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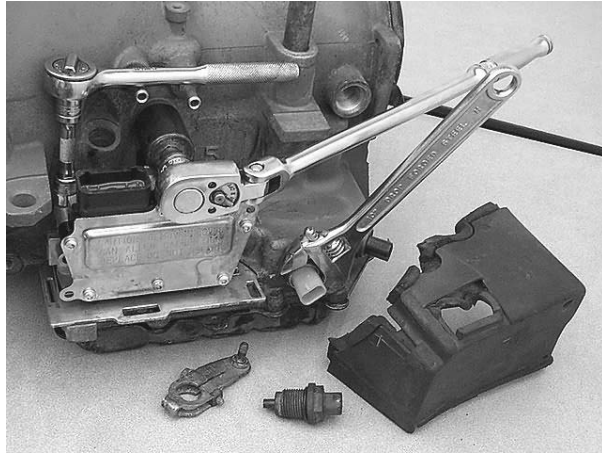
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This program has been designed by the Automatic Transmission Rebuilders Association (ATRA) to be used by qualified automotive transmission technicians. Since the circumstance of its use is beyond ATRA's control, ATRA assumes no liability for the use of such information or any damages incurred through its use and application. Nothing contained in this program is to be considered contractual or providing some form of warranty on the part of ATRA. No part of this program should be construed as recommending any procedure which is contrary to the vehicle manufacturer's procedures. ATRA recommends that only certified automotive technicians with experience in transmission diagnosis and repair perform the procedures in this program.

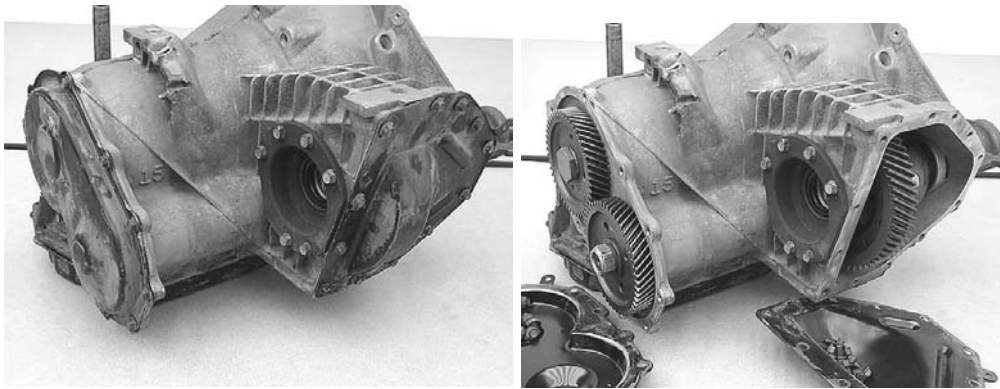
41TE Rebuild Procedures

Transaxle Disassembly

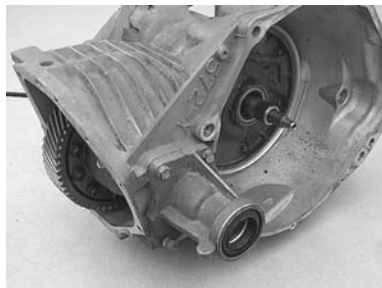
Step 1: Remove the following parts in the order shown for ease and efficiency: Dipstick, shift lever on manual shaft and solenoid block cover (if any of these are still attached), PRNODL and neutral safety switches, output and turbine speed sensors, then solenoid block with plate and gaskets.



Step 2: Unbolt the transfer gear cover and differential cover and remove them from the case. Allow any oil to drain out of the unit.

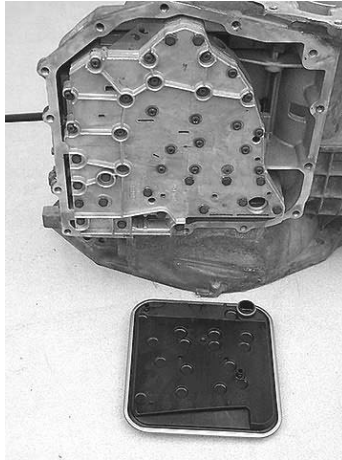


NOTE: This unit is prone to tip to the side while the differential assembly is in the case. Therefore, disassembly will be easier with the differential removed before disassembling any other area.

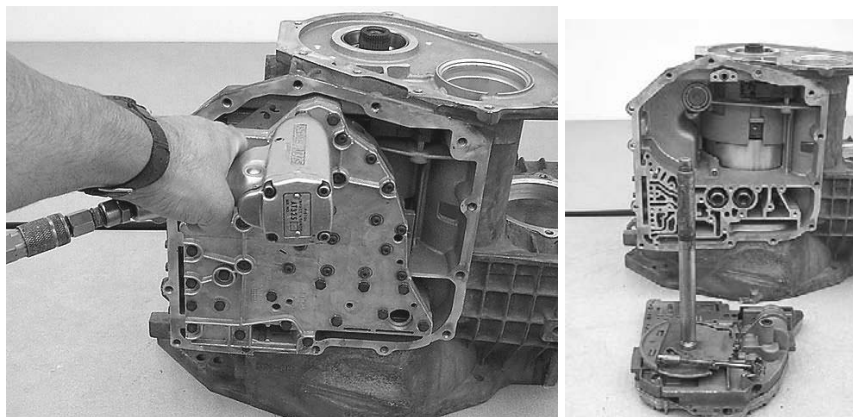
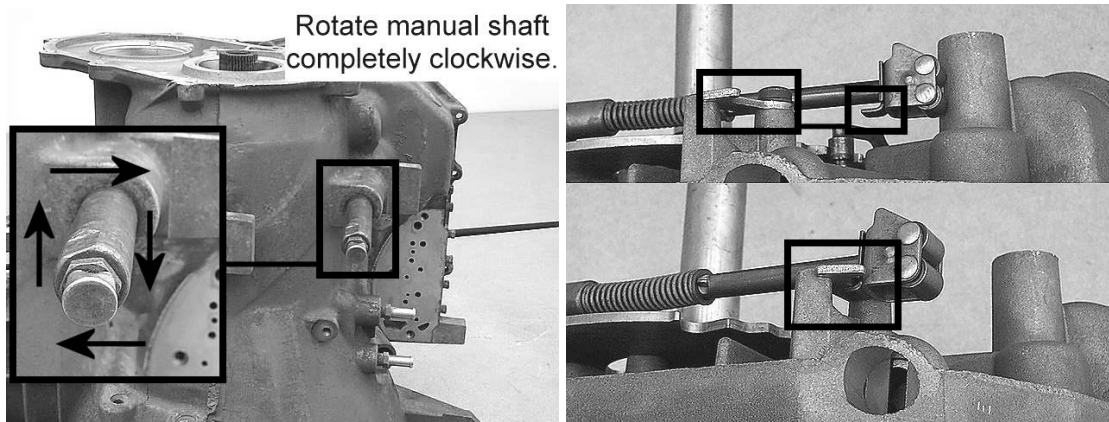


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Step 14: Remove the oil filter from the valve body. Make sure the O-ring comes off with the filter.



Step 15: Rotate the shift lever all the way **clockwise** when viewed from the outside end of the shaft. This will be one click *past* manual low, which is inaccessible when the vehicle shifter is connected to the lever. This locks the Park rod onto a bracket on the valve body, making it much easier to remove and install the valve body. Remove the valve body bolts, and carefully lift the valve body out of the case.



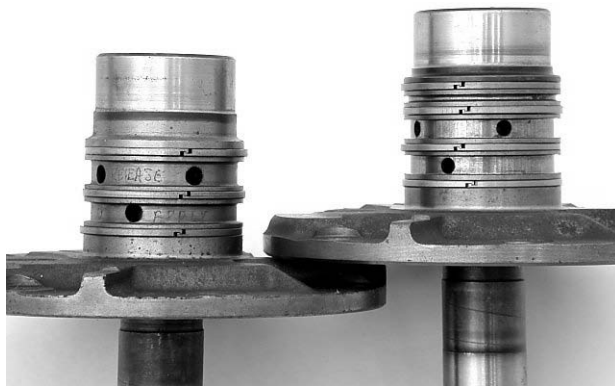
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Pump



The 41TE uses a very straightforward, conventional crescent pump. There are no valve assemblies or intricate parts, other than screened checkball-controlled orifices in the stator support which are completely inaccessible.

IMPORTANT: Some of the early 41TE pumps used a stator support with only three oil control rings. If you run into one of these units, always replace the stator support with a later, 4-ring support which will also mean changing the input drum assembly as well, since the drum was changed to accommodate the pump change.



Step 1. Remove the o-ring from the outside of the pump body and use a razor blade or other suitable scraping device to scrape any stuck gasket material from the gasket surface of the pump body.

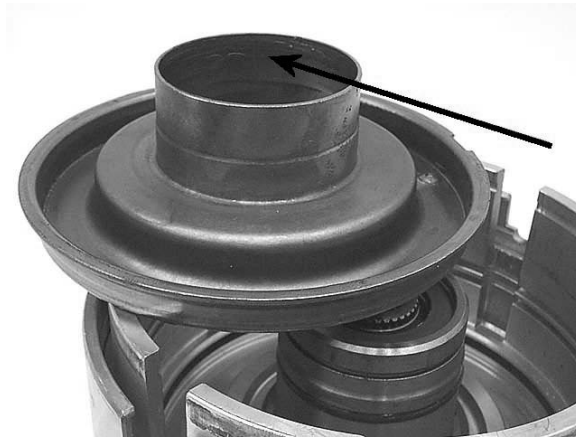


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Step 15: Release the underdrive clutch return spring, and remove the return spring retainer and return spring from the input clutch assembly.



Step 16: Remove the underdrive piston from the drum. Check the inside diameter for wear from the input hub where the lip seal rides.

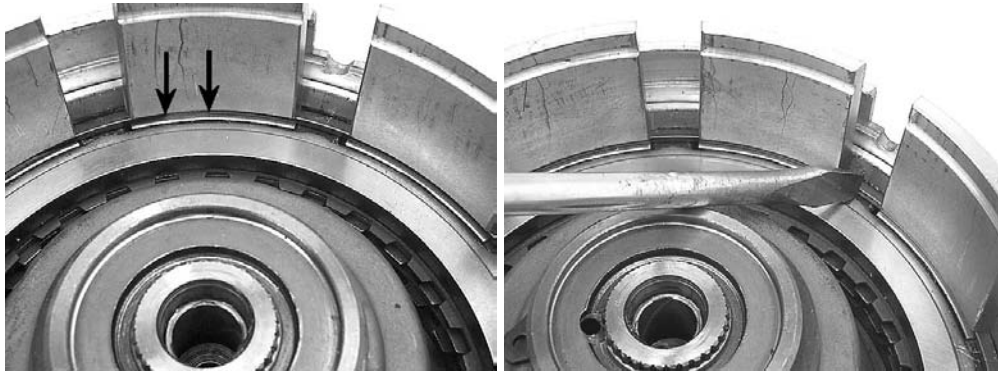


Step 17: Remove the input hub tapered snap ring from the input hub.

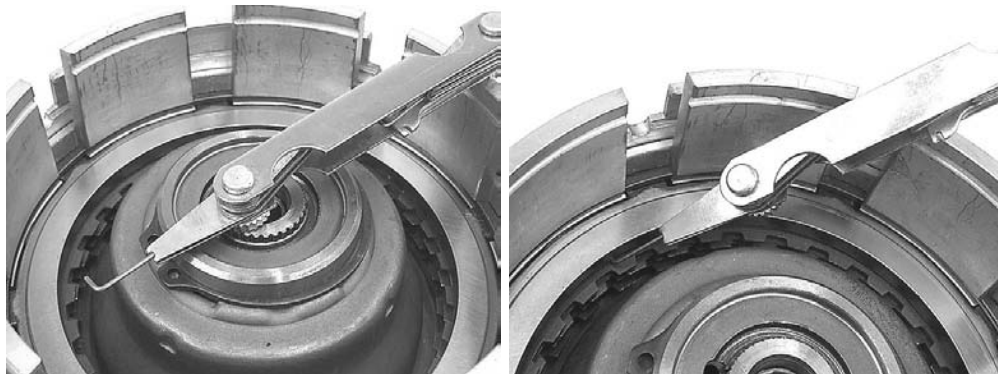


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Step 18: Install the tapered snap ring to hold the pressure plate in place, carefully and gently seating it all the way into the groove with a screwdriver and hammer.



Step 19: Use a wire or spark plug gauge between the top friction plate and pressure plate to check the clutch clearance. Clearance should be between 0.035" and 0.060" (0.90 mm and 1.50 mm); for best results, keep the clutch clearance on the loose side. To adjust the clearance, replace the selective pressure plate. The drum kit described at the beginning of this section includes the two plates you may need.

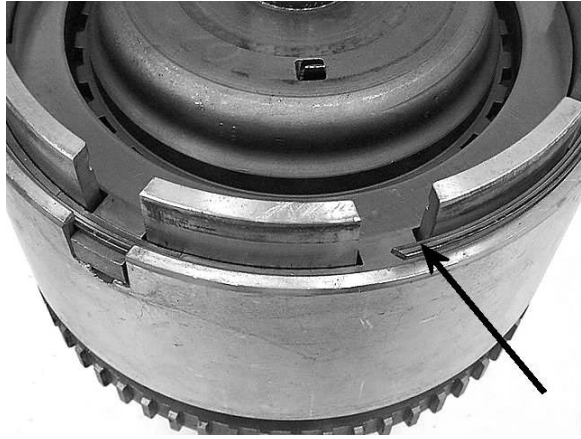


Step 20: Install the overdrive clutch stack in the clutch drum, which includes four thin frictions and three thin steels. If your unit only takes three thick frictions and two thick steels, it must be updated to the new style drum that accepts four frictions. See the note at the beginning of this section.

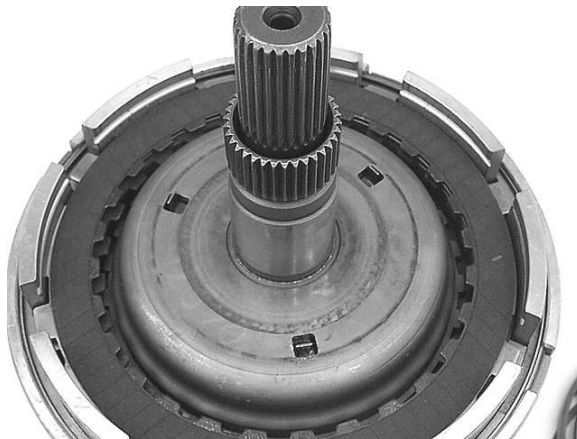


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Step 36: Press down on the OD/reverse pressure plate and install the flat snap ring into the OD/reverse piston to secure it.



Step 37: Install the reverse clutches in the input clutch drum.



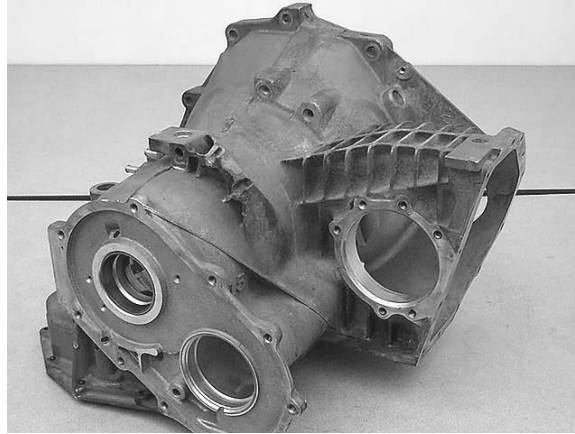
Step 38: Install the reverse clutch pressure plate, with the flat side facing down.



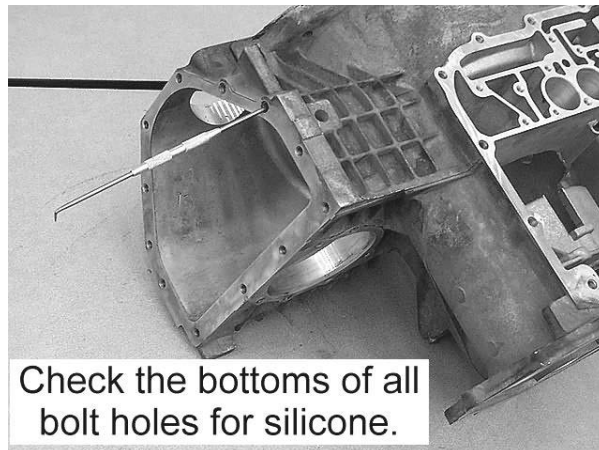
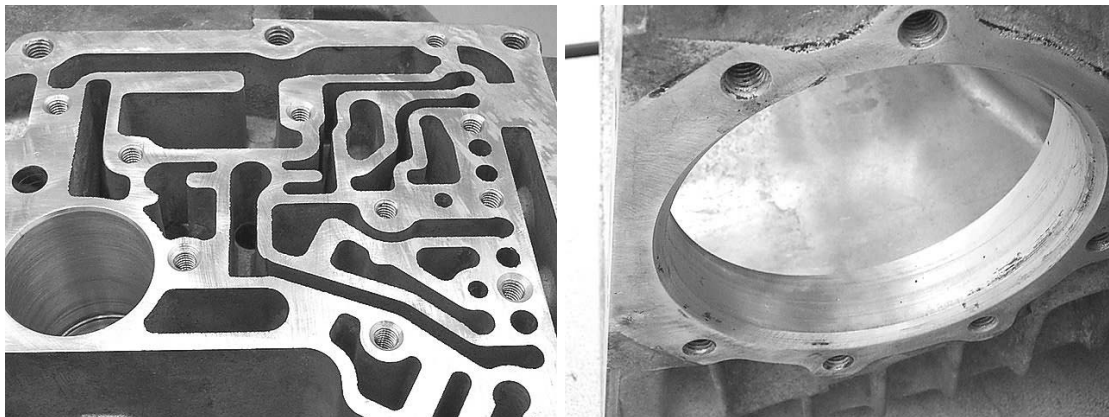
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Case and Extension Housings

Step 1: Check for cracks, wear or damage anywhere on the case and extension housing. Repair or replace as necessary.

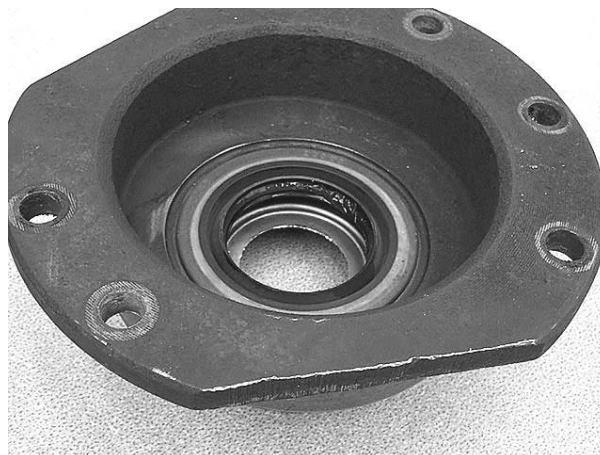
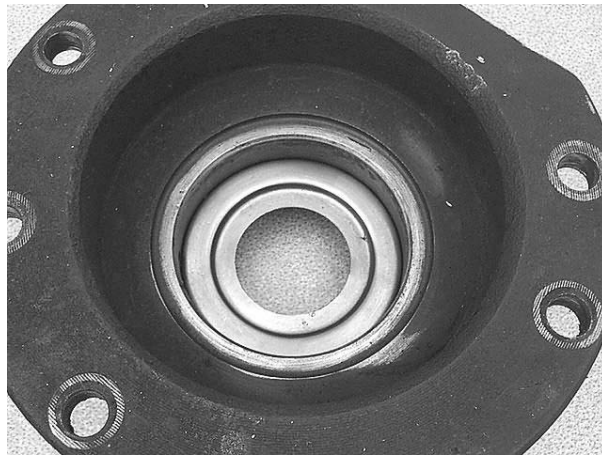


Step 2: Check for pulled or stripped threads in the case. Check for and remove any sizeable amounts of cured silicone from the bottom of bolt holes. Repair or replace as necessary.



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Step 10: Install a new axle seal in the extension housing. Be certain that the bearing oil baffle is in position in the differential bearing retainer then install a new axle seal in the retainer. It is a good idea to use some form of sealer on the seal OD to avoid seepage. If you do *not* have to check or adjust differential preload, these housings are ready for final assembly, and you're ready to move on to the next part of your rebuild.



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Step 8: Clean all components thoroughly. Check for signs of wear or damage, particularly at the pressure regulator valve and bore. Since cross-leaks are a real problem on this unit, flat-sand all machined valve body surfaces.



Step 9: Resurface the 2-4 accumulator bore. A brake hone is good for this, but be sure not to remove too much material from the bore, just enough to clean the surface. Smooth the texture a bit with some Scotch-Brite™.

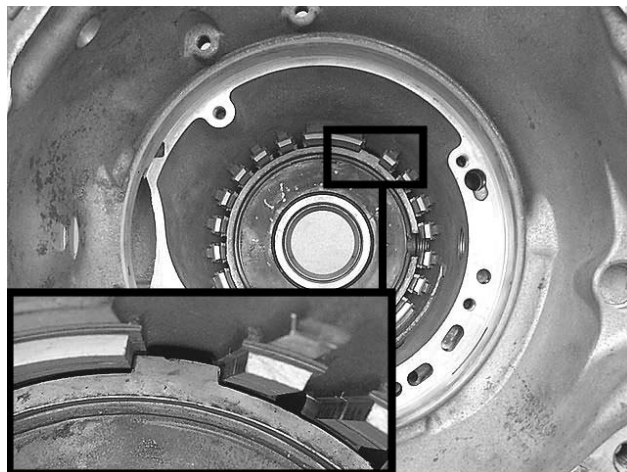


Step 10: Lubricate all components with clean ATF.

Step 11: Reassemble the valve body. Make sure the valves move freely in their bores.

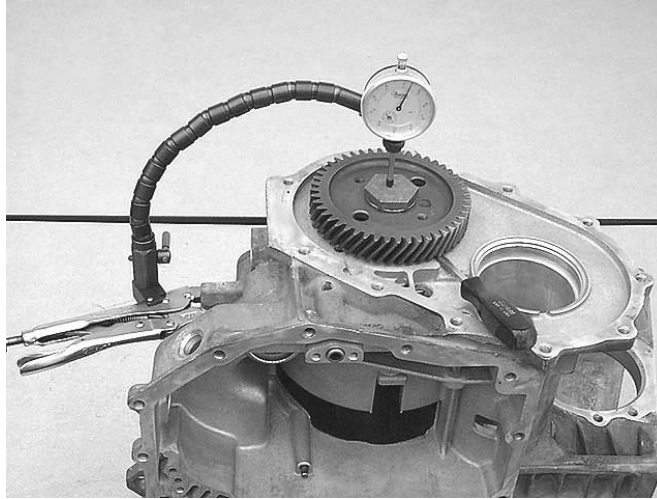
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Step 4: Replace the seals on the low/reverse piston. Lubricate the retainer with assembly lube, and slide the piston into place inside the housing. The piston has a lug on it that allows the piston to fit the housing only one way. Make sure that this lug is lined up with its slot before trying to push the piston into the housing.



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Step 11: Mount a dial indicator to the case, then set the dial probe on the output gear. Check the bearing end play and write down the results. Make sure that you pull evenly up and down on both sides of the gear.



With a test shim installed, the gear can rock side-to-side, which will change your readings. Subtract this end play amount from the test shim size. This results in a new 'zero end play' shim. However, to get *preload*, the bearings need to have pressure pushing them together. This keeps the gear and planet from rocking side-to-side. To accomplish this, you subtract 0.005" from the 'zero end play' shim size, which allows the output gear bearings to be a little bit closer together. This is the shim size you need, *in thousandths of an inch*. Example:

Test shim installed = 0.177"

Observed end play = 0.035"

Subtract observed end play from test shim thickness;

0.177"

-0.035"

0.142"

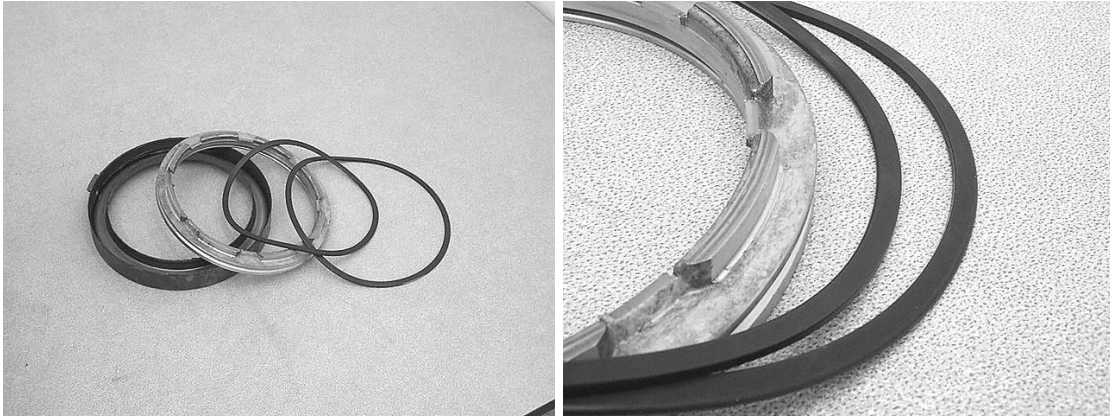
Subtract another 0.005" from this result to create bearing preload = 0.137"

That is the required transfer shaft shim thickness.

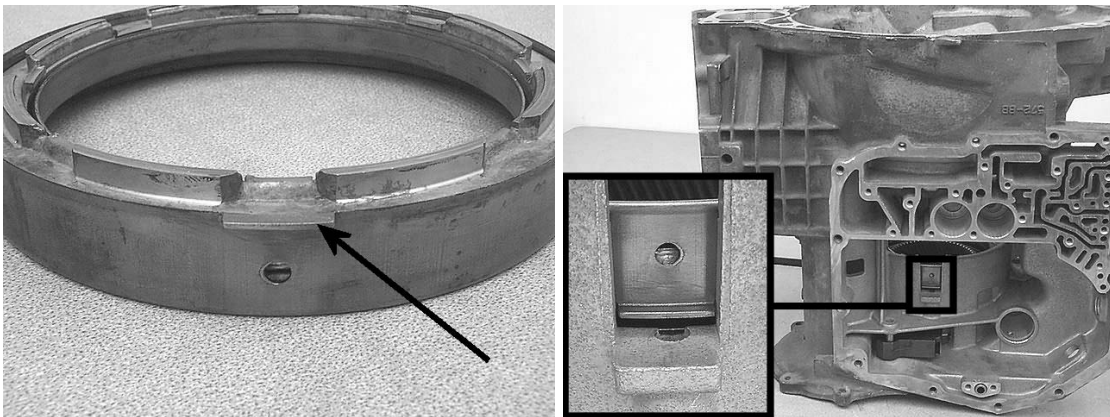
Use the Output Gear/Transfer Shaft Shim Chart below to find the shim size closest to what you need. If there is no exact match, order the next *thinner* available shim shown in the chart. Use the metric size shown when ordering to avoid confusion.

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Step 18: Install the 2-4 piston D-ring seals (not the earlier o-ring style seals) onto the piston, and install the piston into the housing.

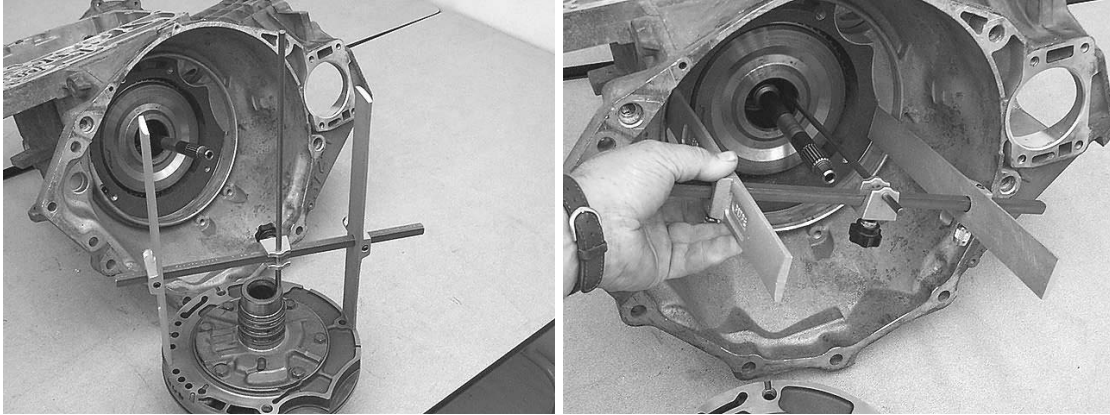


Step 19: Install the 2-4 clutch piston and housing in the case, making sure that the return spring tabs line up with the notches in the 2-4 piston. The piston housing has a tab that must be lined up with a slot in the bottom of the case to ensure that the apply oil port in the housing lines up properly with the apply passage in the valve body.

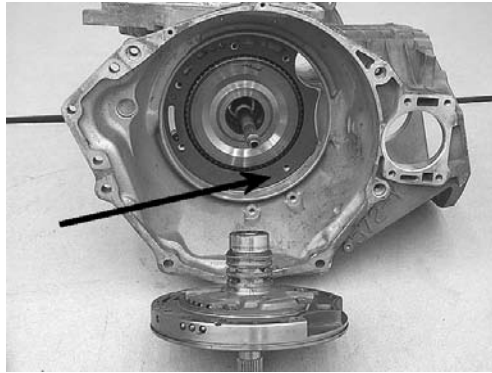


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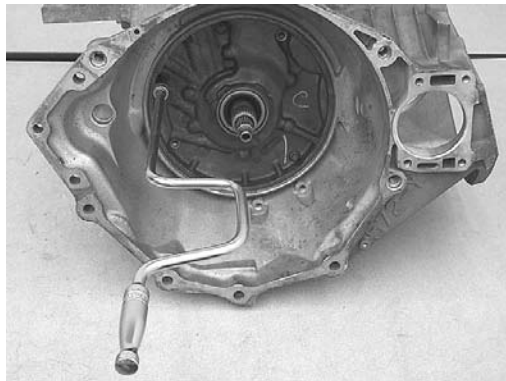
If you are familiar with using an H-Gauge to check end play, you can use it at this time to see if the drum is all the way in. Trying to force the pump into position will damage the clutch teeth.



Step 27: To check input shaft end play, lay the pump gasket in place, using a dab or two of assembly lube to hold it in position.



Step 28: Coat the stator support rear bore and the pump seal rings and lands with assembly lube. With no pump o-ring in the pump body groove, slide the pump into the case. Gently tap it all the way in, and start three of the pump bolts by hand, as shown in the above picture. Tighten these pump bolts with a speed handle or one hand on a ratchet wrench until good and snug.



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Step 44: Install the snap ring into the case using the special pliers designed for this purpose. If the snap ring doesn't want to pop into the ring groove on its own, you may want to help it a little bit by removing the special pliers and giving the ring a gentle pop or two with the PVC pipe and a modest sledgehammer. After the snap ring is in position, gently pry up on the bottom of the transfer gear through the differential area to push the lower bearing race against the snap ring.

