Section

1210

GENERAL SPECIFICATIONS

2090 Tractors

Written In *Clear And Simple English*

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CASE CORPORATION

Rac 8-20020

Printed in U.S.A.
August, 1978

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STEERING SYSTEM SPECIFICATION DETAILS

Steering Axle

	U.S. Value	Metric Value
Front Wheel Toe-In	1/8 to 1/2″	3.17 to 12.7 mm
Front Wheel Bearing Adjustment Interval	1000 hours	

Steering Column

Tilt Latch Return Spring:

Total Coils	9	
Spring Outside Diameter	0.88″	22.35 mm
Free Length	1.80″	45.72 mm
Compress Spring	1.00″	25.40 mm
At	45.6 lbs.	203 N

Tilt Column Return Spring:

Total Coils	10.5	
Spring Outside Diameter	1.38″	35.05 mm
Free Length	2.90″	73.66 mm
Compress Spring	1.00″	25.40 mm
At	35.5 lbs.	158 N

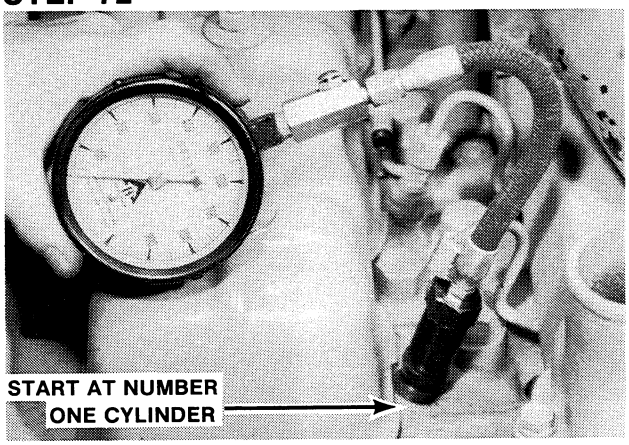
Steering Pump

Vane Spring Free Height	0.080 to 0.100″	2.032 to 2.540 mm
Rotor to Stator Clearance	0.007″ Maximum	0.1778 mm
Input Shaft Thrust Washer Thickness	0.067″	1.702 mm
	0.073″	1.854 mm
	0.079″	2.007 mm

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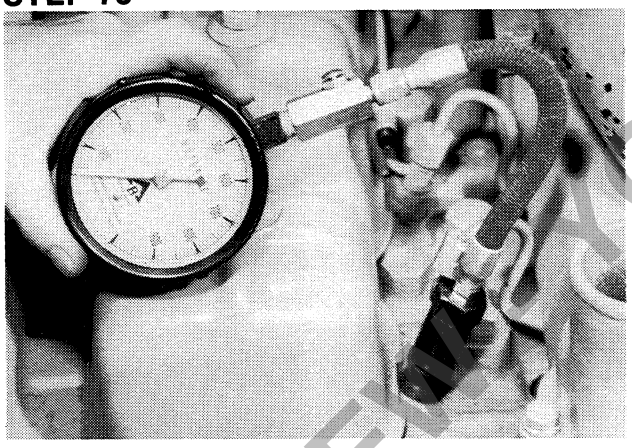
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STEP 72



When checking the compression, using the crank method, start at the Number One cylinder and continue down the line (Number 2, 3, 4 etc.). Then, check again the Number One cylinder after finishing the last cylinder, because compression can change because of a weak battery.

STEP 73

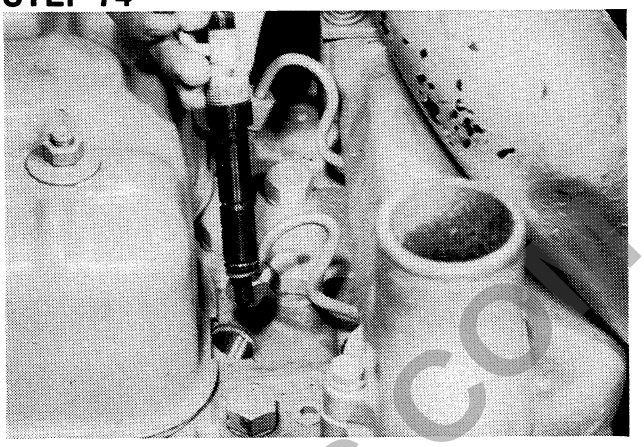


It is very important that all cylinder pressures be approximately the same. See the chart under Step 71 for permitted compression pressure changes.

More than normal compression is an indication of carbon deposits. Below normal compression is an indication of a valve that leaks or too much ring clearance.

NOTE: *To make an easy test when a compression leak is shown, put oil in the cylinder and check the compression again. If the pressure goes up to near normal, then the compression loss is past the rings. Very little change in compression is an indication of leakage past the valves.*

STEP 74

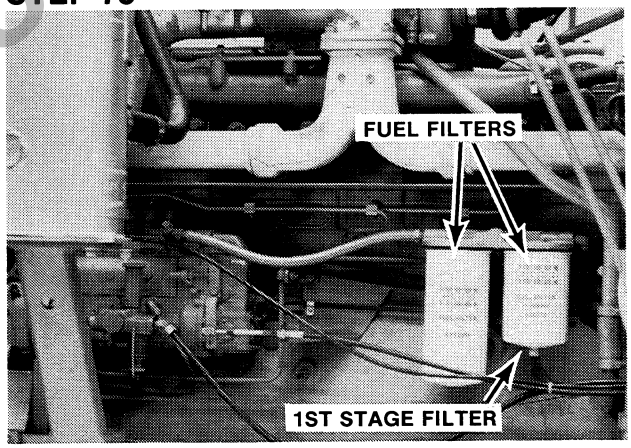


Install the fuel injectors and new gaskets. See Section 3213 of the Service Manual for installation.

IMPORTANT: *Make sure that the nozzle gasket that was used with the compression gauge adapter is not left in the nozzle bore.*

Cleaning The Fuel Filters

STEP 75



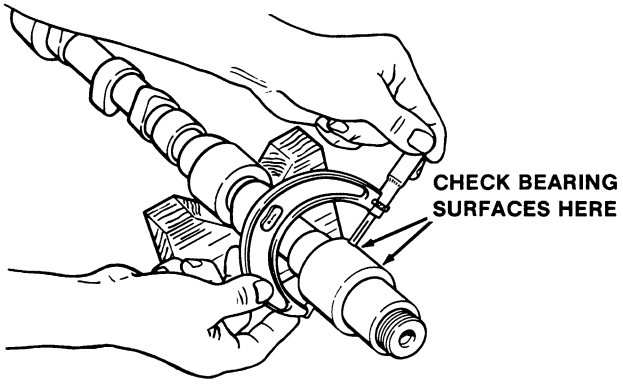
See Section 3210 of the Service Manual to clean and service the fuel filters and system.

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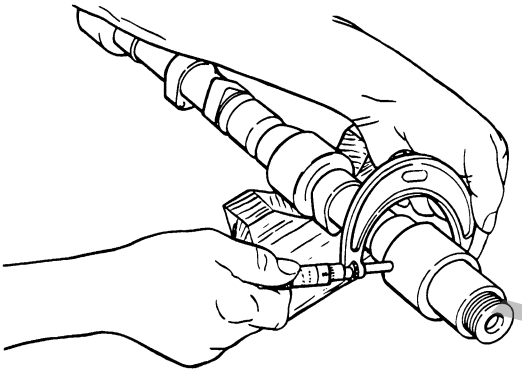
CAMSHAFT ASSEMBLY AND INSTALLATION

STEP 219



Measure the front and rear of each bearing surface on the camshaft. Use a micrometer.

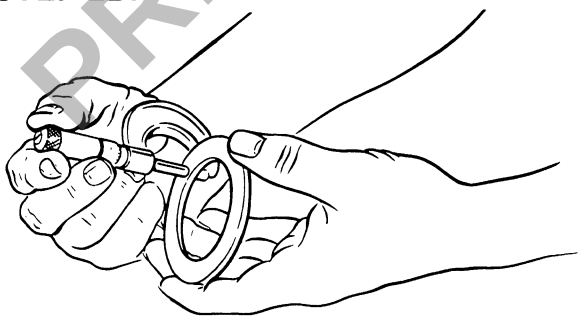
STEP 220



Each bearing surface must be measured in four positions. Measure the front and rear bearing surfaces again, 90 degrees from the first measurement.

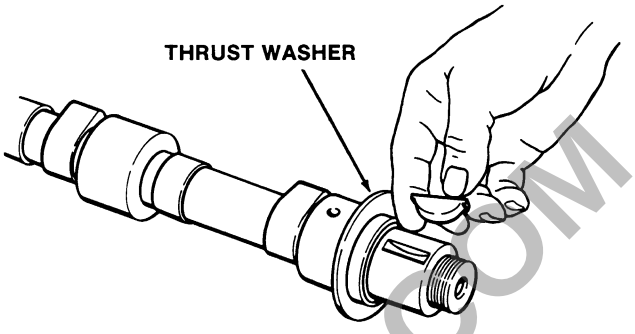
NOTE: *Replace the camshaft if the outside diameter of any bearing surface is less than 2.2455" (57.0357 mm).*

STEP 221



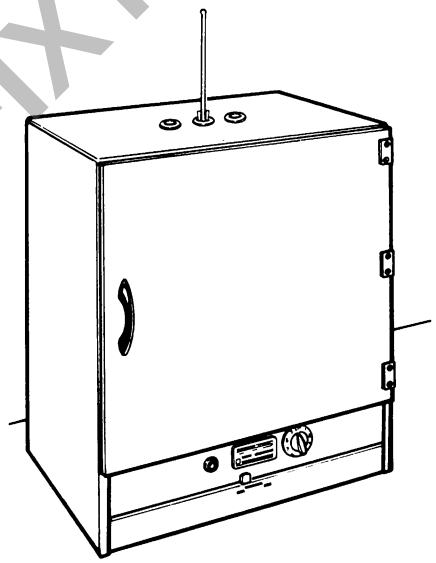
Check the thickness of the thrust washer. Replace the thrust washer if the thickness is less than 0.1215" (3.0861 mm).

STEP 222



Clean the camshaft completely. Clean the oil holes with air under pressure. Put the thrust washer on the camshaft and install the shaft key.

STEP 223

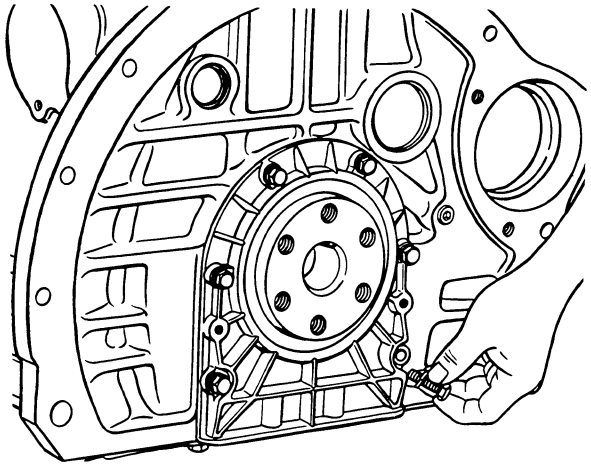


Heat the camshaft gears. Use a bearing heater oven (CAS-10133).

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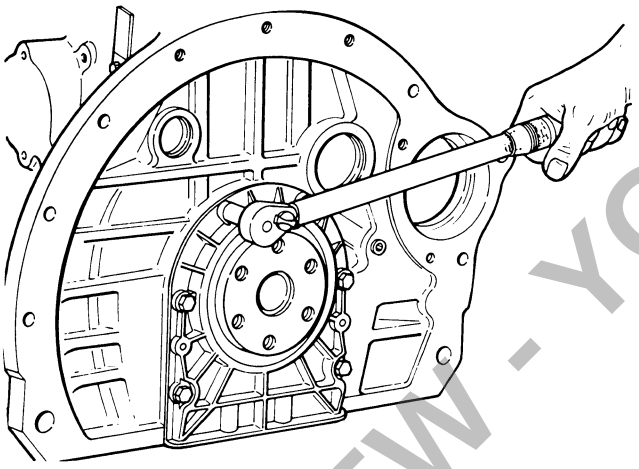
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STEP 143



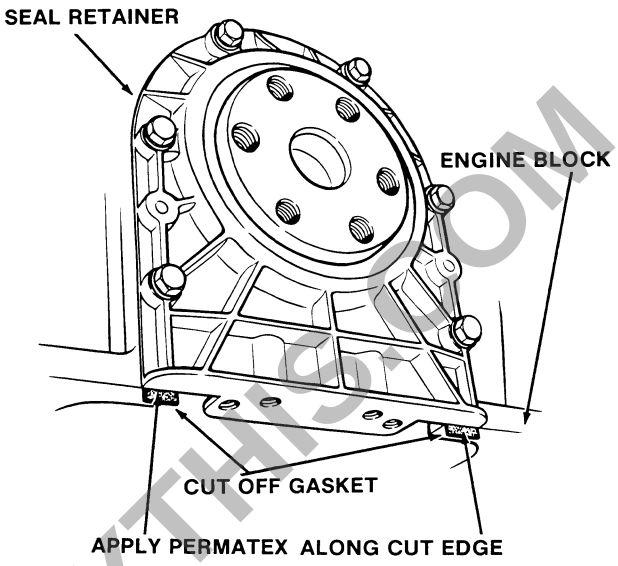
Install the retaining bolts. Remove the locating tool.

STEP 144



Tighten the bolts to a torque of 35 to 42 ft. lbs. (48 to 57 Nm)(4.8 to 5.7 kgm).

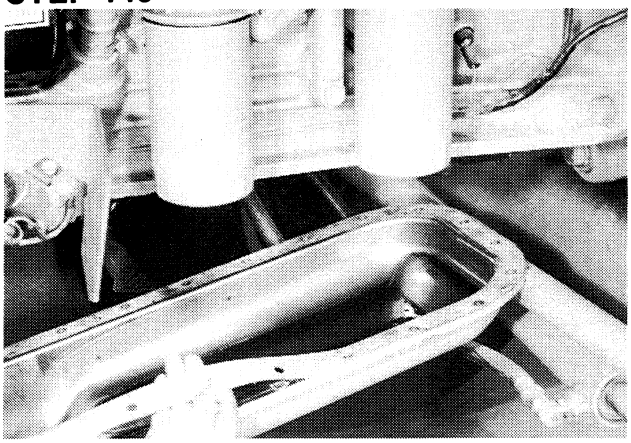
STEP 145



The length of the gasket for the rear oil seal retainer has been increased 1/8" (3.2 mm) to make sure that there is correct sealing between the engine block and oil pan rails. The gasket will extend below the bottom flange of the seal retainer. The gasket must be cut off. Use a sharp instrument.

IMPORTANT: *The gasket must be even with the engine block and the bottom flange of the seal retainer. Put Permatex Number 2 along the cut edge of the gasket before installing the oil pan.*

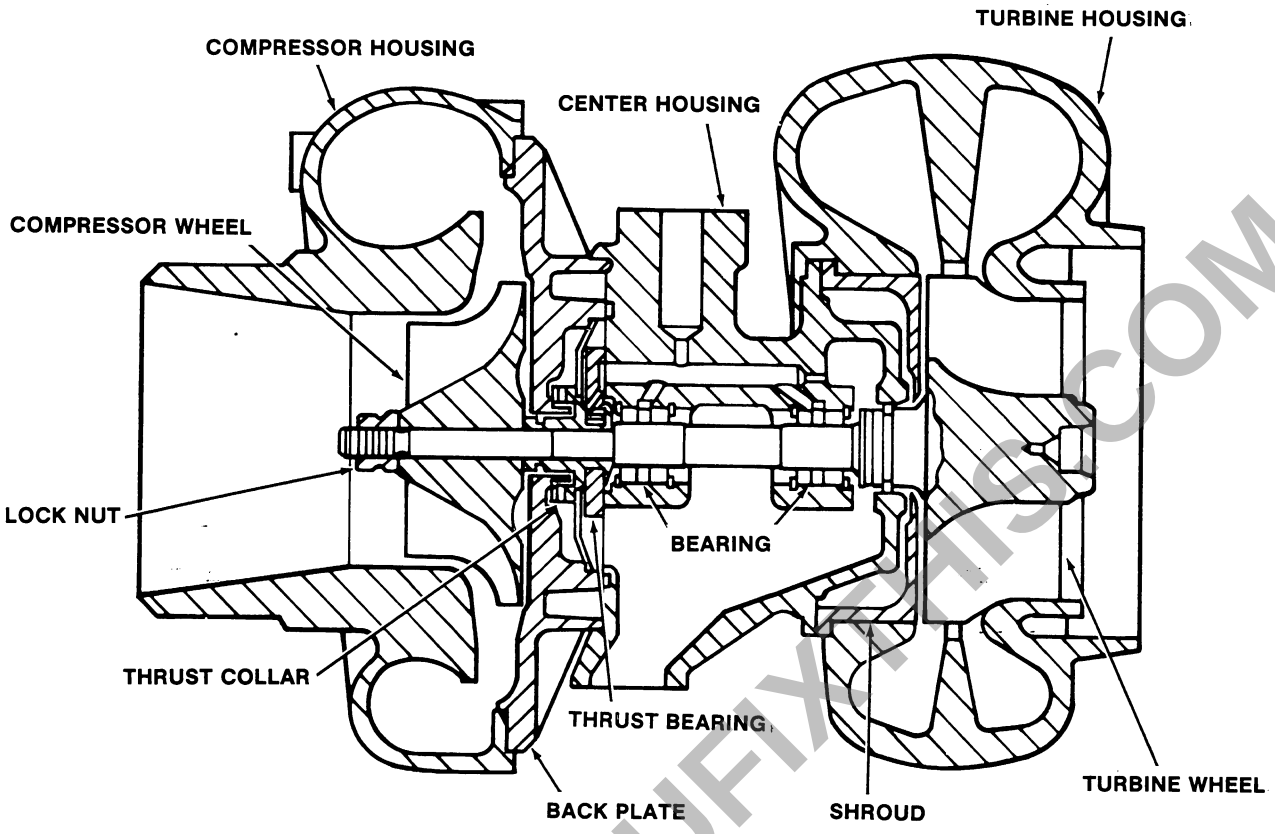
STEP 146



Install the engine oil pan and gasket. See Section 2245 in this Service Manual for installation.

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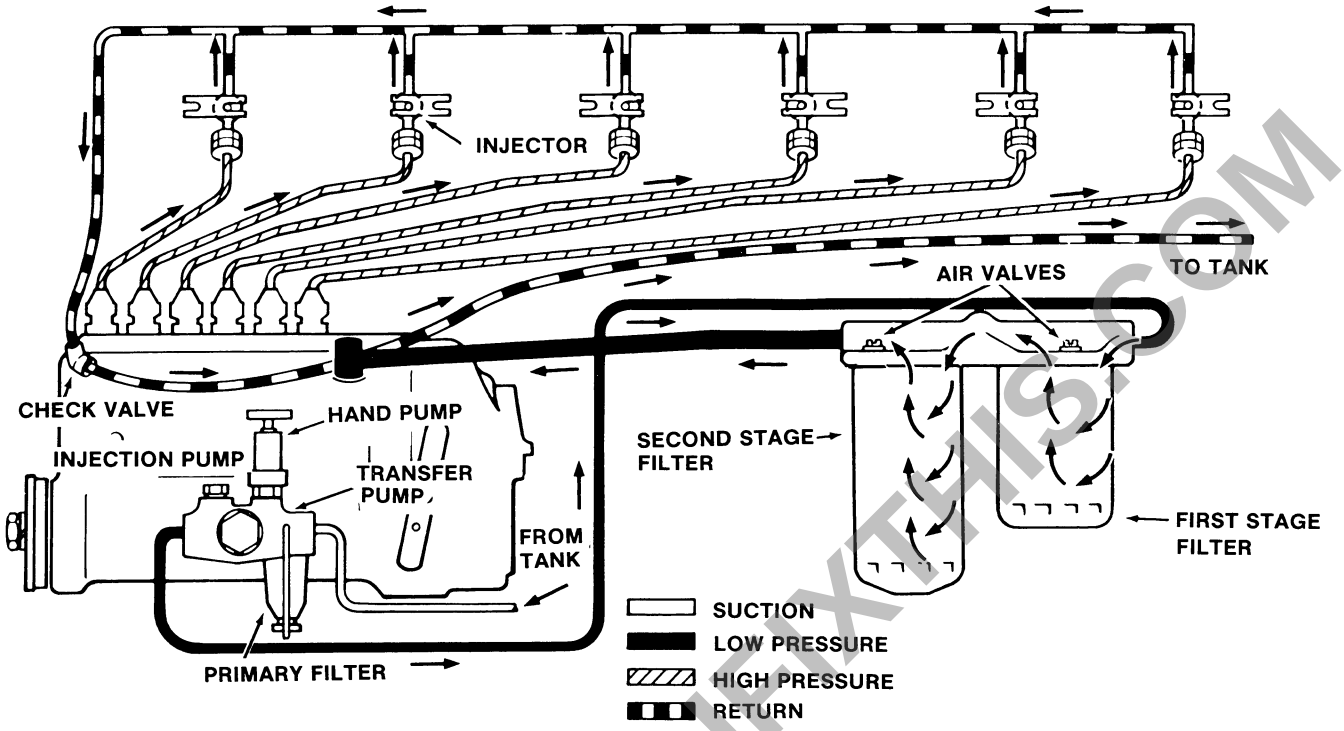


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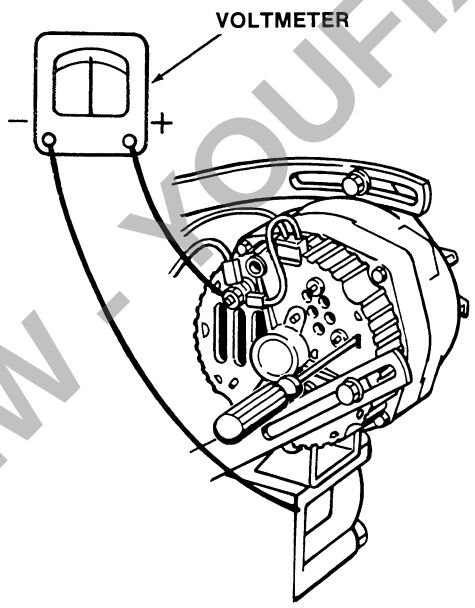
FUEL SYSTEM FLOW



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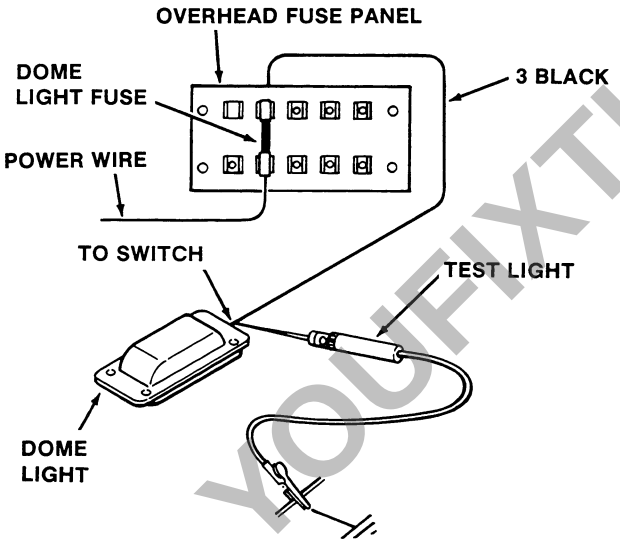
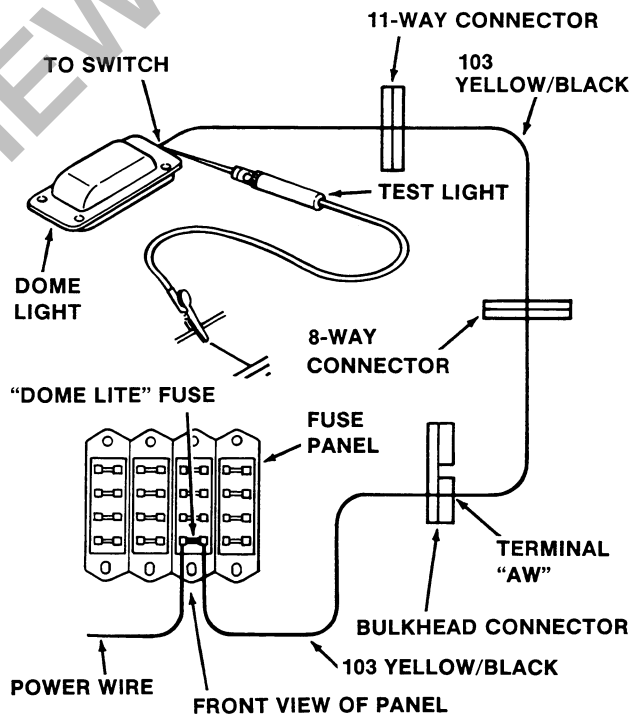
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STEP	PROCEDURE	RESULT
(7B) VOLTAGE REGULATOR BYPASS TEST:	a. Connect a voltmeter as in Step 7A. b. Start and run the tractor engine at 1500 RPM. c. Install a small screwdriver into the test hole in the rear of the alternator approximately 5/8" (15.9 mm) and make contact with the small tab on the brush holder assembly inside of the alternator with the tip of the screwdriver. Make sure that the shaft of the screwdriver is in contact with the side of the test hole (alternator housing). This will electrically connect the rotor coils to ground. **IMPORTANT:** *Do not install the screwdriver more than 1" into the back of the alternator.* d. Check the voltage reading on the voltmeter.  	a. Voltage reads above 15 volts: Replace voltage regulator and Go back to Step 7A b. Voltage reads less than 15 volts: Continue to Step 7C
(7C) Causes for less than a 15 volt reading in Step 7B: 1. "BAT" terminal on the back of the alternator loose. 2. Bad diode trio. 3. Bad starter coil assembly. 4. Contact rings on rotor coil dirty. 5. Bad rotor coil. 6. Brushes are worn too much or broken. 7. Bad rectifier bridge assembly.		Repair alternator as necessary. See Section 4240 and Go back to Step 7A

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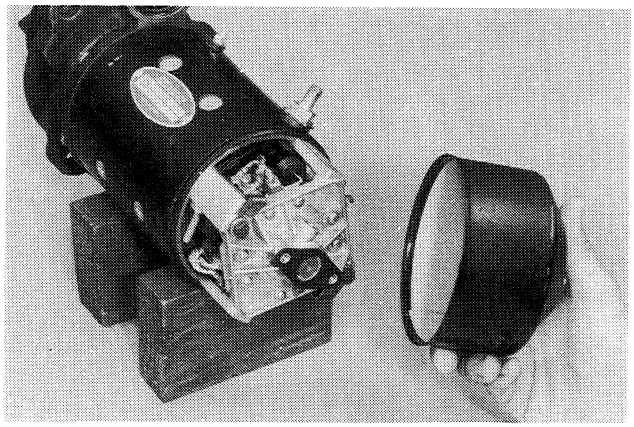
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STEP	PROCEDURE	RESULT
(6D) Checking power to dome light:	a. Make sure that there is power through the fuse. See Step 6B. b. Connect one wire from a 12 volt test light to a good ground. c. Connect the other test light wire to the power wire connector on the dome light. Check for test light illumination. **TRACTORS BEFORE P.I.N. 8841100**  **WIRING AFTER TRACTOR P.I.N. 8841100**  	a. Test light illuminates: Power circuit good, Continue to Step 6E b. Test light does not illuminate: Use the circuit diamgrams below to help find the open circuit between the fuse panel and the dome light. Repair as necessary and Go back to Step 6A

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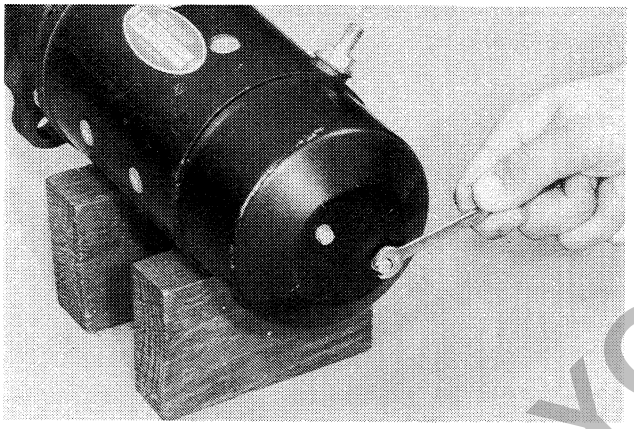
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STEP 109



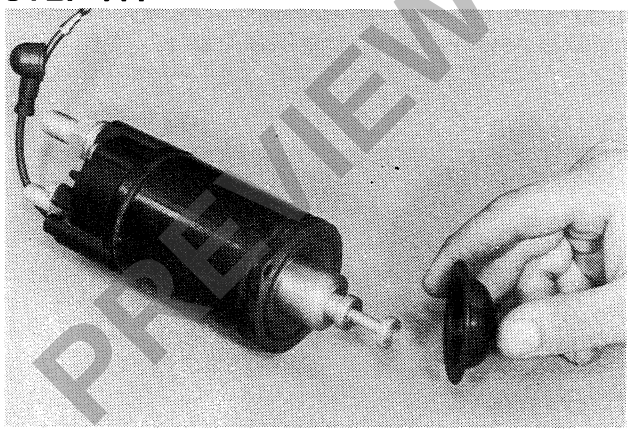
Install the end cover on the field frame assembly.

STEP 110



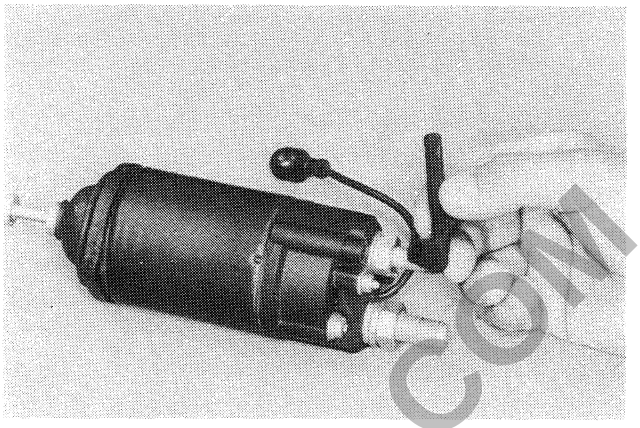
Install the end cover screws.

STEP 111



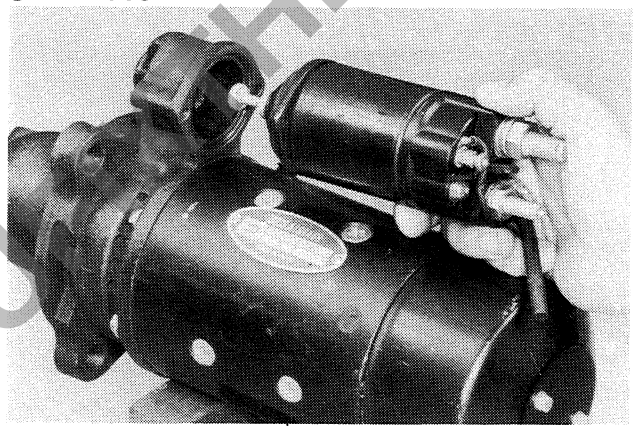
Install the cover on the magnetic switch.

STEP 112



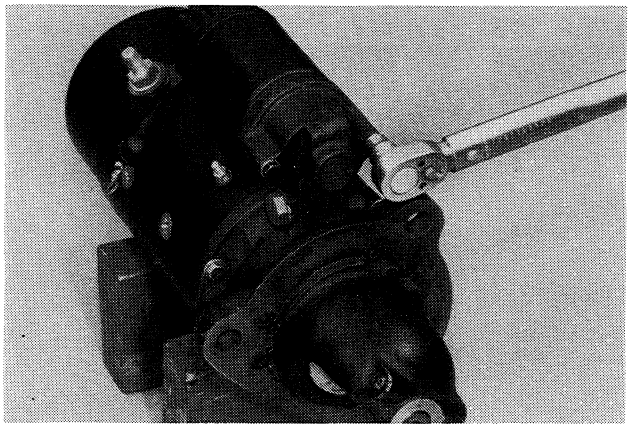
Install the drain tube on the magnetic switch.

STEP 113



Install the magnetic switch assembly in the center bearing housing.

STEP 114



Tighten the magnetic switch screws to a torque of 58 to 93 lb in (6.6 to 10.5 Nm)(0.66 to 1.05 kgm).

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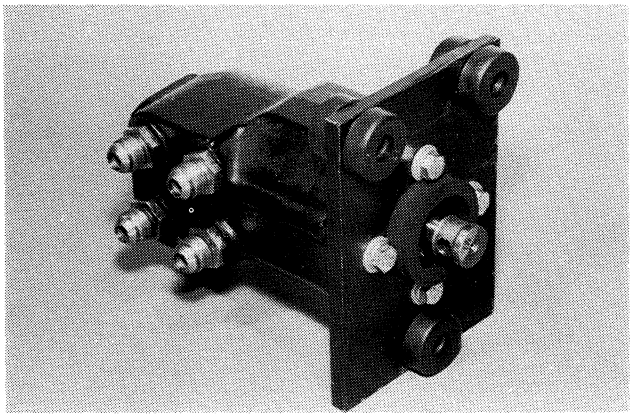
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STEERING PUMP

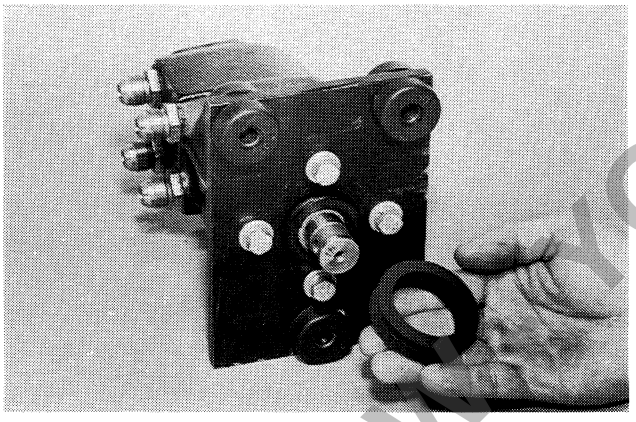
Disassembly

STEP 1



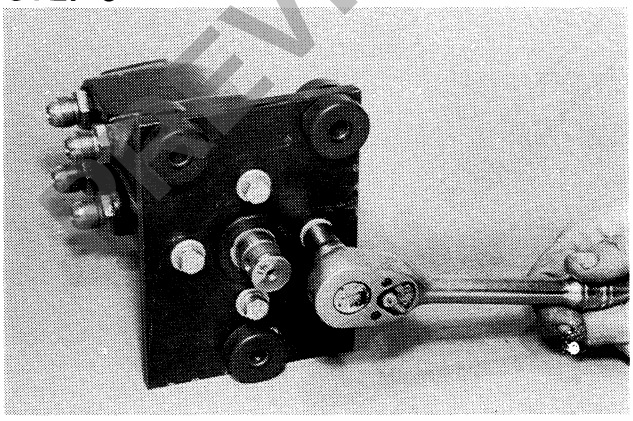
Put the steering pump assembly on a clean work bench.

STEP 2



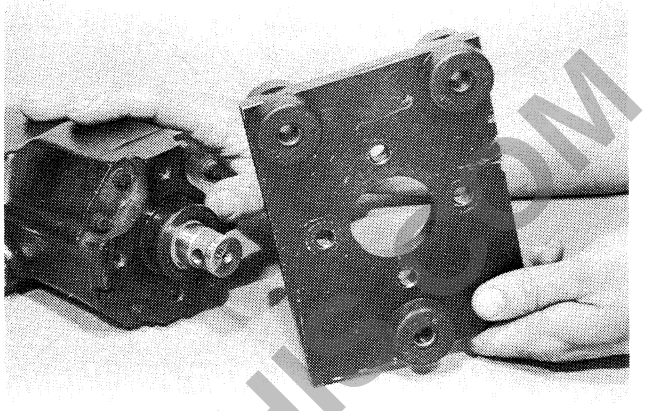
Remove the dirt seal from the mounting plate.

STEP 3



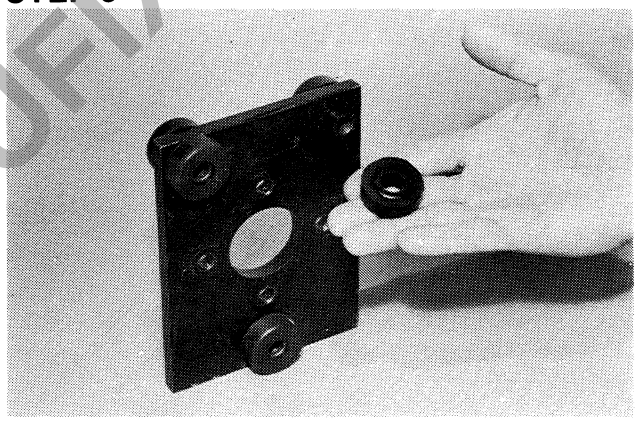
Remove the bolts that connect the mounting plate to the steering pump.

STEP 4



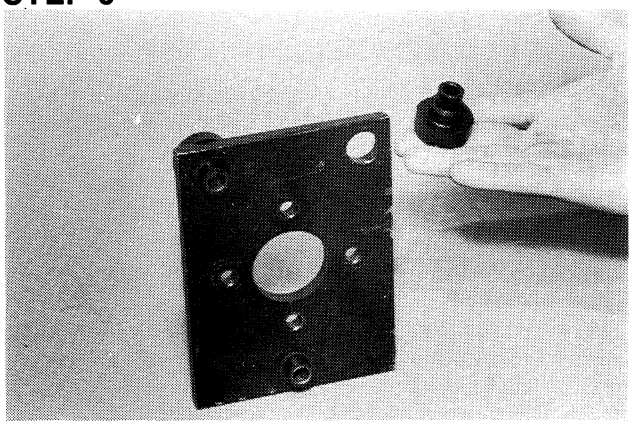
Remove the mounting plate from the steering pump.

STEP 5



Remove the grommets from one side of the mounting plate.

STEP 6

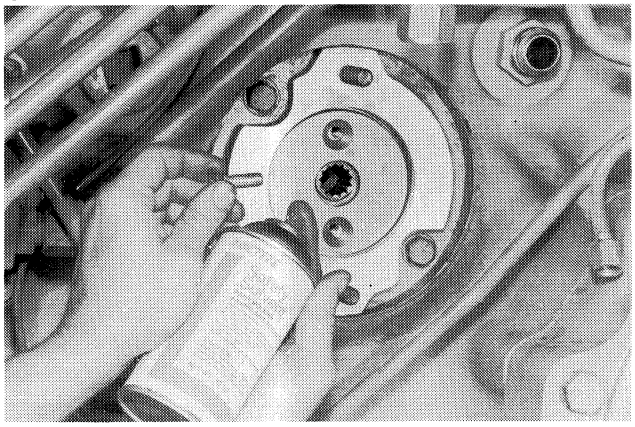


Remove the grommets from the other side of the mounting plate.

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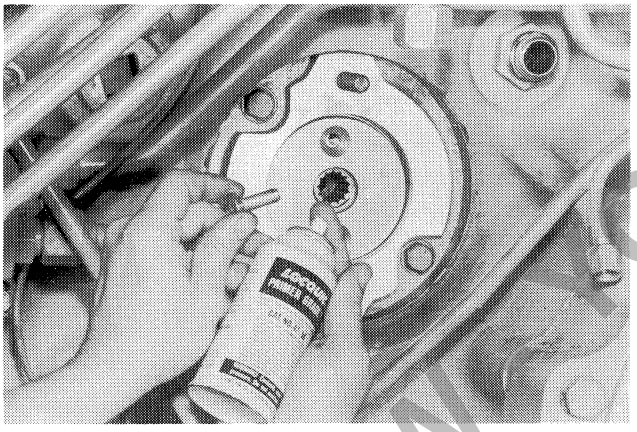
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STEP 37



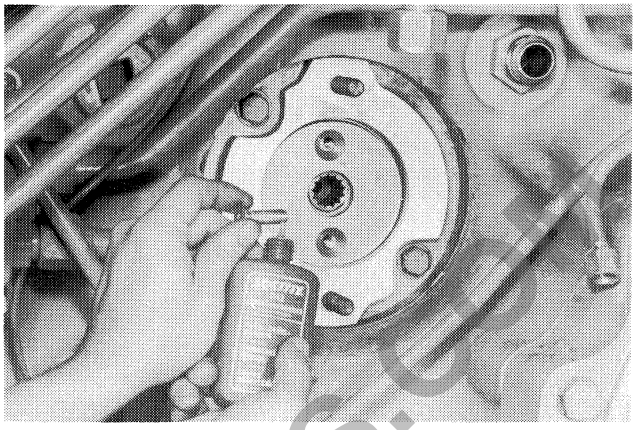
After the correct adjustments have been made in Step 36, remove the mounting screws for the retainer plate. Clean the screws with Loctite safety solvent, Case part number B17430.

STEP 38



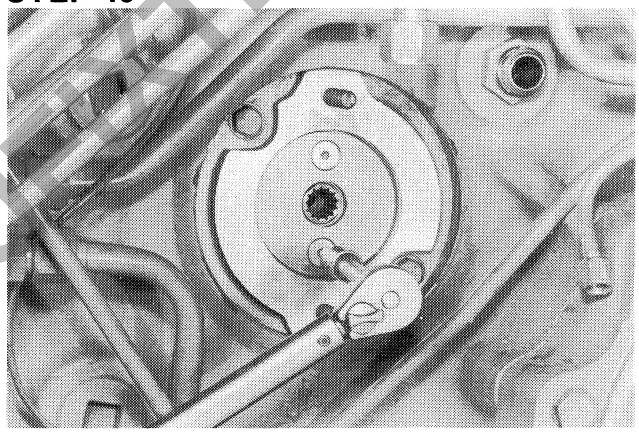
Put Loctite Primer T, Case part number B17429, on the threads of the retainer plate screws. Permit the primer to dry completely before doing the next step.

STEP 39



Put Loctite Number 242, Case Part Number B17422 on the threads of the retainer plate screws.

STEP 40



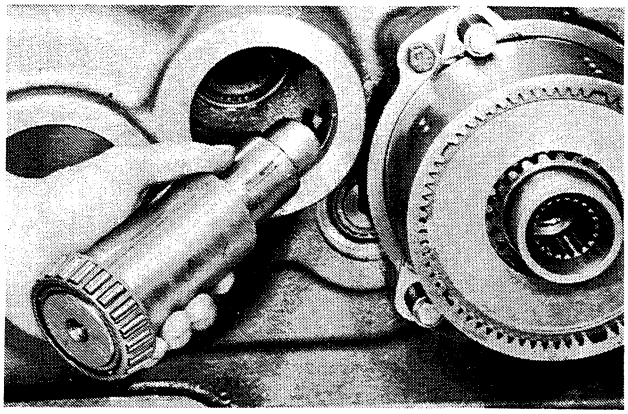
Install and tighten the retainer plate screws to a torque of 25 to 30 lb ft (34 to 41 Nm) (3.4 to 4.1 kgm).

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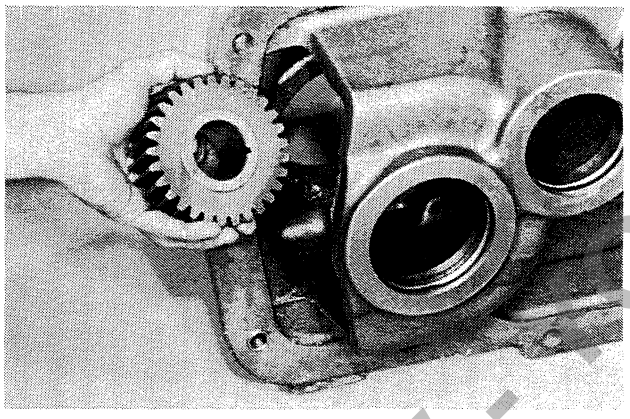
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STEP 36



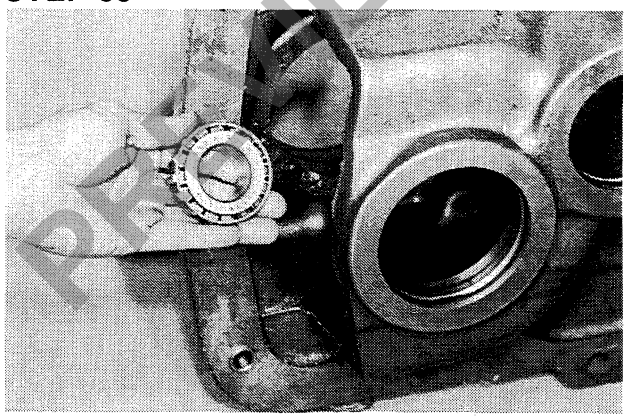
Remove the lower idler shaft from the housing. The idler gear and rear bearing cone will drop off the shaft inside the housing.

STEP 37



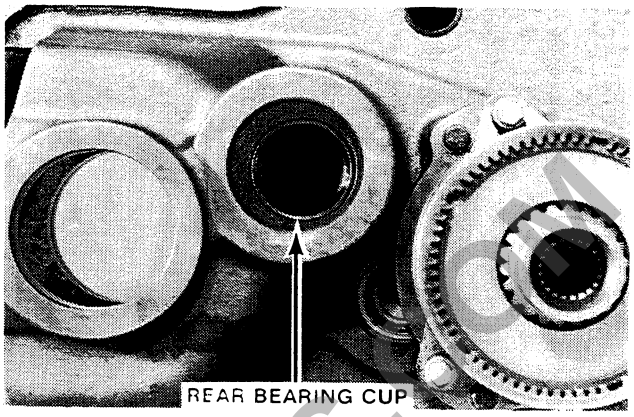
Remove the lower idler gear from the PTO housing.

STEP 38



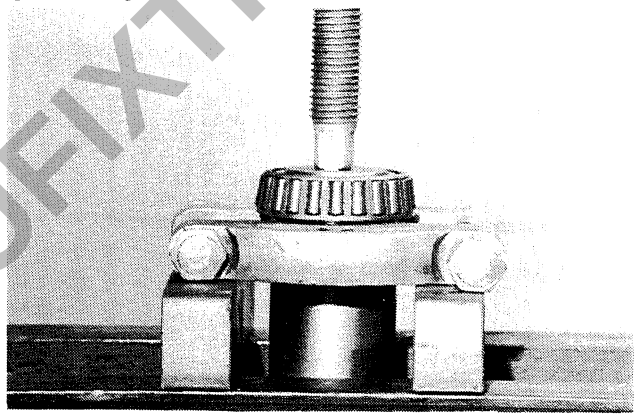
Remove the rear bearing cone from the PTO housing.

STEP 39



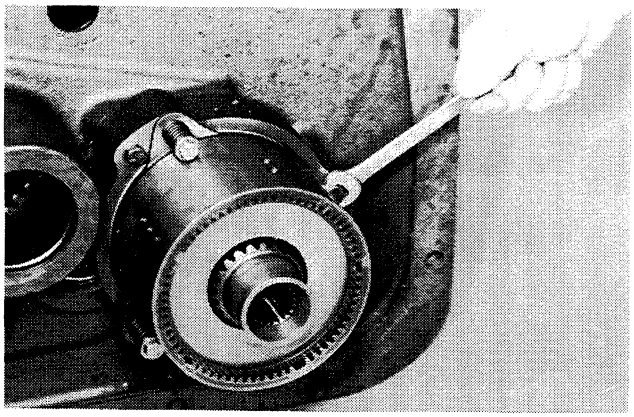
To remove the rear bearing cup for the lower idler shaft, use a puller.

STEP 40



Press the front bearing cone off of the lower idler shaft.

STEP 41

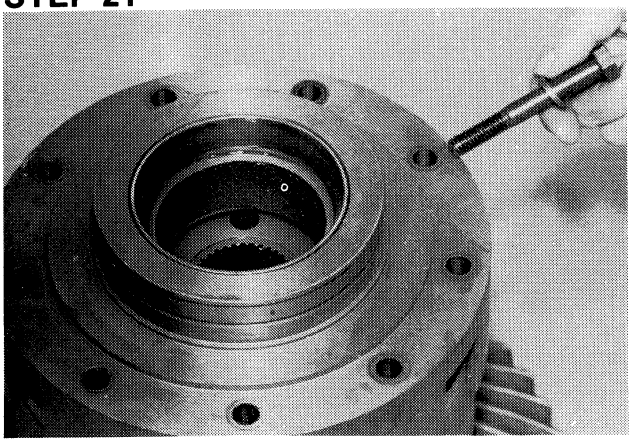


Remove the bolts for the PTO carrier assembly.

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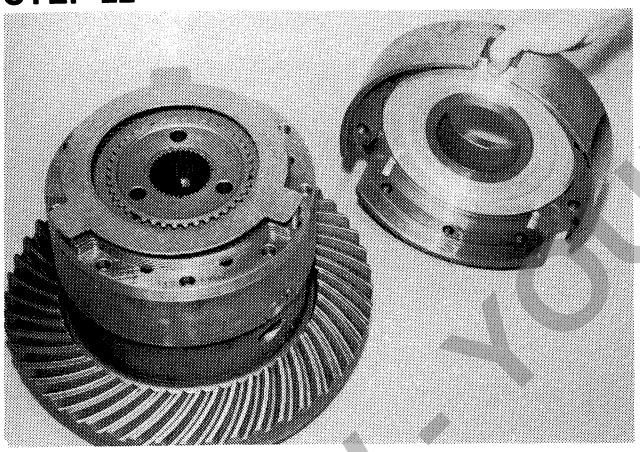
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STEP 21



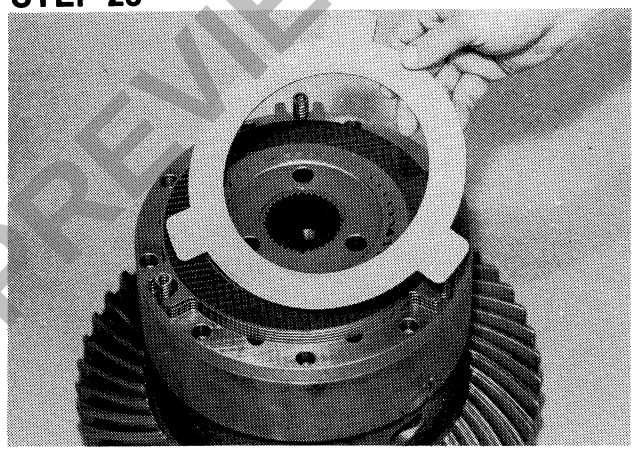
Remove the 1/2 inch differential lock cage bolts and washers.

STEP 22



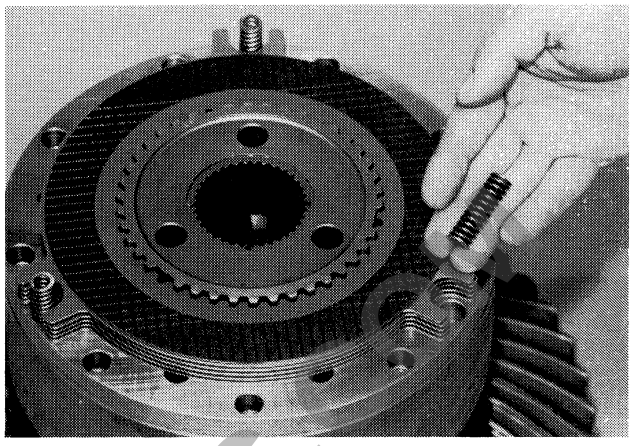
Remove the differential lock cage.

STEP 23



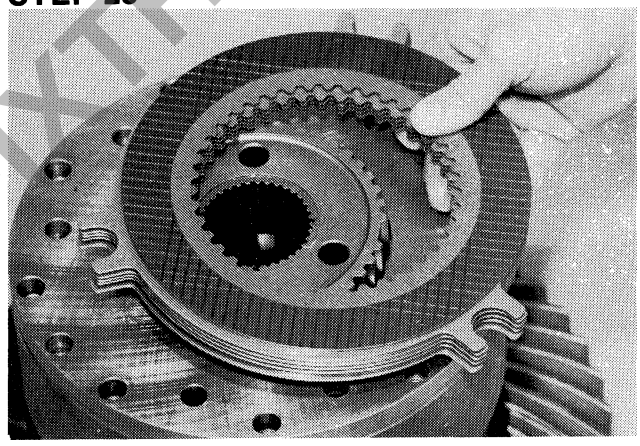
Remove the spring return plate.

STEP 24



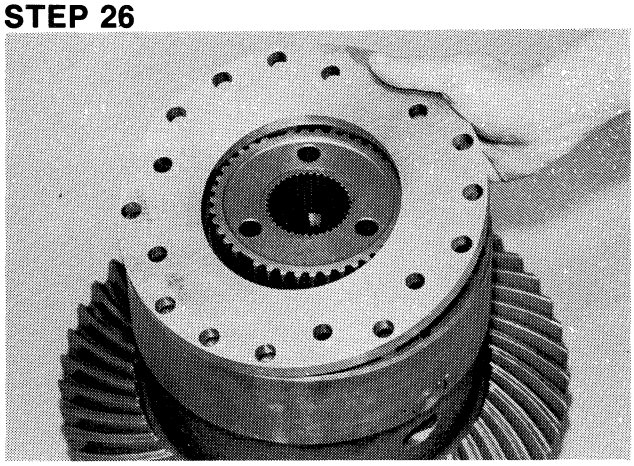
Remove the clutch return springs.

STEP 25



Remove the clutch plates for the differential lock.

STEP 26



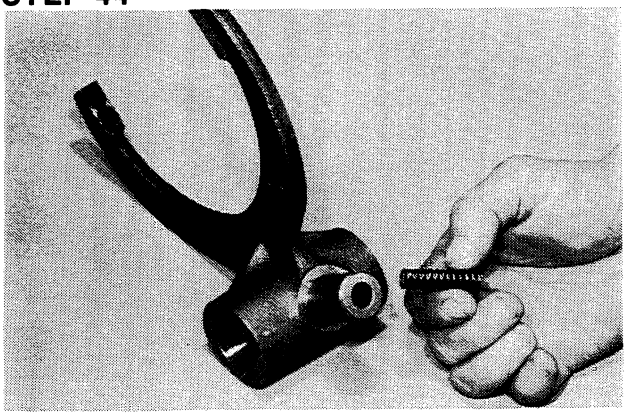
Remove the differential lock reaction plate.

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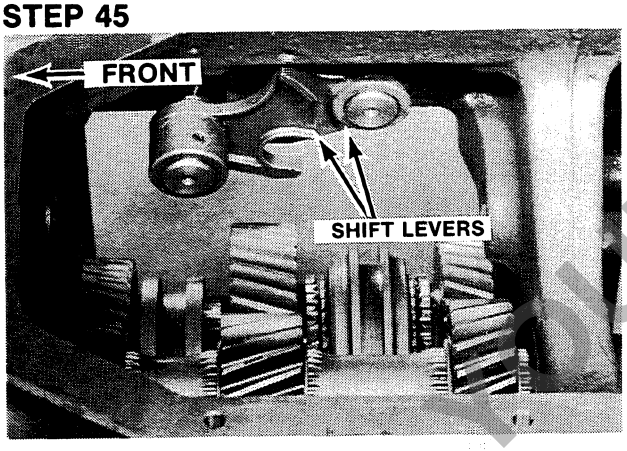
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STEP 44



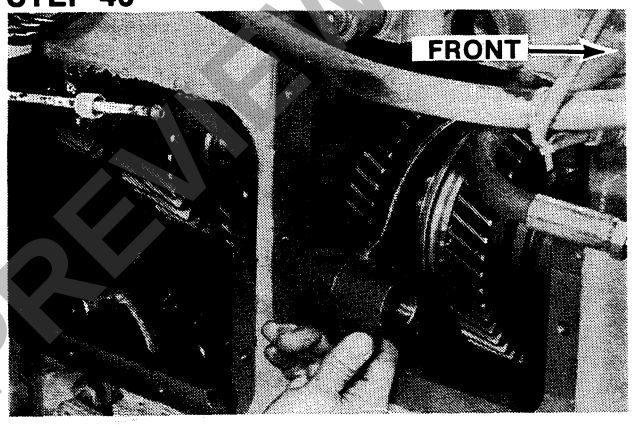
Remove the detent spring from the shift forks.

STEP 45



Put the inside shift levers in position as shown.

STEP 46



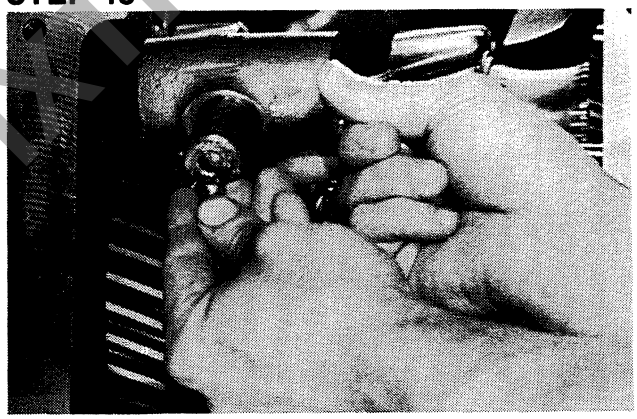
Install the range shift fork in the shift collar.

STEP 47



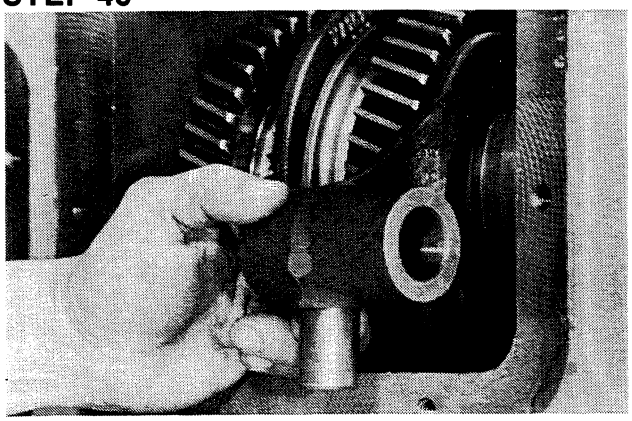
Put a large amount of petroleum jelly in the detent hole of the range shift fork to hold the detent ball.

STEP 48



Install the detent ball in the range shift fork.

STEP 49



Install the reverse shift fork in the shift collar.

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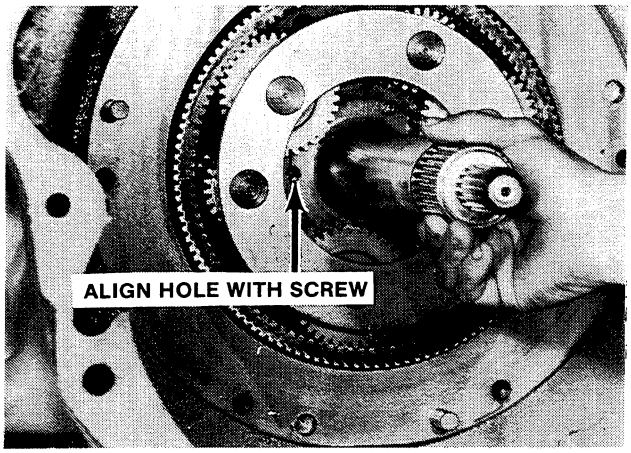
SPECIAL TORQUES

	U.S. Value	Metric Value
Axle Housing Bolts	220 to 264 ft. lbs.	298 to 358 Nm (29.8 to 35.8 kgm)
Bearing Carrier Bolts	220 to 264 ft. lbs.	298 to 358 Nm (29.8 to 35.8 kgm)
Inner Brake Cylinder Bolts	35 to 42 ft. lbs.	48 to 58 Nm (4.8 to 5.8 kgm)
Outer Brake Cylinder Bolts	220 to 264 ft. lbs.	298 to 358 Nm (29.8 to 35.8 kgm)
Cab Mount Bolts	80 to 96 ft. lbs.	108 to 130 Nm (10.8 to 13.0 kgm)
Countershaft Bearing Preload	25 to 35 in. lbs. above no load rolling torque	2.8 to 4 Nm (0.28 to 0.4 kgm) above no load rolling torque
Transmission Cover Bolts	35 to 42 ft. lbs.	48 to 58 Nm (4.8 to 5.8 kgm)

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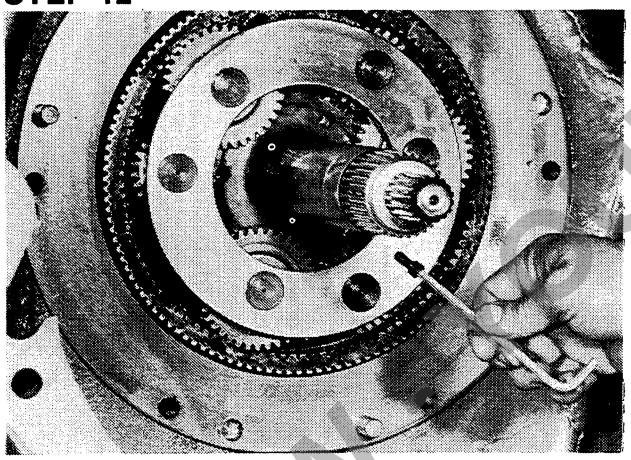
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STEP 11



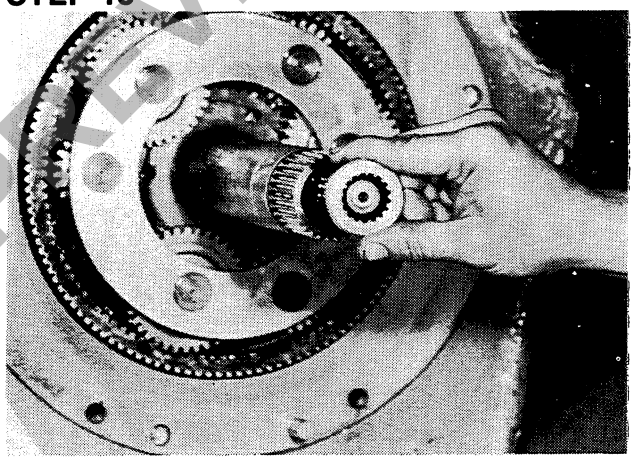
Stop the ring gear from moving and turn the planetary to align the holes in the planetary input gear with the bearing carrier retainer screws.

STEP 12



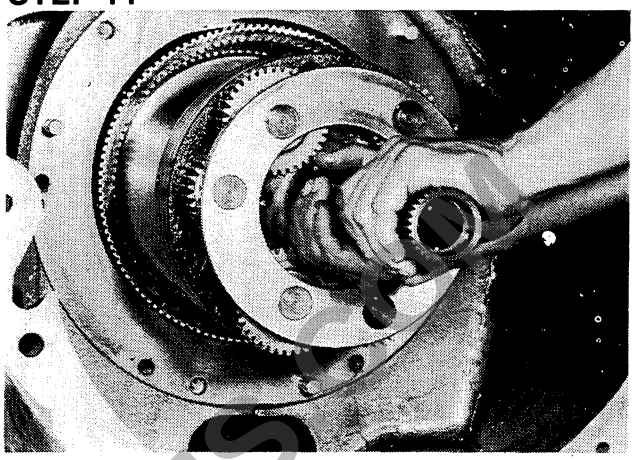
Put a 3/16" Allen wrench through the holes in the input gear and remove the bearing carrier retainer screws.

STEP 13



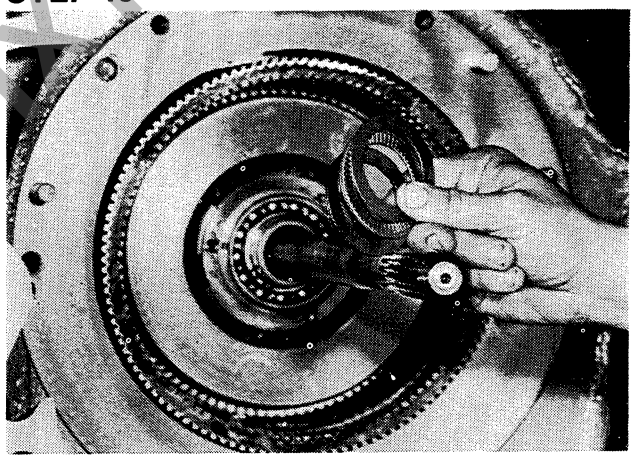
Remove the drive shaft sleeve.

STEP 14



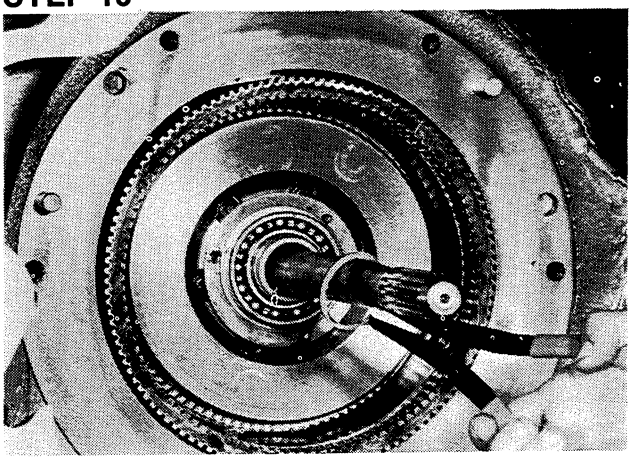
Remove the planetary carrier assembly from the ring gear.

STEP 15



Remove the needle thrust bearing and the thrust washers.

STEP 16



Remove the shaft locating retaining ring.

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STEP 7

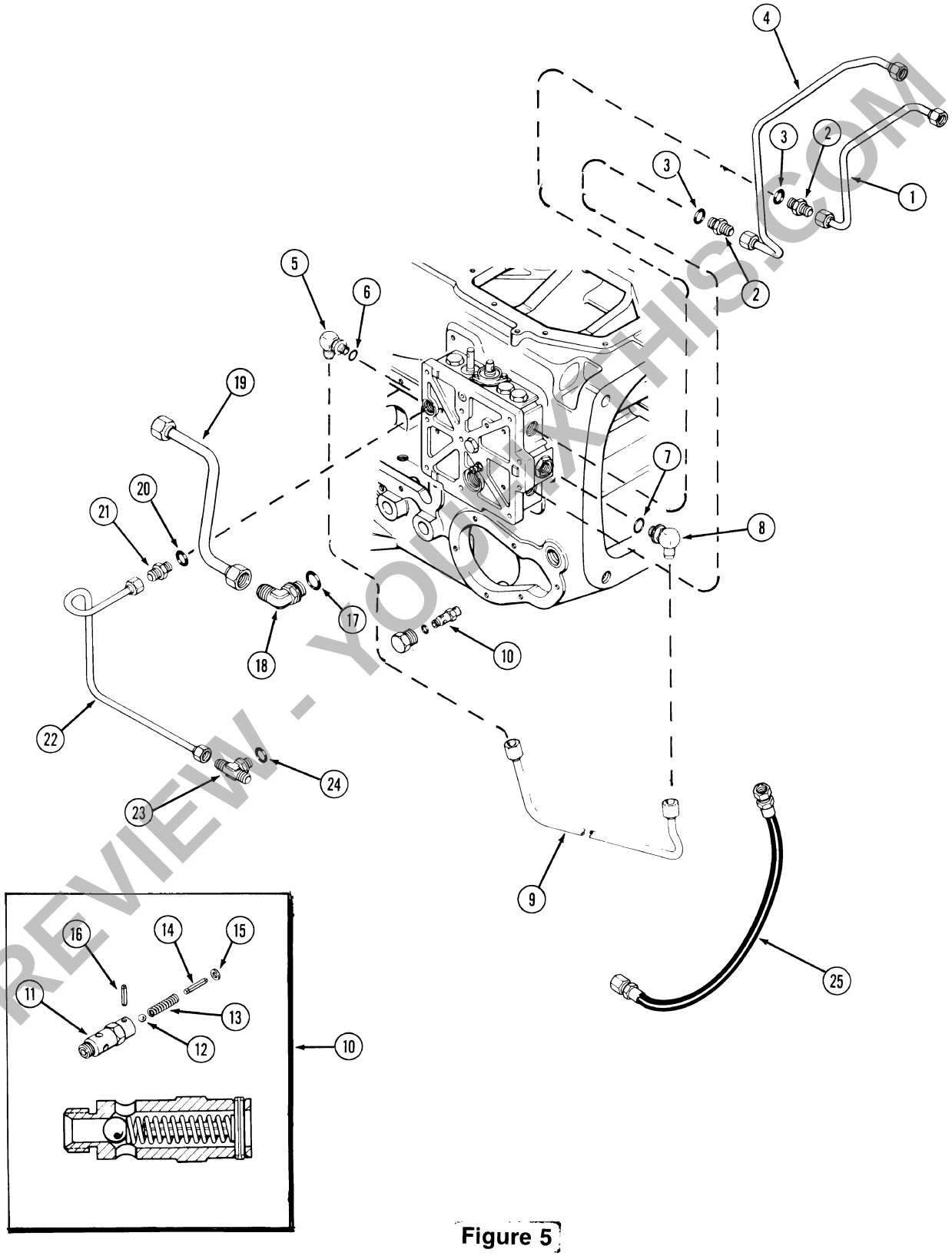
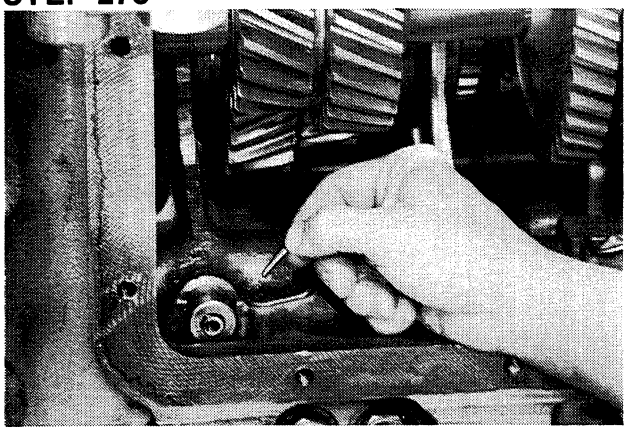


Figure 5

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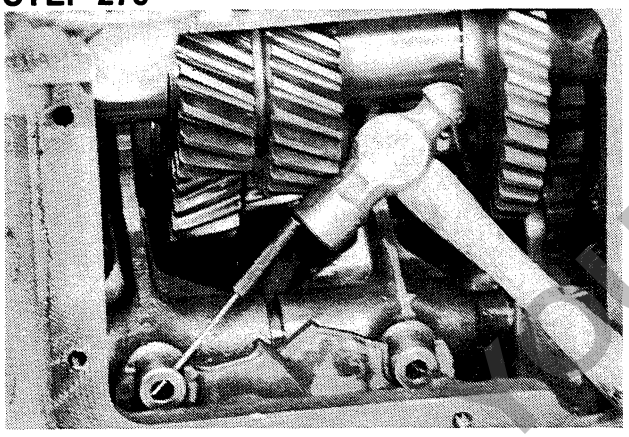
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STEP 278



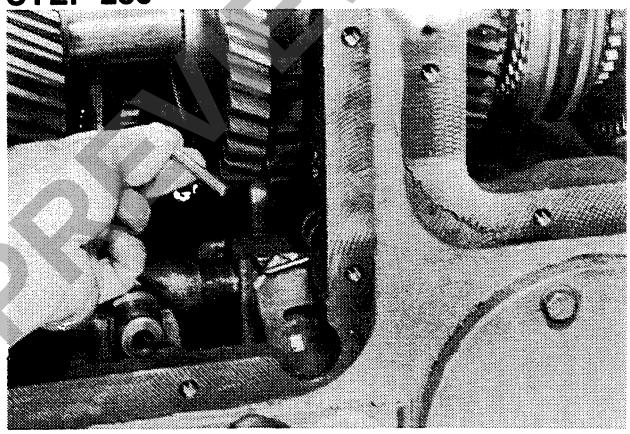
Install a roll pin in each shift fork.

STEP 279



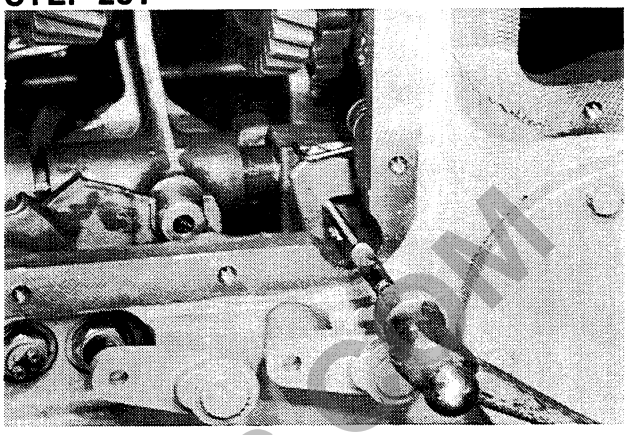
Push the roll pin in each shift fork until it is even with the outside surface of the shift fork.

STEP 280



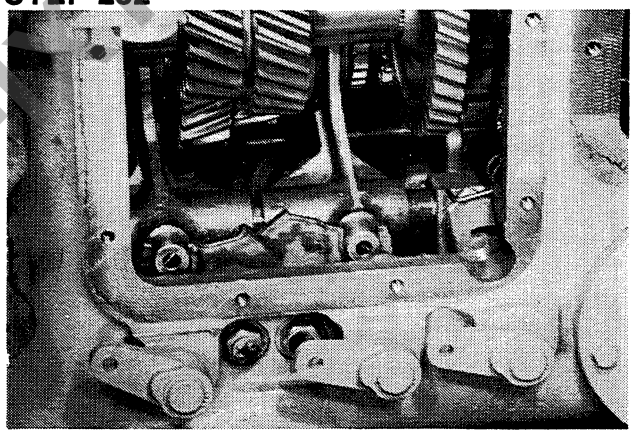
Align the roll pin hole in the shifter rail with the roll pin holes in the transmission case and install the roll pin.

STEP 281

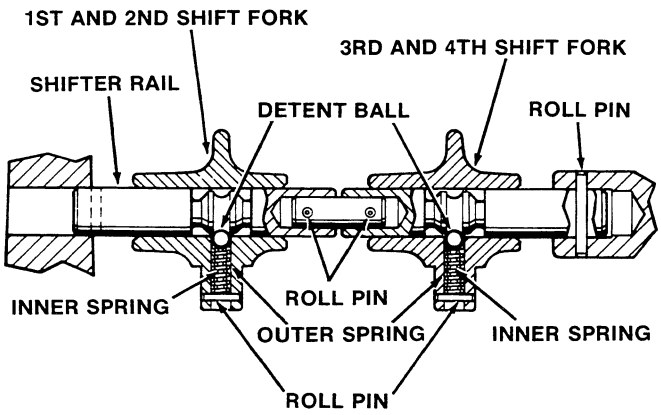


Push the roll pin in the transmission case and the shifter rail until it is even with the outside bore surface in the transmission case.

STEP 282

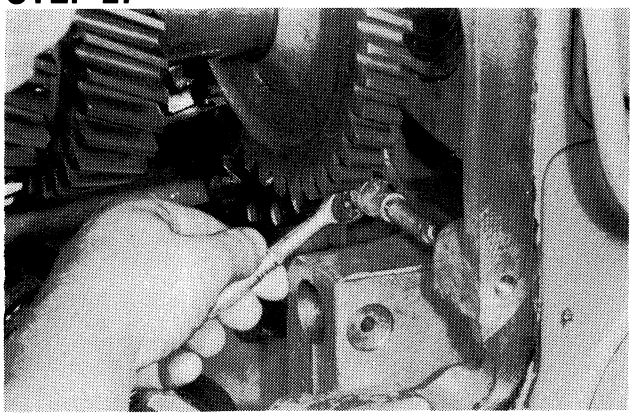


Shift forks and shifter rail installed.



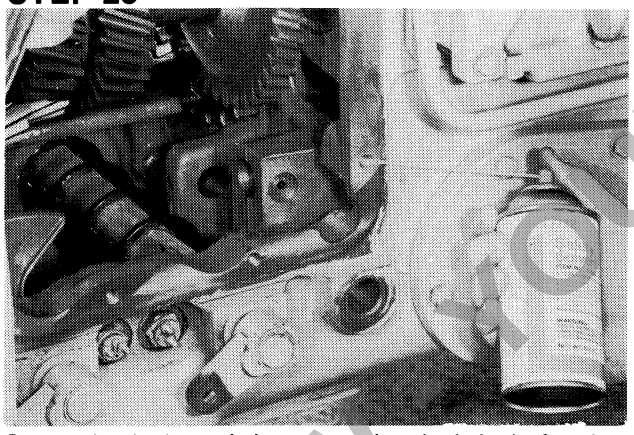
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STEP 27



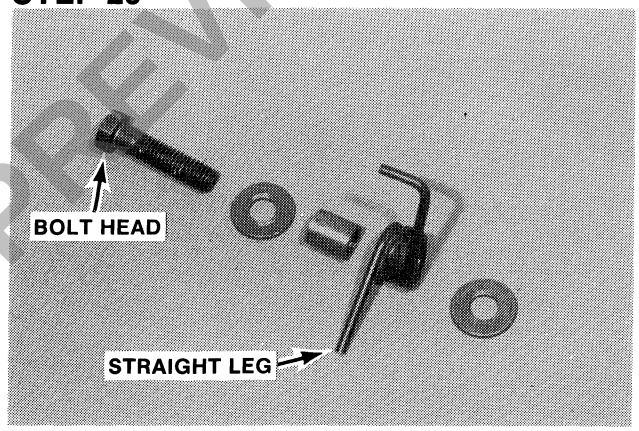
Remove old Loctite from the threads of the mounting bolt hole for the detent spring, by using a 3/8" NC tap. This will improve the locking ability of the new loctite to be applied later.

STEP 28



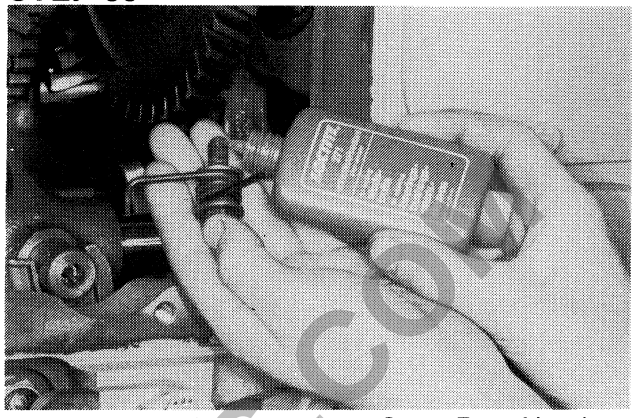
Clean the bolt and the mounting bolt hole for the detent spring with Loctite Safety Solvent, Case Part Number B17430.

STEP 29



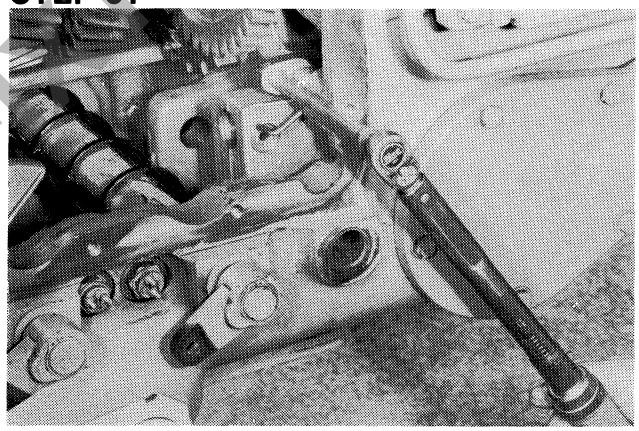
Assemble the washers, spacer and detent spring on to the bolt as shown above. Make sure that the straight leg of the spring is toward the bolt head.

STEP 30



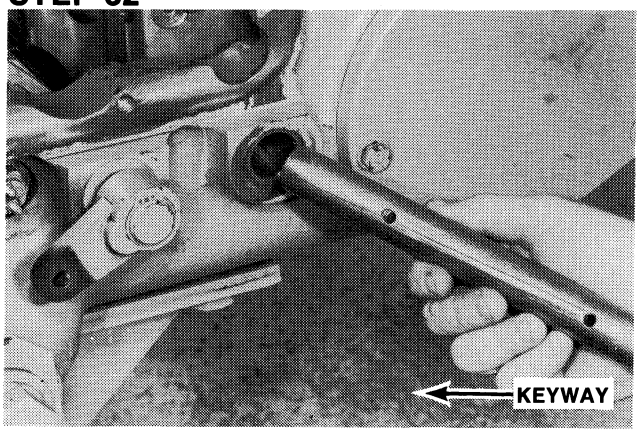
Apply Loctite Number 271, Case Part Number B17423, to the threads on the bolt for the detent spring assembly.

STEP 31



Install the detent spring assembly into the transmission. Using a 9/16" crowfoot wrench tighten the bolt to a torque of 25 to 35 ft. lbs. (34 to 47 Nm)(3.4 to 4.7 kgm).

STEP 32

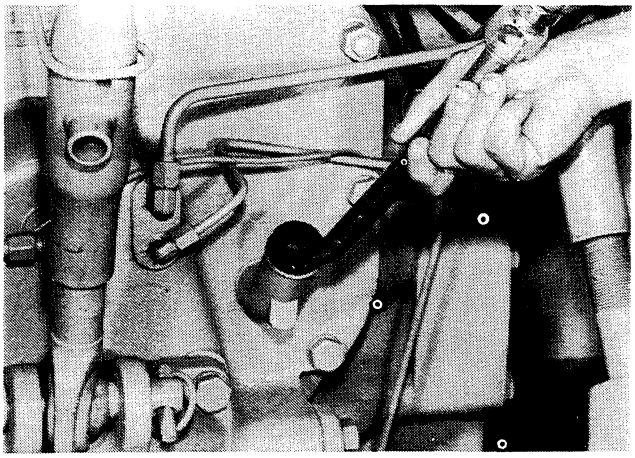


Put the park lock shaft into the bore of the transmission case, with the keyway toward the rear of the tractor.

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STEP 49

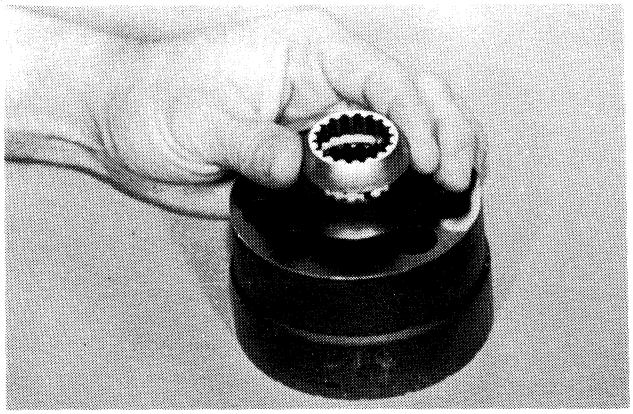


Install the hose from the outlet port of the flowmeter, with the short piece of tube, into the transmission filler neck.

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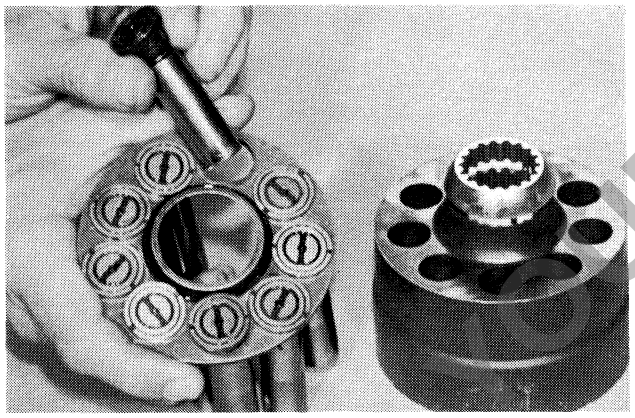
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STEP 86



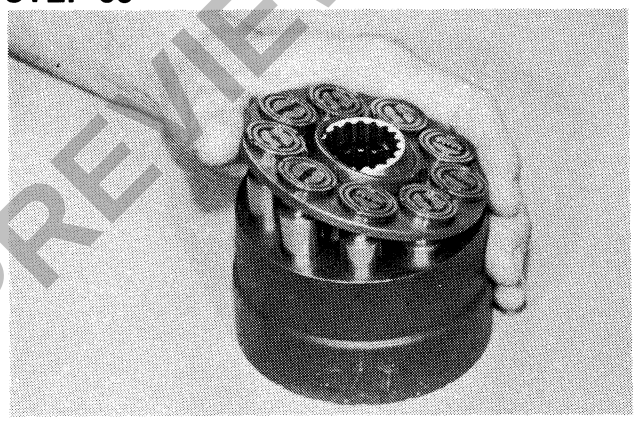
Install the pivot washer on top of the three pins.

STEP 87



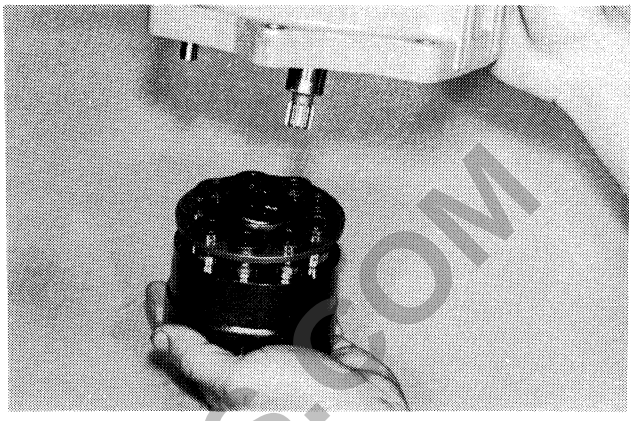
Install the nine piston and shoe assemblies into the shoe plate.

STEP 88



Install the piston assembly into the cylinder block.

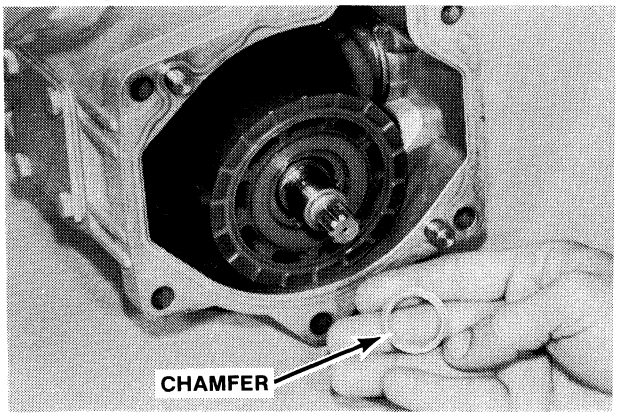
STEP 89



Install the cylinder block and piston assembly into the pump housing.

NOTE: *To make installation easier, hold the pump housing in a vertical position to keep the pivot washer and pins from falling out of place. Turn the cylinder block while installing it to align the splines on the pivot washer and the cylinder block with the shaft splines.*

STEP 90



Install the spacer for the rear bearing on the shaf

NOTE: *The spacer has a chamfer on one side. Make sure that the side with the chamfer is toward the inside of the pump housing when it is installed.*

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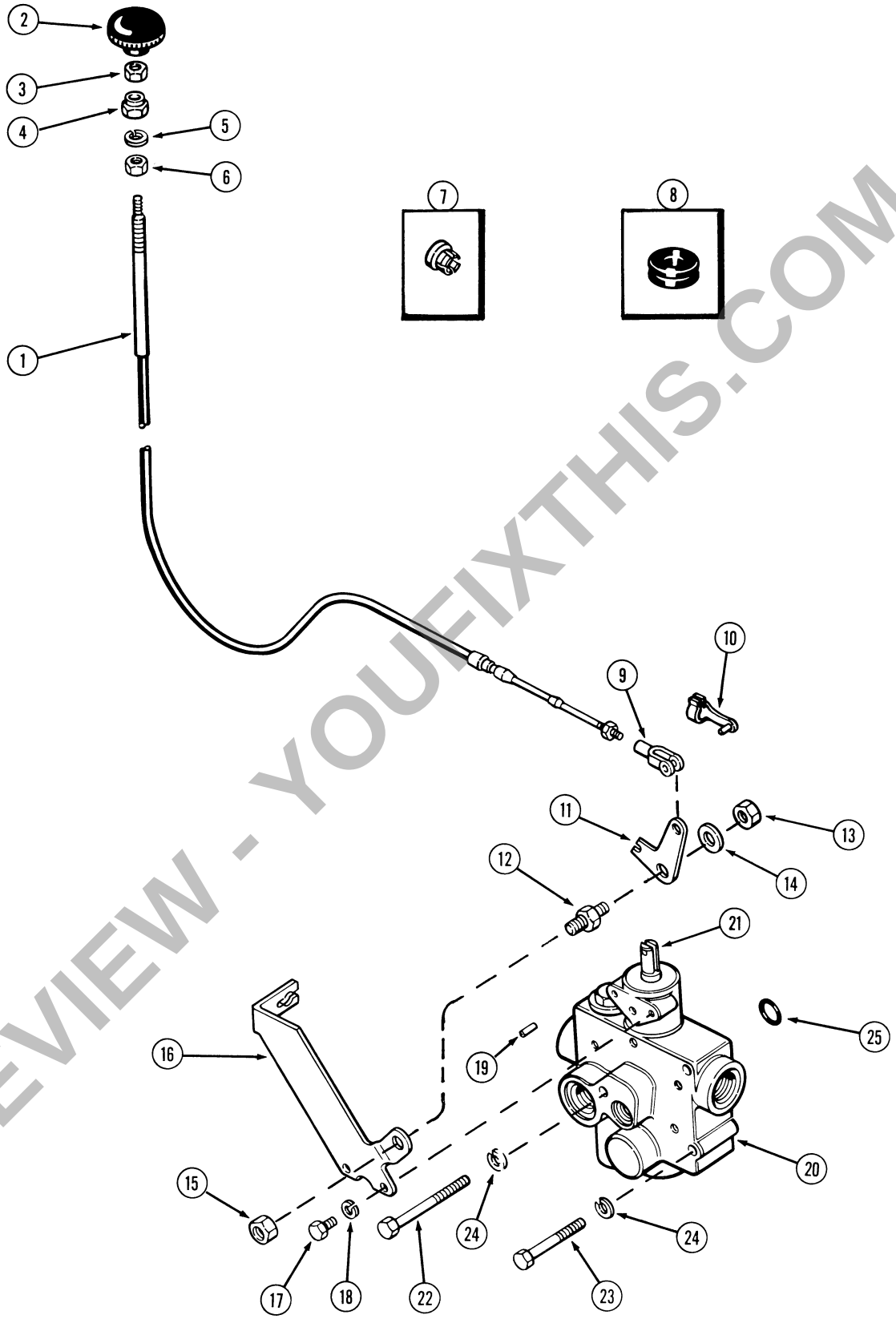


Figure 1

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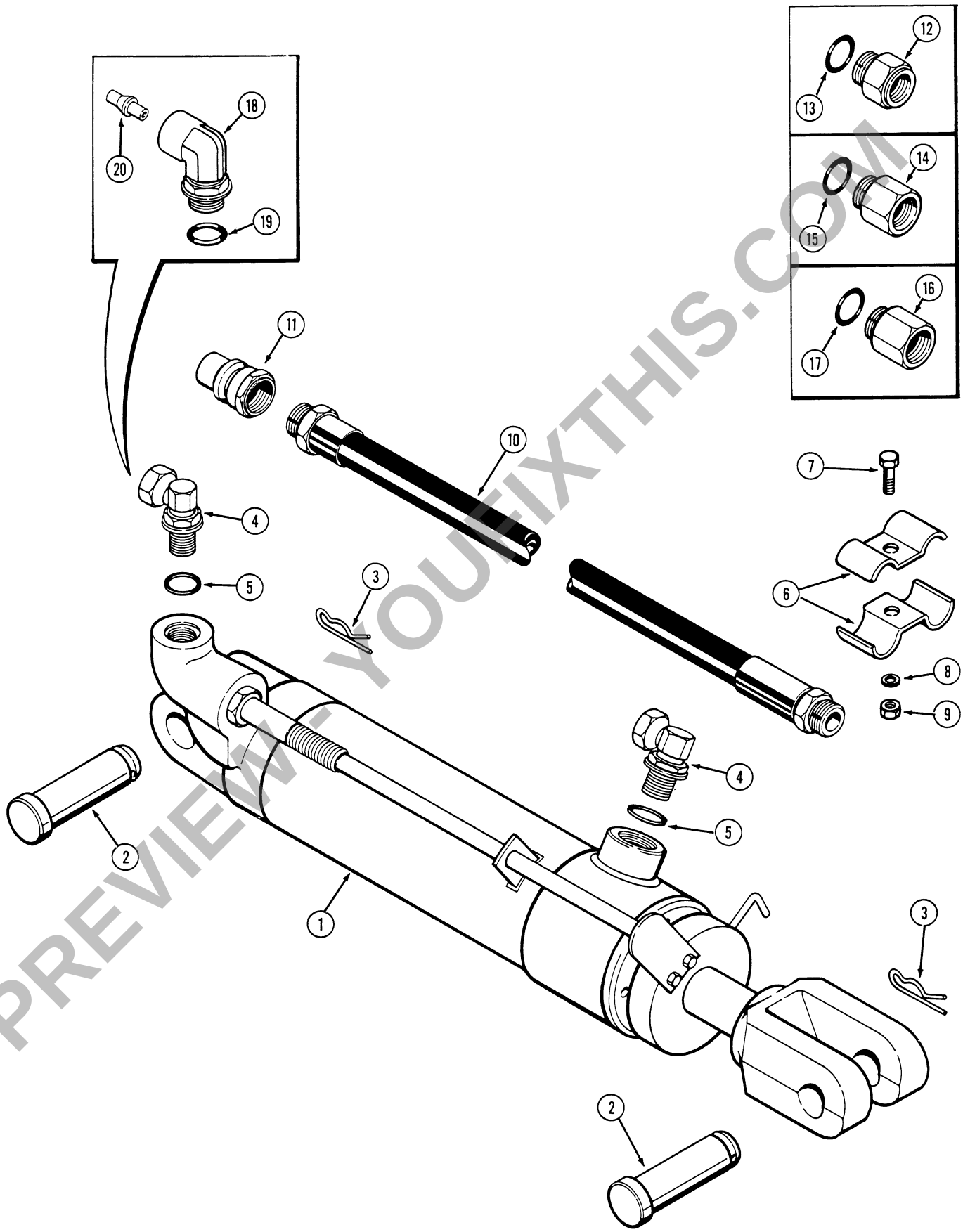


Figure 4

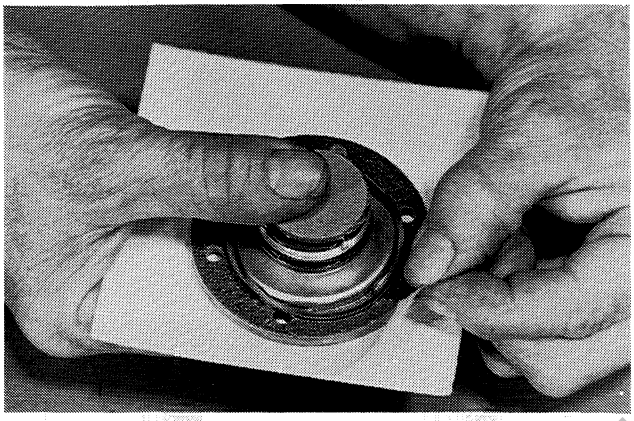
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Seal Removal from Replacement Kit

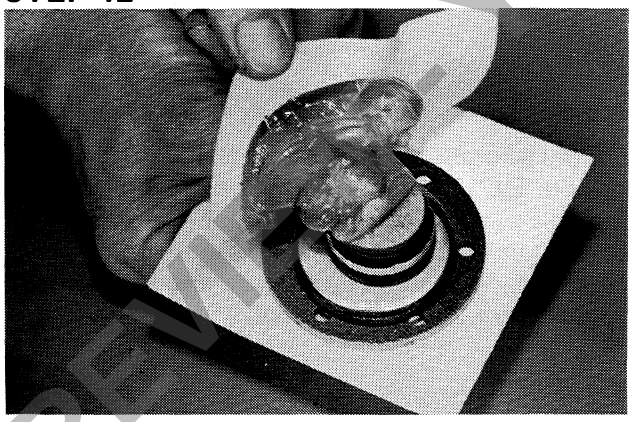
IMPORTANT: *Because the container material is heated when the seal is put in the container, the material tightens around and under the new seal as the material cools. The following steps must be used to prevent any damage to the new seal assembly.*

STEP 11



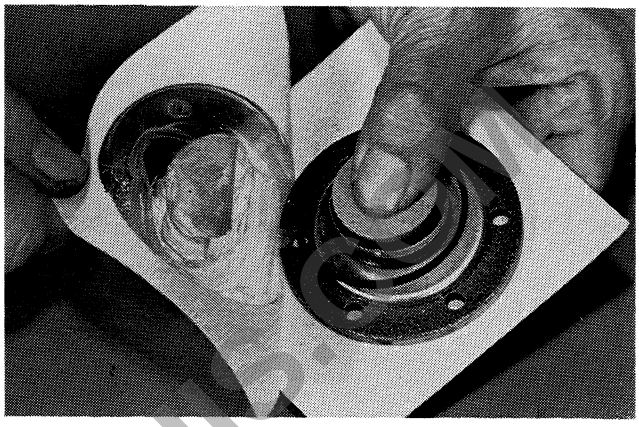
With one hand held at the center of the seal assembly, start to separate the container material with the other hand.

STEP 12



Pull the container material up and over your finger.

STEP 13



Change the position of your hands, keep the seal assembly held tight and remove the container material.

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