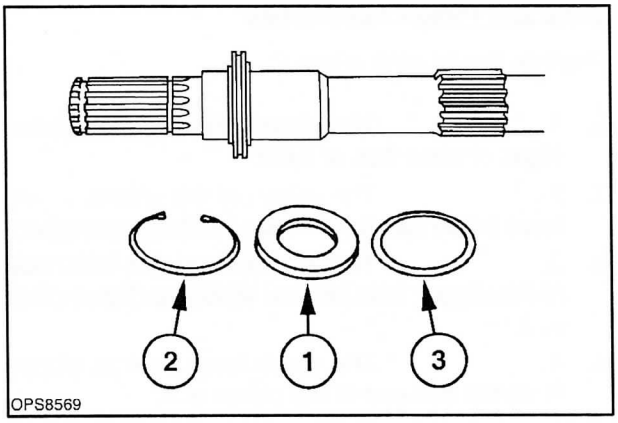
5. Input seal, 1, will be replaced upon reassembly.
6. Inspect retaining ring, 2, and washer, 3.

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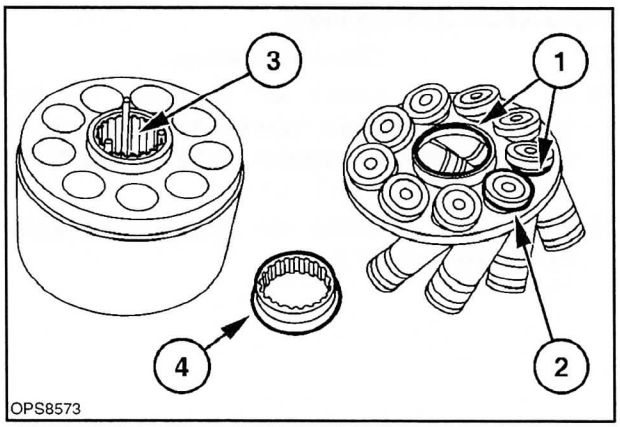
**Shoe Plate**

11. 1. Check for cracks and wear at the holes for the spherical washer and shoes at 1. The shoe plate is only available as part of the rotating group.
12. 2. Check for wear in the area of the slippers, 2. This area should be flat, smooth, and have no grooves.
13. 3. Check the internal splines of the piston block, 3, for wear.

**Spherical Washer (pivot), 4.**

14. 1. Check for wear on the top surface where the shoe plate fits. The spherical washer is only available as part of the rotating group.
15. 2. Check the sides, rolled area for cracks.

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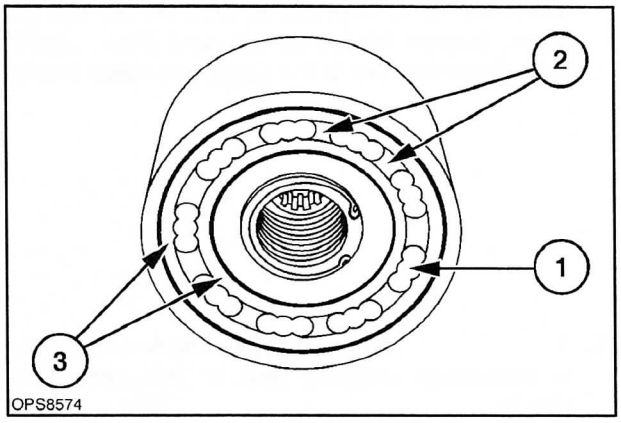
**Rotating Piston Block**

Replace the rotating group if:

16. 1. Cylinders, 1, are worn or scored so the pistons do not move freely.
17. 2. Surface, 2, is worn or grooved or shows metal buildup. Nicks must not extend from the cylinders to the edge of the raised area, 3.
18. 3. The pistons have side play in the piston block.

19.

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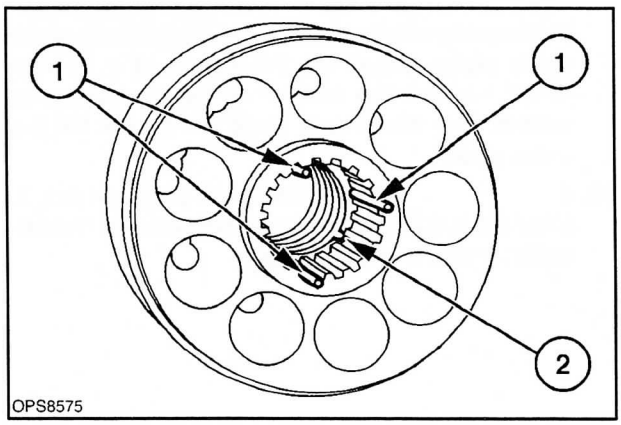
**Loading Pins**

The three block loading pins, 1, are spring loaded and are held in place by the pin keeper (split bushing), 2.

20. 1. The pins should be the same height.
21. 2. The pins should be seated in the special grooves.
22. 3. The head of the pins should be seated between the washer and the block.

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