# Model 7000 Tractor

## ENGINE
- Fuel Injection Pump

## HYDRAULICS

## POWER TRAIN
- Torque Housing
- Transmission and Differential

## ELECTRICAL

## AIR CONDITIONING

## MISCELLANEOUS & OPTIONAL EQUIPMENT

Litho in U.S.A.
**ENGINE**

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7000 Tractor
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1. Remove the cylinder head from the engine.

2. Place cylinder head on blocks; depress the valve spring with a tool similar to the one illustrated and remove the valve spring retainer locks. Release the valve spring depressing tool and remove the valve spring retainer and the valve spring. Place valves in a rack as they are removed from cylinder head so they can be identified and reinstalled in their original locations.

3. Clean the carbon from the valve and valve seats. Clean the carbon from the valve guides using a valve guide cleaning tool (nylon brush) similar to the one illustrated.

**IMPORTANT:** Do not use a metal cutting type cleaning tool.

4. Replace the intake and exhaust valves if they are cracked, bent, burned or the stems are worn. The specified O.D. of the exhaust valve stem is .3705" to .3711" (9.410 to 9.42 mm). The specified I.D. of the exhaust valve guide is .373" (9.47 mm) (ream in field) giving stem-to-guide clearance of .002" to .0025". Replace exhaust valve and/or guide if clearance exceeds .0055" (0.139 mm). The specified O.D. of the intake stem is .3715" to .3722" (9.436 to 9.44 mm). The specified I.D. of the intake valve guide is .373" (9.47 mm) (ream in field) giving a stem-to-guide clearance of .001" to .0015" (0.02 to 0.038 mm). Replace intack valve and/or guide if clearance exceeds .0035" (0.088).

**NOTE:** Valve guides in new production and new factory service heads do not require reaming in the field. They are factory bearingized to .3735" to .374" (9.486 to 9.49 mm).

(Continued on next page)
ENGINE

REMOVING CYLINDER SLEEVE

1. Cylinder Sleeve Removal Tool
2. Cylinder Sleeve
3. Puller Rod
4. Slide Hammer
5. Top Shoe Assembly
6. Puller Shoe
7. Shoe Centering Cone

3. Remove cylinder sleeves using removal tool as shown in illustration.

4. Remove all dirt, carbon and oil from cylinder sleeves and from the machined recess and bore in cylinder block. Replace sleeves if scored or cracked.

CYLINDER SLEEVE INSTALLATION

1. Thoroughly clean cylinder sleeve and the bore in cylinder block. Make certain bottom surface of flange on cylinder sleeve and the counterbore in cylinder block are clean and free from nicks or burrs. Before installing packing rings on sleeve, insert sleeve into bore of cylinder block to make sure sleeve can be pushed down into place and turned in the bore by hand pressure. If the sleeve cannot be inserted and turned in the above manner, more cleaning is necessary.

2. Check the out-of-square relationship of the cylinder sleeve counterbore to the center line of the cylinder using a special sleeve tool with an attached dial indicator. Rotate the sleeve with the contact point of the dial indicator, contacting the bottom of the counterbore as shown in illustration. Total indicator reading should not exceed .002” (0.05 mm). If dial indicator reading exceeds the specified limit, reworking of the counterbore is necessary (refer to “Cylinder Sleeve Reseating”). The special sleeve tool is made from a new cylinder sleeve. The sleeve is machined as follows to assure proper relationship between the lower surface of the sleeve flange and the sleeve center line.

a. Place the flange end of a new sleeve in the chuck of a lathe.

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Litho in U.S.A.
ASSEMBLE PUMP - DUAL

All mating surfaces must be clean and smooth. Place a preload seal (Buna rubber) at the bottom of groove in the body section (mounting end). Install the K-Lon back-up ring on top of the rubber seal. If the die ejector marks are visible in the K-Lon material, put them downward or next to the rubber seal.

Install the K-Lon wear plate seal in the cavity for wear plate. Install the wear plate (0.093" - 0.095" thick) (2.36 - 2.41 mm) within the K-Lon seal so that the brass side will be next to the pump gears and the diamond-shaped opening at the suction side of pump.

Install the Traction Booster gear plate (0.1511" to 0.1516") (3.838 to 3.850 mm) in its original position (check marks). If a new gear plate is being installed, make sure the surfaces are smooth and free of nicks or burrs. Use the shorter dowel pins for locating the plate to the body section. Place the pump gear (0.1506" - 0.1508" thick) (3.823 - 3.830 mm) with the round hole in the drive shaft position. Place the gear with the splined hole in the idler shaft position.

Assemble the sealing rings and wear plate in the center bearing section in the same manner as for the body section or mounting end. Refer to scribe mark on pump sections and install the bearing plate over dowel pins and next to the gear plate. Assemble the sealing rings and wear plate in the opposite side of bearing plate.

NOTE: Bearings are offset in this plate. The plate must be installed with the bearings next to the large gear section.

Install the gear plate (0.9011" - 0.9016" thick) (22.888 - 22.891 mm) to the bearing plate, using the dowel pins, 1-49/64" long. Install the drive shaft with gear in the drive shaft position so that the splined end extends out through the body section. Install the idler shaft with gear in the idler shaft position. These pump gears are 0.9005" - 0.9008" (22.873 - 22.880 mm) thick.

Install flow divider in bore of end cover with four 0.113" (2.87 mm) diameter holes and spring toward the primary outlet. Assemble the power steering relief valve poppet and spring and install in bore; then install spring guide, shim(s) and o-ring caps.

NOTE: Bearings are offset in this plate. The plate must be installed with the bearings next to the large gear section.