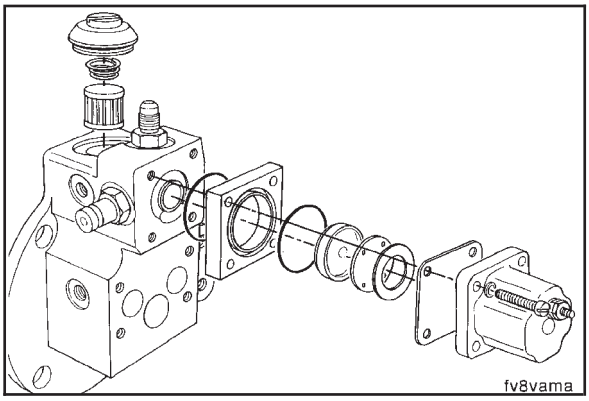
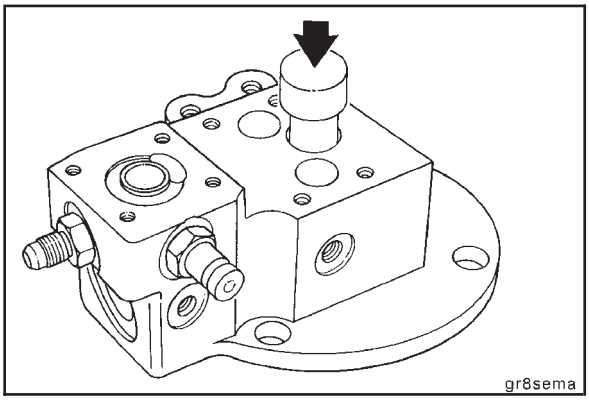
Remove the shutoff valve, discard the o-ring. Remove the filter screen cap and the filter screen.

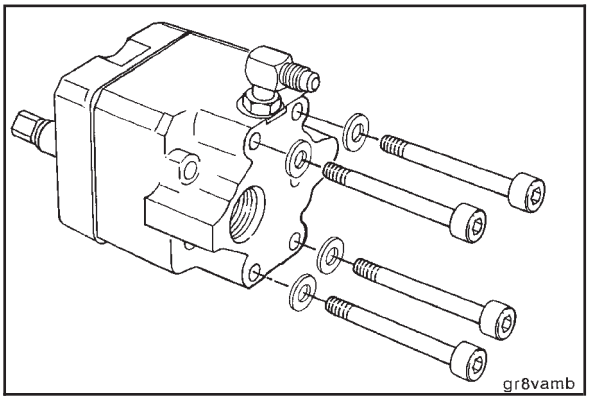


Press both of the drive shaft seals out of the support. Press the seals in the direction of the drive coupling.

Use seal removal tool, Part No. 3823239.

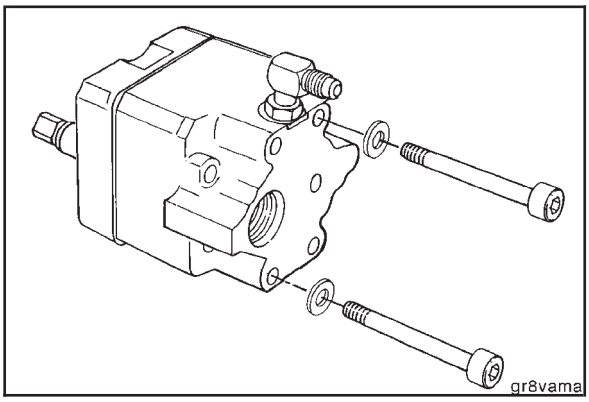


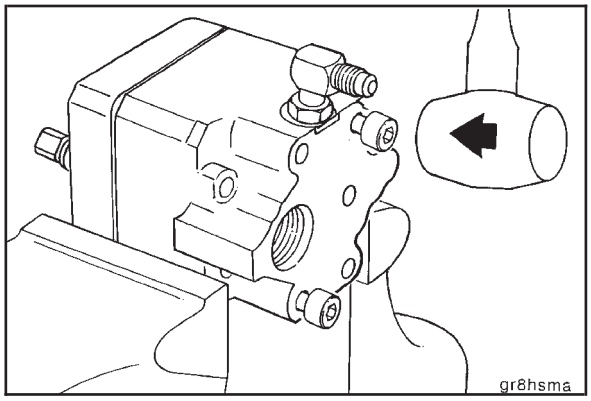
Remove the four capscrews that hold the gear cover to the gear housing.



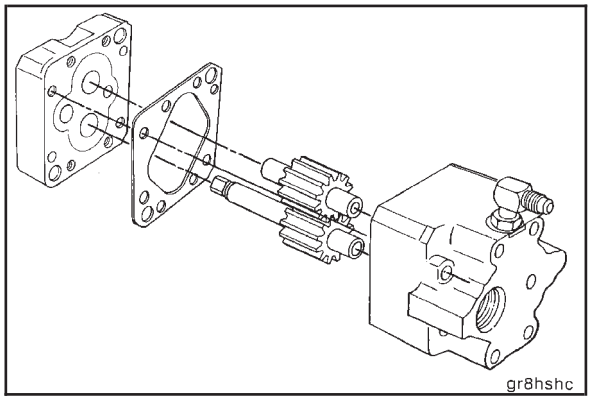
Install two capscrews that are 100 mm [4 inches] long into the gear pump cover. Install these capscrews in the cover holes that are near the dowel pins.

NOTE: Install capscrews at locations nearest to the alignment dowel pins.

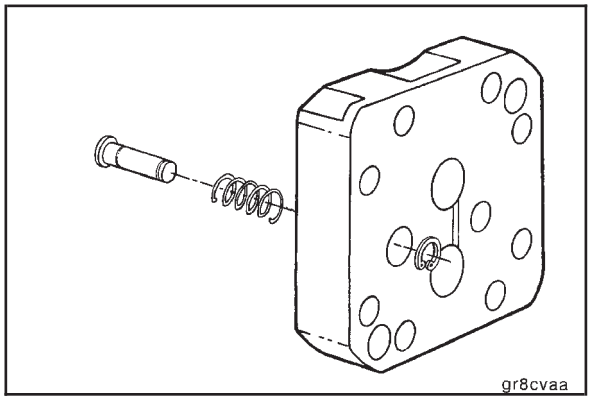




Clamp the gear pump housing in a vise. Gently tap alternately on the head of the capscrews to loosen the gear pump cover.

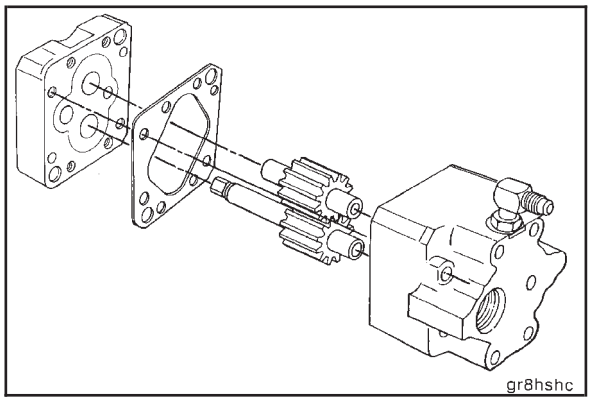


Remove the gear pump cover, drive gear and the idler gear. Discard the gasket.



Remove the regulator retaining snap ring.

Remove the regulator plunger and the spring from the gear pump cover.



Inspection

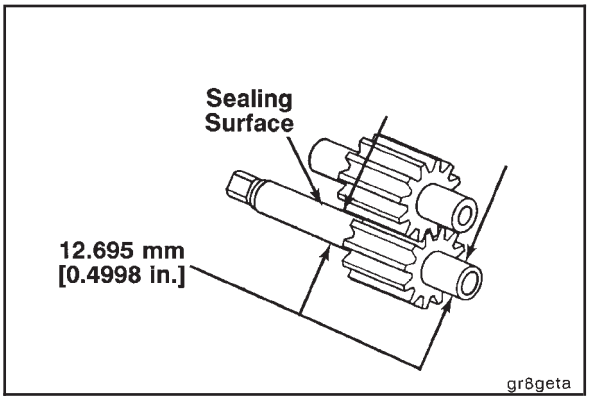
The gear pump components **must** be inspected for damage and wear.

If the gear pump body, gear pump cover, or either of the gear pump gears are damaged or out of specification, replace the gear pump assembly. If one or both of the shafts are damaged or out of specification, replace the shaft(s) as required.

Check the gear pump shafts. Discard them if they are damaged. Replace the shaft if the bearing surface is worn smaller than 12.695 mm [0.4998 in] in diameter.

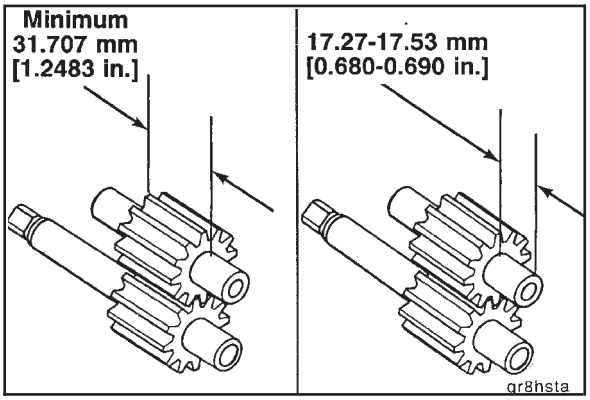
Replace the drive shaft if there is measurable wear on the sealing surface.

NOTE: If the shaft feels rough when a fingernail is moved across the sealing surface, replace the shaft.



Visually inspect the gears for damage and replace them if needed. Check the gear width. Discard any gear worn smaller than 31.707 mm [1.2483 in].

Press the gears on the shaft 17.27 to 17.533 [0.680 to 0.690 inch] from the body end of the shaft, if removed. Put a coating of clean engine lubricating oil on the shaft before assembly.

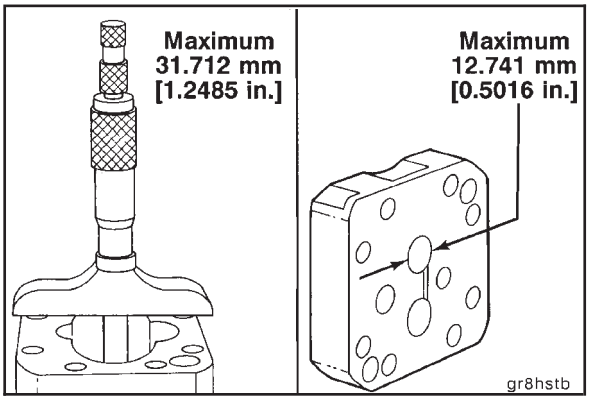


Visually inspect the gear body and cover for damage and replace them if needed. Check the gear hole depth.

Gear Hole Depth		
mm		in
31.704	MIN	1.2482
31.712	MAX	1.2485

Check the shaft bores in the cover and the body.

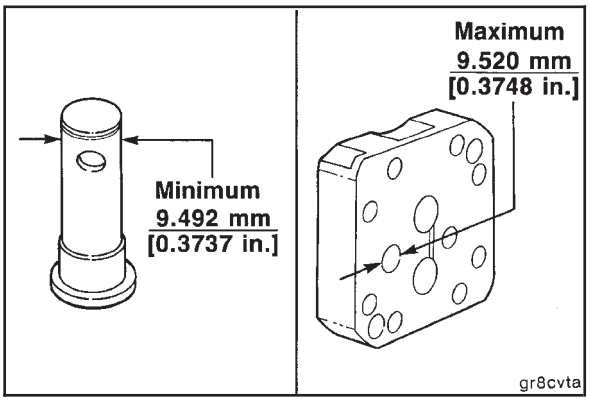
Shaft Bores		
mm		in
12.733	MIN	0.5013
12.741	MAX	0.5016

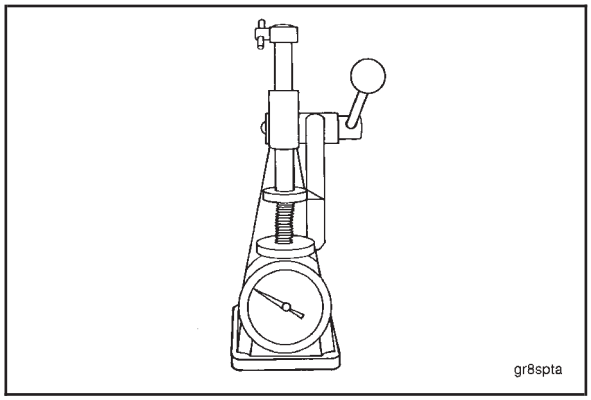


Visually inspect the regulator plunger for binding or scuffing and replace if needed. Check the regulator outside diameter. Replace the regulator if worn smaller than 9.492 mm [0.3737 inch].

Check the regulator bore.

Regulator Bore		
mm		in
9.510	MIN	0.3744
9.520	MAX	0.3748



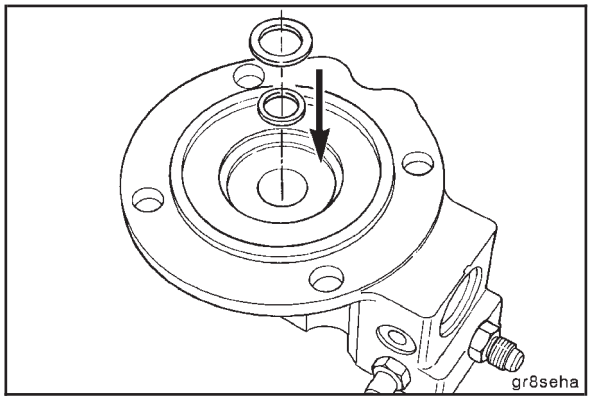


Inspect the regulator spring for damage and replace if needed. The spring **must** meet the specifications as shown in the table.

Regulator Spring Specifications

Part No.	Wire Dia. mm [inch]	No. Coils	Load Kg [lb]	Length mm [inch]	Free Length mm [inch]
3068424	1.52 [.060]	5.25	4.0 [8.9]	16.0 [.631]	21.16 [.8337]

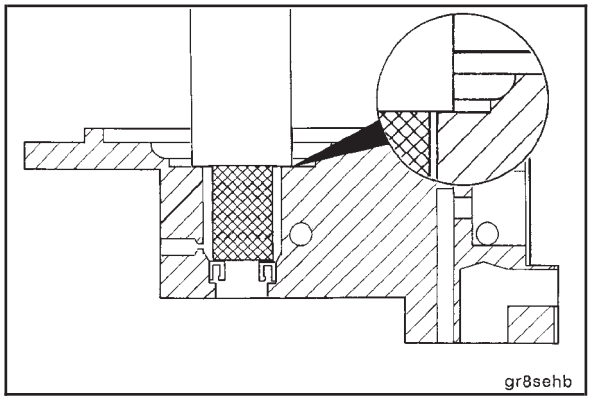
Check and clean all of the flow passages in the cover, housing and gears. Dry with compressed air.



Assembly

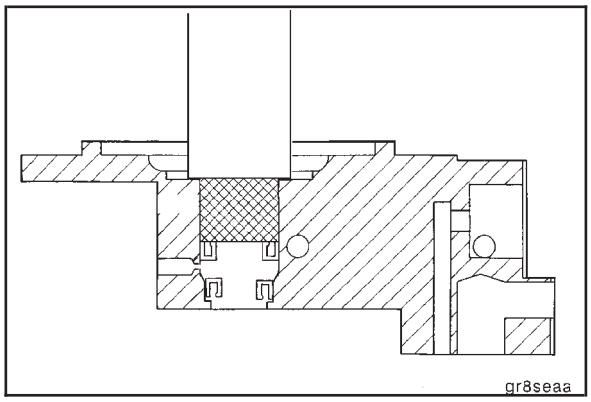
Install the two seals into the support housing, from the drive coupling side.

NOTE: The seal nearest the gear pump has a smaller outside diameter than the seal on the drive coupling side.



Install the fuel seal first. This is the seal nearest to the gear pump. The seal lip **must** be toward the gear pump.

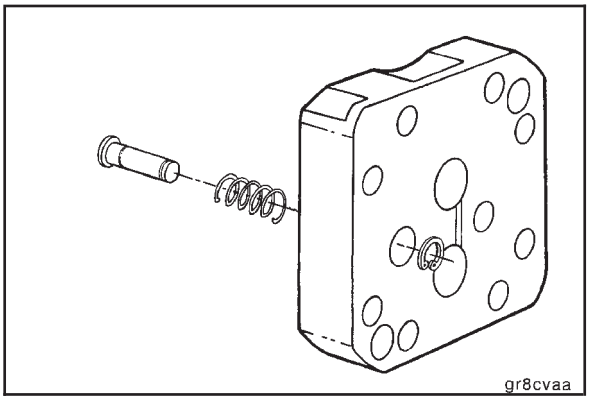
Use driver, Part No. 3823240, to install the seal. Press the seal in until the driver shoulder seats against the front support.



Install the oil seal. The seal lip **must** be away from the gear pump side.

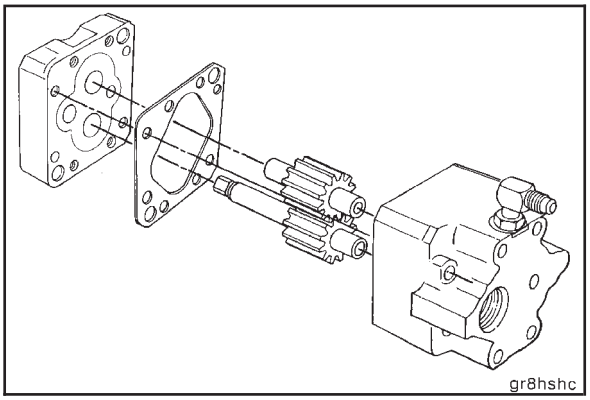
Use driver, Part No. 3823250, to install the seal. Press the seal in until the driver shoulder seats against the front support.

Install the regulator spring on the regulator plunger. Install the regulator assembly in the gear pump cover. Install the plunger retaining ring. Make sure the retaining ring is securely located in the snap ring groove of the regulator plunger.

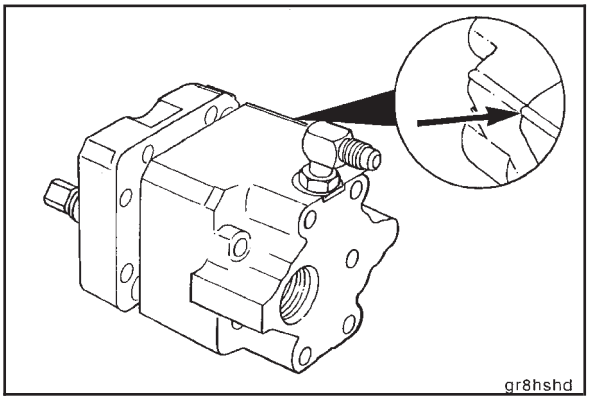


Lubricate with clean engine oil and install the shafts and the gears into the body. Make sure the parts are clean.

Position a new gasket on the dowel pins. Install the cover on the body. Align the location notches.

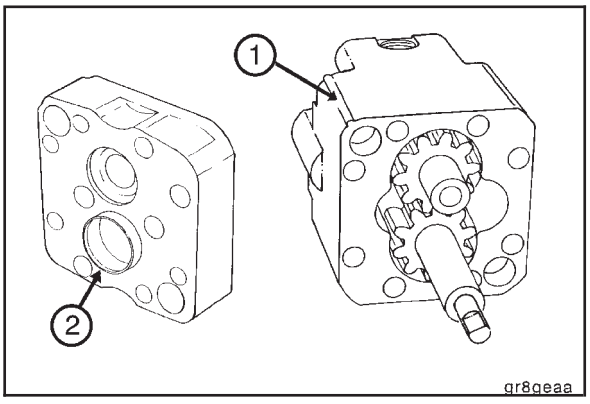


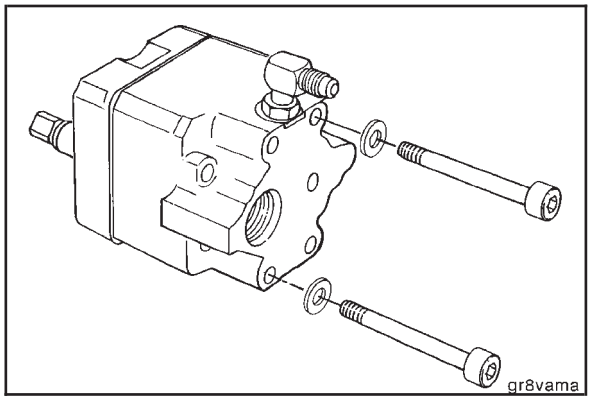
NOTE: The location of the notches and the drive gear shaft determines the rotation of the pump.



Assemble a right hand rotation pump as follows:

- Place the driven gear shaft of the pump in the body nearest the **location notches** (1).
- Place the driving gear shaft in the opposite hole.
- The ring dowel (2) **must** be around the drive shaft.

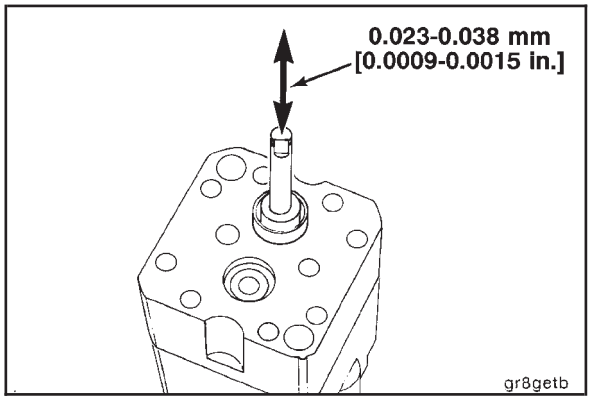




Align the cover and body with the dowels. Tighten the four cover to body capscrews evenly.

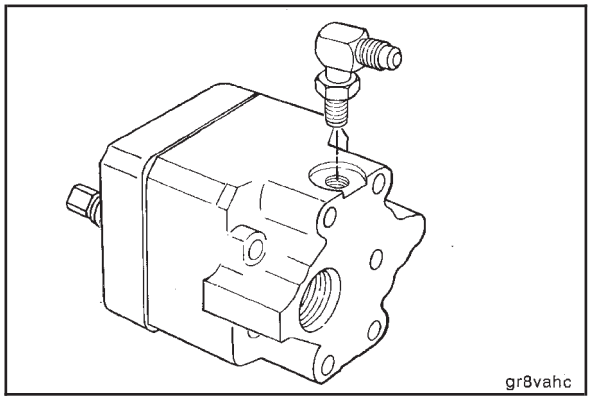
Check that the pump rotates freely with finger pressure.

Torque Value: 18 N•m [13 ft-lb]



Shaft End Clearance		
mm		in
0.023	MIN	0.0009
0.038	MAX	0.0015

NOTE: Gaskets are available in 0.51 mm [0.0020 inch] (red) and 0.038 mm [0.0015 inch] (purple). If the end clearance is **not** correct or the pump does **not** rotate freely, check for an error in the assembly procedure.

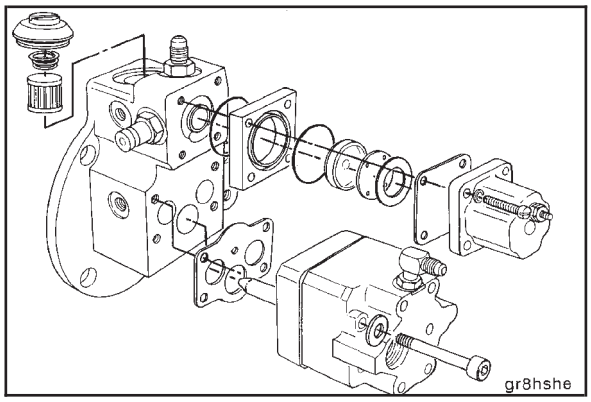


Install the check valve elbow.

The check valve elbow has machine threads to the maximum thread depth. Turn the elbow out until it is pointed toward the drain line. Tighten the jam nut.

Torque Value: 6 N•m [50 in-lb]

NOTE: If the check valve in the elbow is stuck open or closed, replace the elbow.



Place the seal expander that is included in the seal kit over the gear pump drive shaft. Use a new gasket, install the pump support on the gear pump housing. Tighten the capscrews.

Torque Value: 18 N•m [13 ft-lb]

Install the filter screen in the top of the front support. Install the shutoff valve assembly onto the pump assembly. Tighten the capscrews.

Torque Value: 18 N•m [13 ft-lb]

NOTE: Refer to solenoid rebuild instructions at the end of this section for parts orientation details.