Installation Instructions

C-4 Transkit
1970 and Later

Part Number 50231

The B&M TransKit you have purchased contains all of the parts necessary to convert your stock transmission to the same basic specifications found in the famous B&M Transmission. This kit has been assembled with the assumption that all of the stock parts needed will be reusable. However, upon disassembly of a transmission that has excessive mileage or has been abused, you may find that certain stock parts will have to be replaced. New parts may be purchased from your dealer although in many instances you may wish to purchase used parts from a wrecking yard or transmission repair shop.

We suggest that you take the time to completely read through the instructions before beginning disassembly so that you will be prepared with all the necessary tools and materials. (See Tool and Material List)

When reading the instructions without the disassembled transmission in front of you, you may be confused. Do not concern yourself. With the transmission actually apart you will find the instructions simple and easy to follow.

Additional B&M Parts

While you have your transmission apart there are a number of other B&M accessories that you may want to consider:

1. Torque Converter. For street applications we recommend either our 11" Holeshot 2400 or, for thosethat want a little more performance the 10" Holeshot 3000 is an excellent choice. For RV/Heavy Duty applications we recommend our Traveler Converter which has slightly more stall than stock and provides additional torque for taking off with heavy loads or trailers. The Traveler also provides for improved downhill braking effect as well. For more converter information, write for our special converter brochure or consult the B&M catalog.

2. Transmission Oil Cooler. We feel that it is very important that every vehicle used in a heavy duty application, i.e. racing, towing, RV, etc., should have a supplementary transmission oil cooler. B&M now offers a very low cost cooler that features excellent efficiency and high oil flow.

3. Trick Shift Automatic Transmission Fluid. Trick Shift was originally developed by B&M for racing applications. Trick Shift is so successful that it is the most popular high performance fluid on the street as well.Trick Shift is a blend of foam inhibitors, extreme pressure agents and shift modifiers which, in combination, provide extended transmission life and dramatically improved shift feel. B&M's Trick Shift Performance transmission fluid is the most inexpensive way to measurably improve the transmission performance of your vehicle. You can literally pour in performance. Trick Shift can be mixed with other fluids. However, to attain the maximum benefit you should try to utilize Trick Shift exclusively. Ideal for towing, light trucks and RV applications. (#80259)

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SPECIAL NOTE: If your present transmission has a Shift Improver Kit installed make sure you remove all of those parts before making the modifications outlined in the TransKit.

INTRODUCTION

The B&M TransKit contains all special parts, friction materials and gaskets to modify your stock transmission to B&M specifications. Included in the instructions are optional machining modifications B&M performs to their units.

This kit can be installed in a few hours by carefully following directions. Read all instructions first to familiarize yourself with the parts and procedures. Work slowly and do not force any parts. Transmission components and valves are precision fit parts. Burrs and dirt are the number one enemies of an automatic transmission. Cleanliness is very important, so a clean work bench or area is necessary during assembly. Every attempt has been made to simplify assembly and minimize the use of special tools. For additional reference you may wish to obtain a shop manual from the vehicle manufacturer or an aftermarket reference book company.

Since this kit involves a complete overhaul the transmission will have to be removed from the vehicle. Due to the many different models available we cannot cover each vehicle in detail. Included, however, are basic removal and replacement instructions.

This kit contains all parts necessary to obtain any of three levels of performance depending on intended use:

1. **Heavy Duty:** Towing, campers, motorhomes, police, taxi, etc. This is a heavy duty modification intended for high capacity without harsh shift feel.

2. **Street:** Dual purpose performance vehicles. Also on/off-road performance. Firm positive shift feel but acceptable for daily street driving.

3. **Competition:** Race cars only, not to be driven on the street. Maximum shift feel. Trailered or towed race vehicles only.

Automatic transmissions operate between 150°F and 250°F. It is suggested that the vehicle be allowed to cool for a few hours to avoid burns from hot oil and parts. The vehicle must be off the ground for ease of transmission removal. Jack stands, wheel ramps or a hoist will work fine. **Make sure the vehicle is firmly supported!** Try to raise it 1-2 feet so you have plenty of room to work easily. A transmission or floor jack should be used to prevent injury and/or transmission damage during removal. Have a small box or pan handy to put bolts in so they won't get lost. Also have a drain pan handy to catch oil in.

TRANSMISSION REMOVAL

STEP 1. C-4 transmissions do not have drain plugs. You will be installing a drain plug kit in the pan later but for now you will have to drain the oil pan by loosening the bolts and allowing the oil to drain past the pan gasket. Some models have the dipstick tube attached to the oil pan. Loosen the nut on the dipstick tube to allow the oil pan to drain. Loosen the pan bolts slowly but do not remove them. If the pan sticks to the gasket pry it loose with a screwdriver. After the oil drains snug the pan back into place.

STEP 2. Remove the driveshaft assembly. Be careful not to drop or damage the driveshaft or the smooth bushing/seal diameter on slip yoke models. Now is a good time to clean and inspect your U-joints.

STEP 3. Loosen and disconnect oil cooler lines. Try to use a fitting wrench to avoid damaging the compression fitting nuts on stock oil cooler lines. (See Fig. 1)

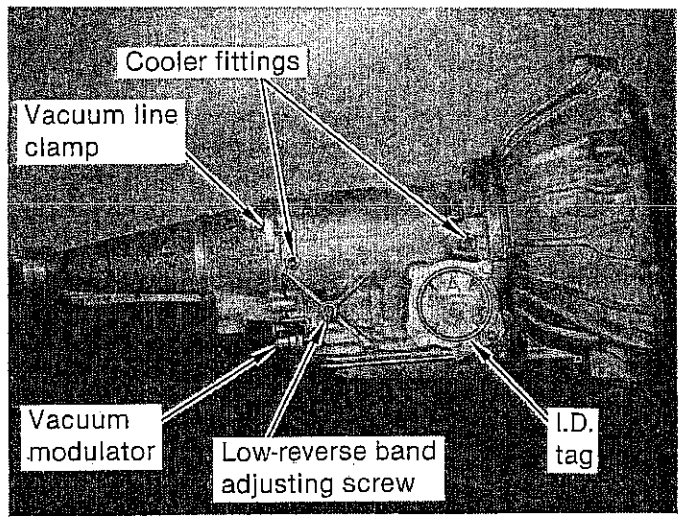


FIGURE 1

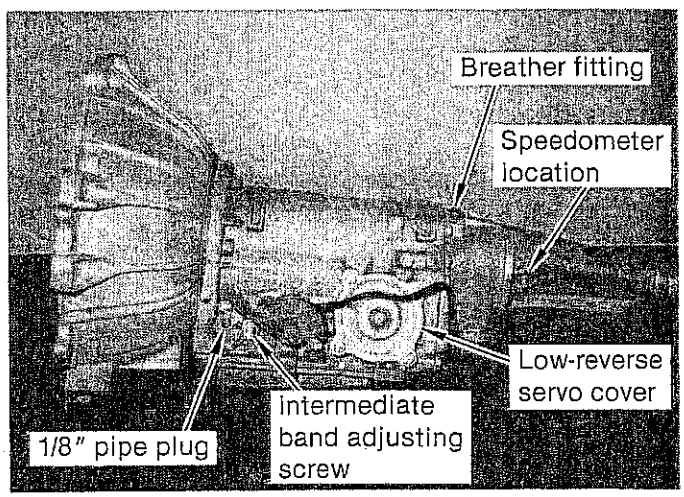


FIGURE 2

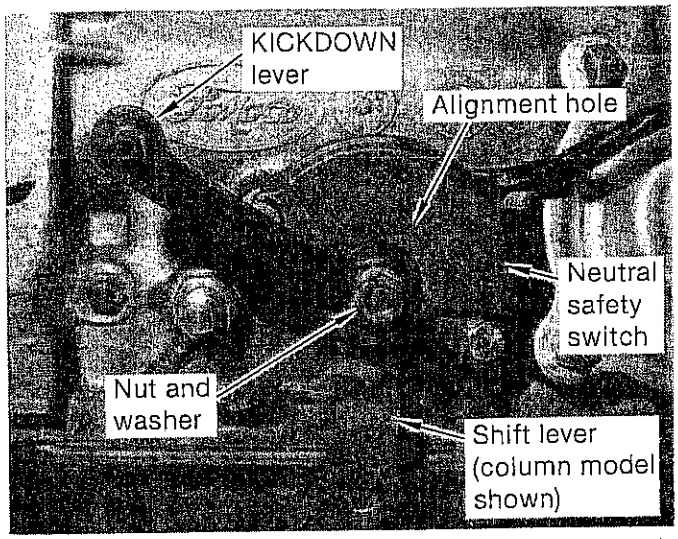


FIGURE 3

STEP 4. Disconnect kickdown linkage lever by removing the nut and washer on lever shaft and prying lever off shaft. Allow kickdown linkage to hang free. (See Fig. 3)

STEP 5. Disconnect shift linkage by removing cotter key or E-clip or prying shift rod out of plastic grommet in shift lever.

STEP 6. Remove dust cover on front face of bellhousing to expose converter nuts. Remove four converter nuts. The starter motor can be used to bump each nut into position.

STEP 7. Disconnect battery cables. Unbolt starter motor and tie it up out of the way. Remove any engine to transmission braces or straps. Unbolt neutral safety switch assembly and slide off shift lever. (See Fig. 3) Tie switch up out of the way. Disconnect speedometer cable. Disconnect vacuum modulator hose and remove vacuum line if necessary.

STEP 8. Place a jack under the oil pan to support the transmission. Unbolt and remove the crossmember assembly. Remove dipstick and tube.

STEP 9. Remove the transmission to engine bolts. Pull the transmission back slightly away from the engine. Make sure the converter does not fall out. Lower the transmission/converter assembly and remove from the vehicle. Once the transmission is completely out of the vehicle the torque converter can be pulled off the front. Some oil will leak out at this time. Drain the torque converter as completely as possible and cover the neck to keep out dirt. There will still be about 1-2 quarts of oil in the transmission. You should plan to disassemble the transmission in an area where this oil can be cleaned up easily.

There have been different model C-4 transmissions produced since 1970. The valve body modifications in this kit will only work on full automatic model valve bodies. Where there are differences in disassembly procedures they will be so noted in the instructions. If you find it necessary to replace any transmission hard parts during TransKit installation, make sure to use the serial number stamped into the tag on the servo cover on the right side of the case just above the pan when you go to your Ford dealer. (See Fig. 1)

Modifications will be done in sub-assembly steps to avoid confusion and parts mix-up. Work slowly and follow the directions. If you do not understand a step, read it again. Do not guess at anything. It will also be helpful to make notes on the instructions for model reference. It may be helpful to retain the seals and O-rings during assembly to help identify the new replacement pieces in the gasket set.

Section A

STEP 1. Remove oil pan bolts and remove oil pan. Use your oil pan for a parts tray. Note the position of the detent roller spring. (See Fig. 4)

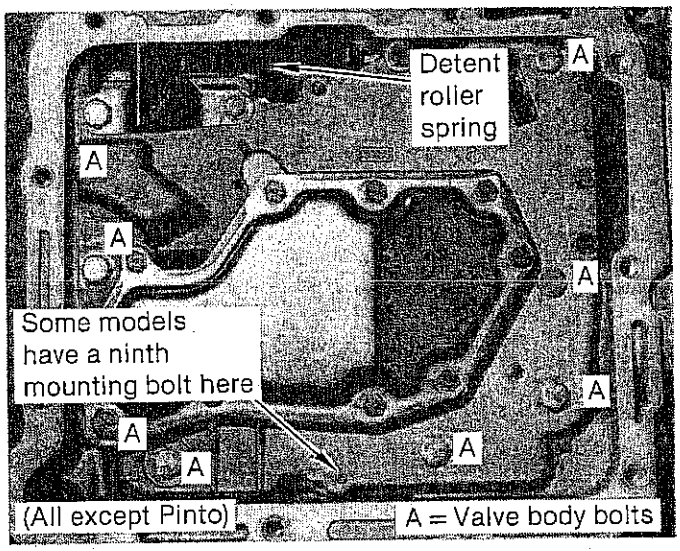


FIGURE 4

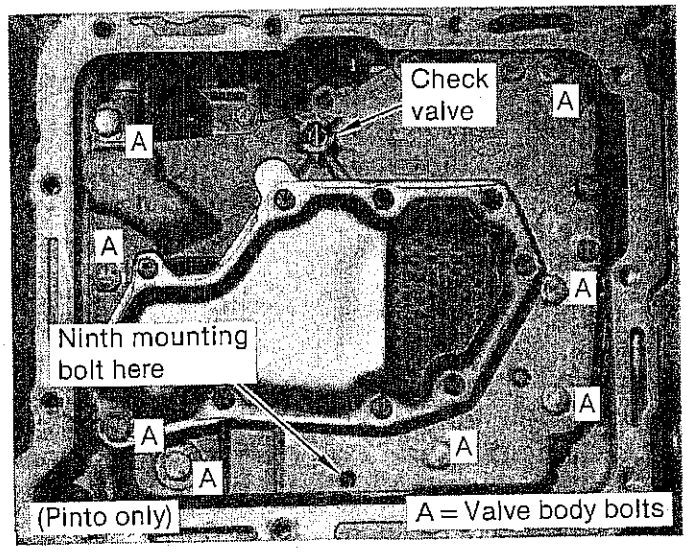


FIGURE 4A

STEP 2. Manually operate the down shift lever. (See Fig. 3). Note how it moves freely with no bind. Observe Fig. 3) Note how it moves freely with no bind. Observe how the internal linkage engages the valve body. Remove eight or nine ¼ " bolts holding the valve body in place. Remove the valve body and set it aside. Pinto models have a check valve visible next to the oil filter. (See Fig. 4A)

STEP 3. Loosen and remove the intermediate band adjusting locknut and screw. (See Fig. 2) Remove the band anchor and apply strut. (See Fig. 5) Loosen and remove the low-reverse band locknut and adjusting screw. (See Fig. 1) Remove the band anchor and apply strut. (See Fig. 5)

STEP 4.

Units where bellhousing bolts to case: Remove bellhousing bolts and remove bellhousing. (See Fig. 6) Remove seven front pump bolts.

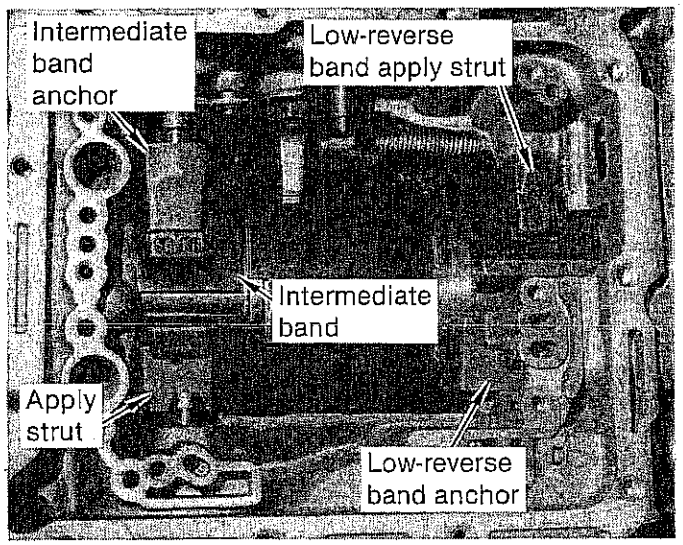


FIGURE 5

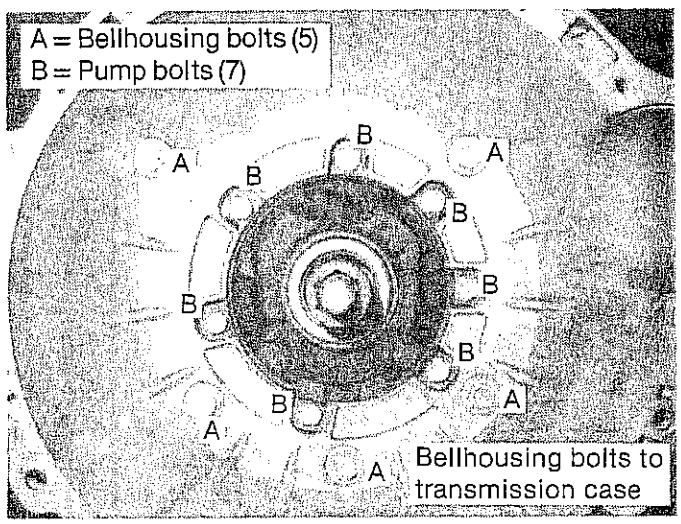


FIGURE 6

Units where bellhousing bolts to pump: Remove seven front pump bolts. (See Fig. 7) Remove bellhousing.

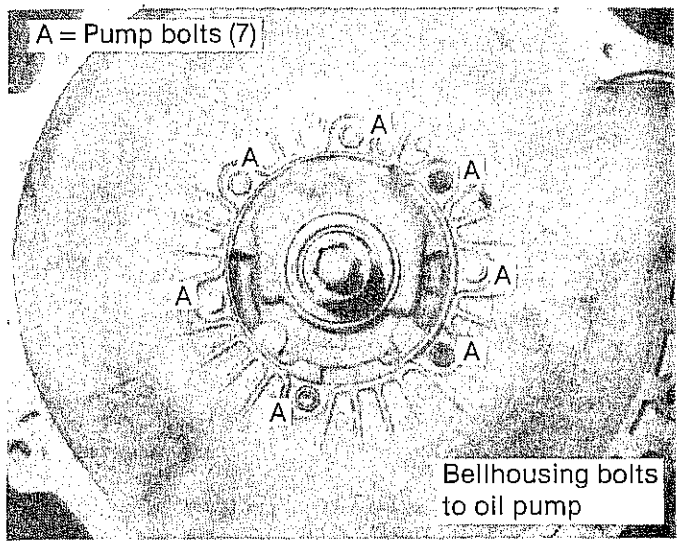


FIGURE 7

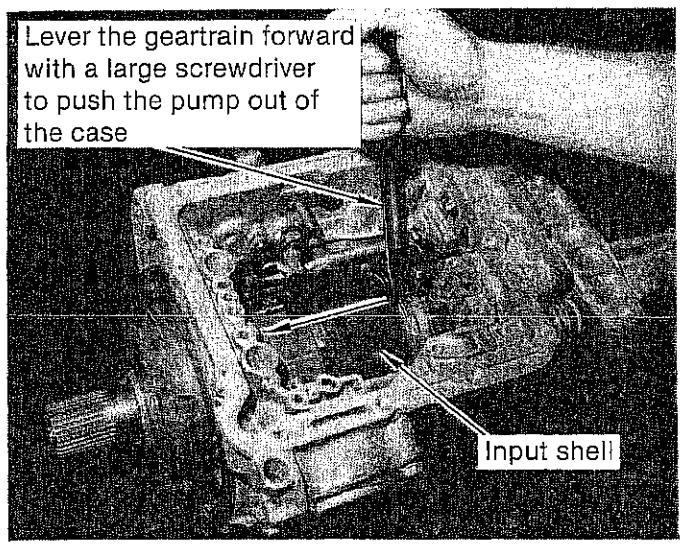


FIGURE 8

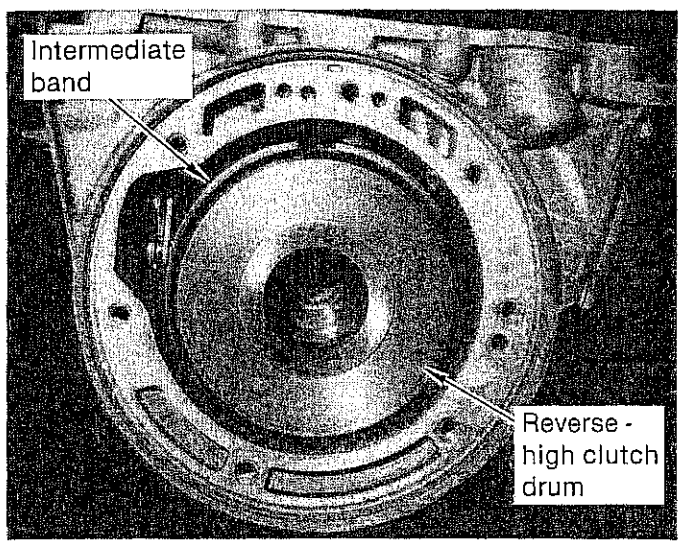


FIGURE 9

Remove the input shaft by pulling it straight out. Insert a large screwdriver behind the input shell and lever the geartrain forward to push the pump out of the case. (See Fig. 8) Remove the pump and set it aside. There may be a small two-tab thrust washer on the very back of the pump. Do not lose it. Remove and discard the pump gasket.

STEP 5. Remove the intermediate band. (See Fig. 9) Some models have a thick formed band, others have a thin flex band. Set the band aside.

STEP 6. Remove the reverse-high clutch drum. (See Fig. 9) The geartrain will separate as you remove the components. Set the clutch drum aside.

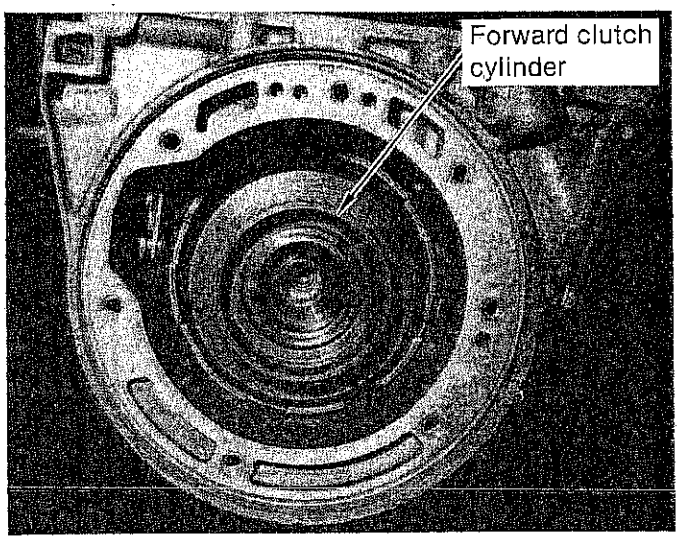


FIGURE 10

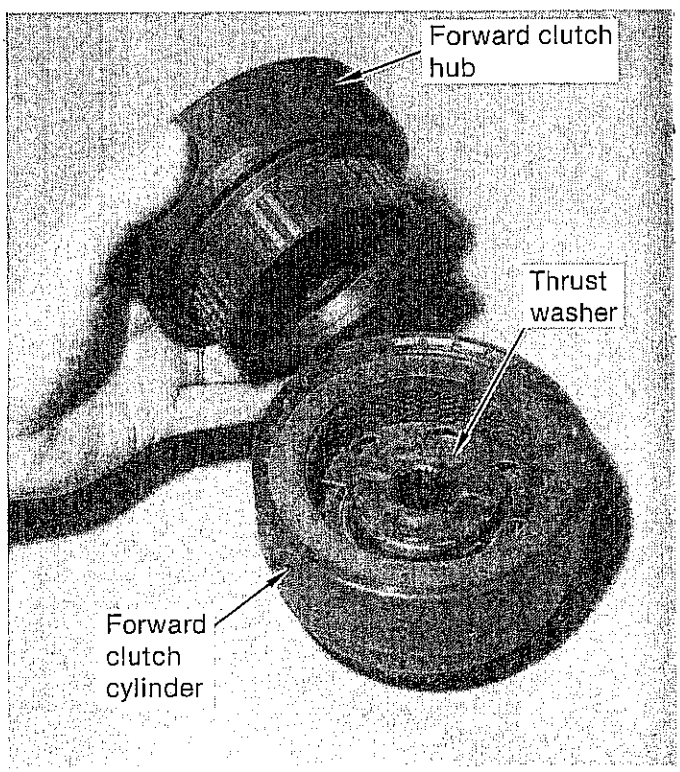


FIGURE 11

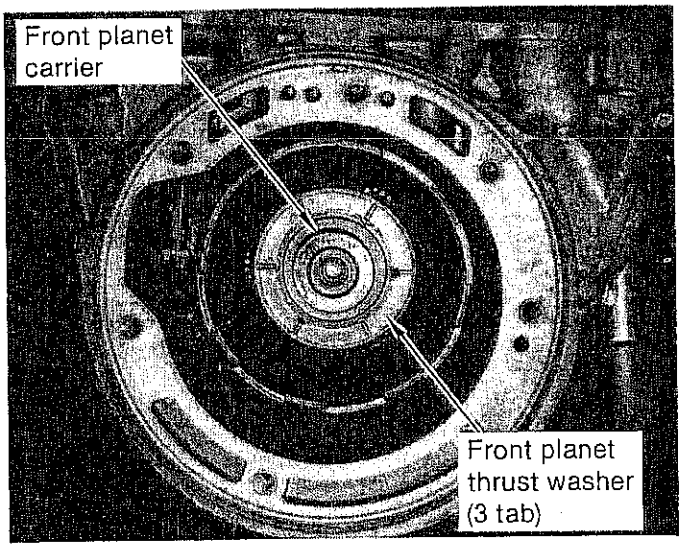


FIGURE 12

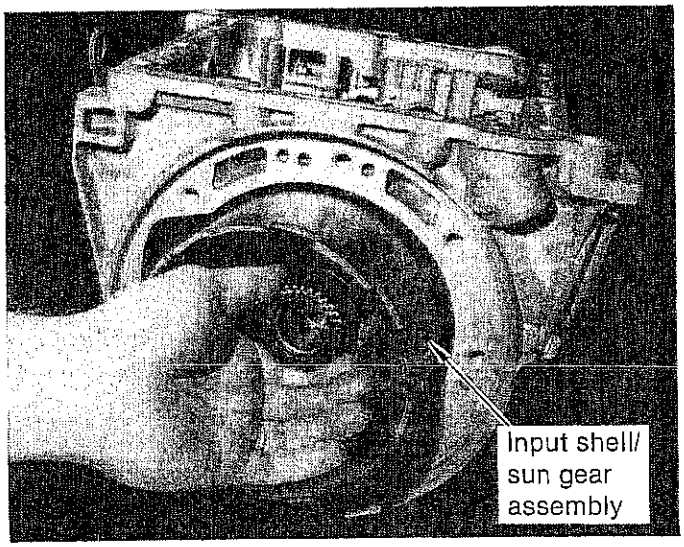


FIGURE 13

STEP 7. Remove the forward clutch cylinder assembly. (See Fig. 10) The forward clutch hub and ring gear will probably come out with the cylinder. There is a washer between the cylinder and the forward clutch hub. (See Fig. 11) Check for the small two-tab thrust washer inside the front of the cylinder if the washer did not come out with the pump. Set the clutch cylinder aside.

STEP 8. Remove the three-tab front planet thrust washer if it did not come out with the forward clutch hub. (See Fig. 12) Remove the front planetary carrier. The needle bearing race inside the rear of the planetary may come out. The bearing cannot be removed. Remove the input shell/sun gear assembly. (See Fig. 13) The four-tab reverse planet thrust washer will probably be stuck to the back side of the input shell. Put all thrust washers and bearing race in the oil pan.

STEP 9. Remove the three-tab reverse planet thrust washer if it did not come out with the input shell. (See

Fig. 14) Remove the reverse planet carrier. There will be a three-tab thrust washer on the back of the planet carrier. Put the thrust washer in the oil pan.

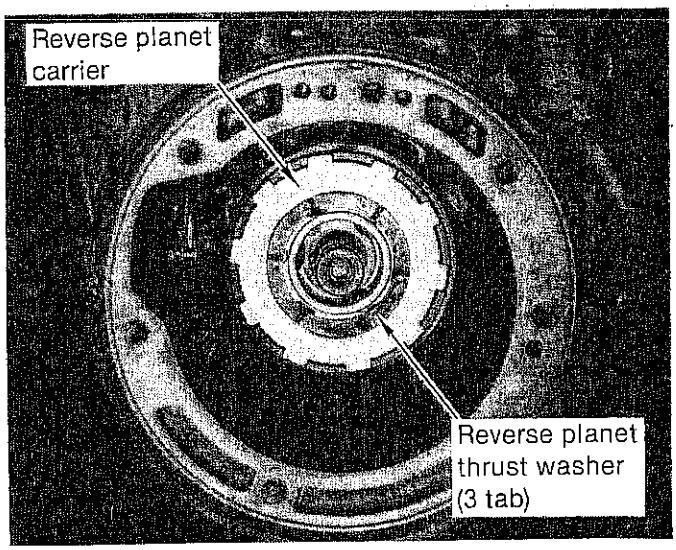


FIGURE 14

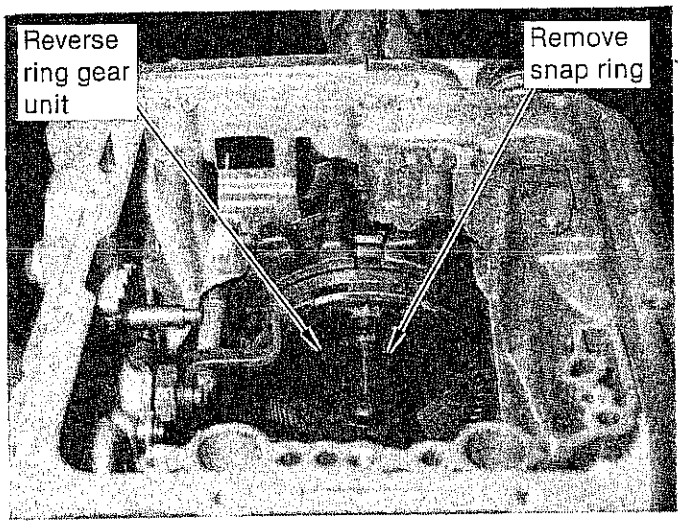


FIGURE 15

STEP 10. Remove the snap ring holding the reverse ring gear and hub. (See Fig. 15) Note: Units with flange type output shafts (truck, van and 4-WD units) will not have this snap ring. Remove the reverse ring gear unit. There will be a thrust washer on the front of the low-reverse drum. Put the snap ring and the thrust washer in the oil pan.

STEP 11. Remove the low-reverse drum by pulling it straight out. (See Fig. 16) The one-way clutch behind the low-reverse drum may fall apart. Do not be alarmed. Set the drum aside. Remove the one-way clutch inner race. (See Fig. 17) Also remove twelve rollers, twelve accordian shaped springs, spring retainer and thrust washer. (See Fig. 18)

If any of the one-way clutch parts came out of the clutch as the low-reverse drum was removed, remove them from the case. Put the one-way clutch in the oil pan.

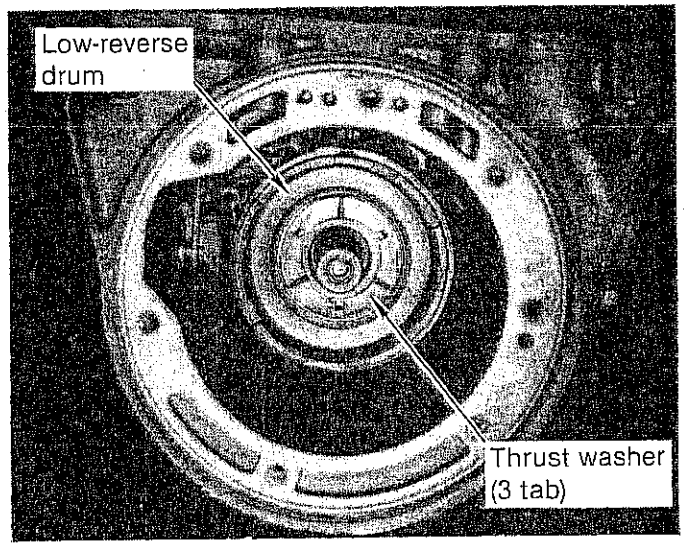


FIGURE 16

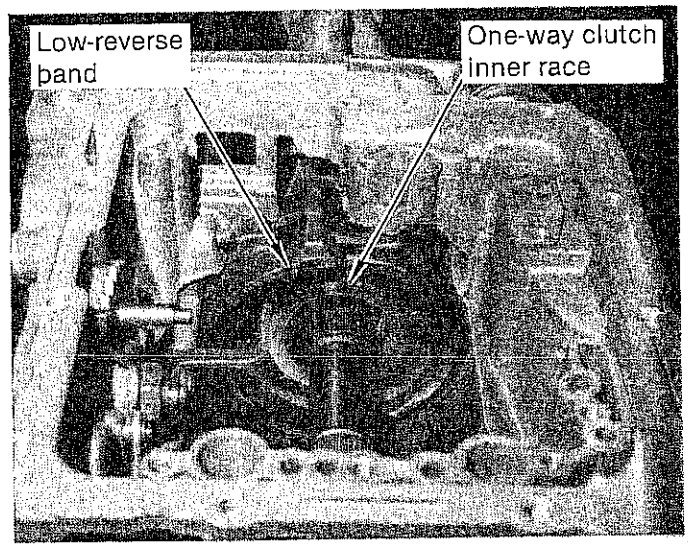


FIGURE 17

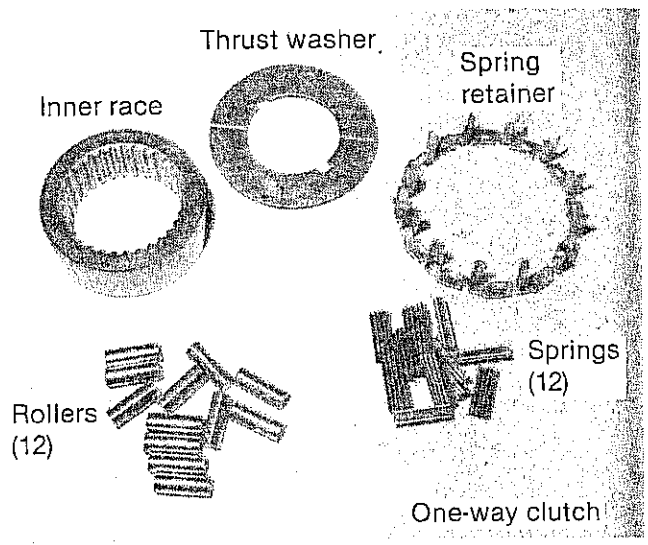


FIGURE 18

STEP 12. Remove the low-reverse band from the case and set it aside. (See Fig. 17)

STEP 13. Position the transmission face down. Remove six extension housing bolts and remove the extension housing.

Slip Yoke Models: Lift the housing off. (See Fig. 19) Remove and discard the extension housing seal. Be careful not to damage the bushing when you knock the seal out. Lift the output shaft out of the case. Remove the snap ring holding the governor onto the output shaft. (See Fig. 20) Slide the governor off the output shaft and set the governor and output shaft aside.

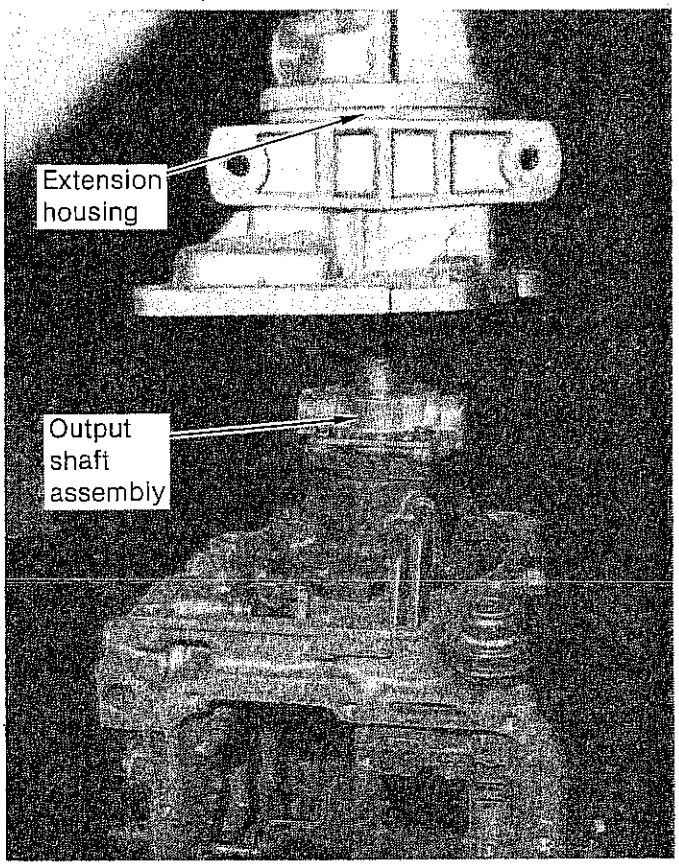


FIGURE 19

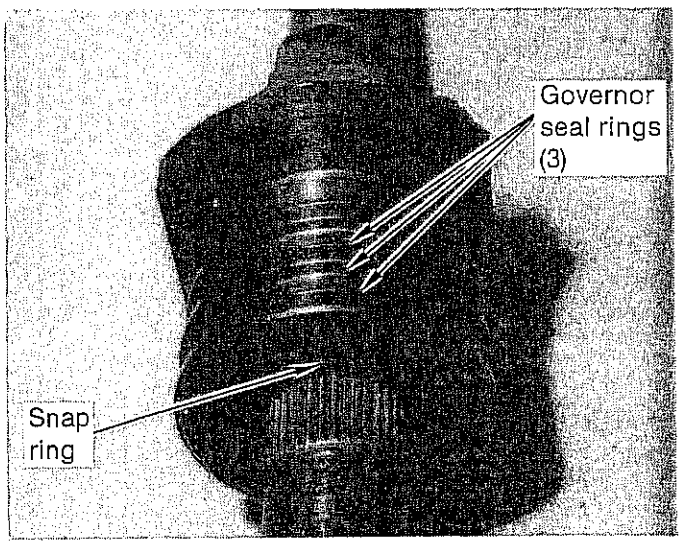


FIGURE 20

Flange Models: (Most trucks) Lift the entire extension housing assembly off the transmission. (See Fig. 21) The output shaft will be part of this. Remove the snap ring holding the governor onto the output shaft. (See Fig. 20) Slide the governor off the output shaft and set it aside. The output shaft/extension housing assembly does not have to be disassembled for cleaning unless the seal is leaking or parts need to be replaced due to damage.

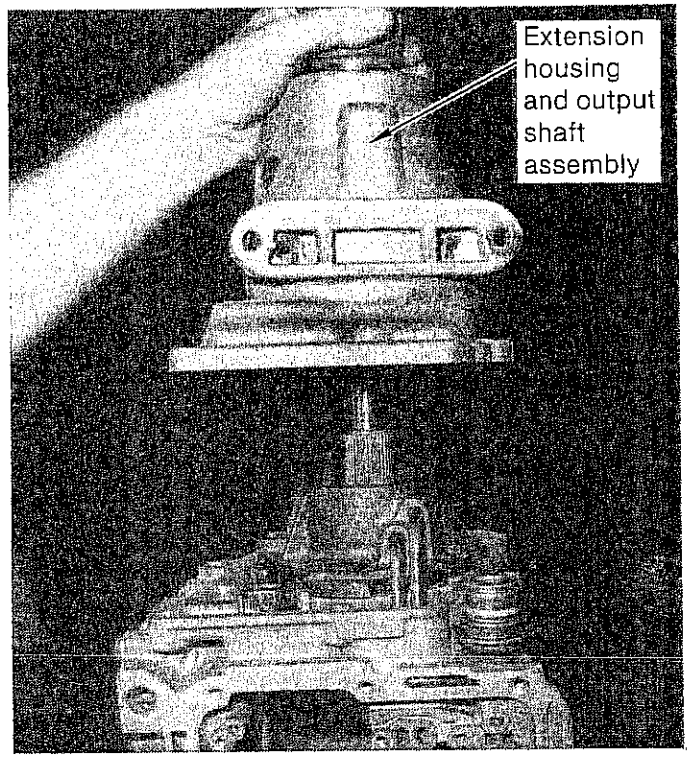


FIGURE 21

STEP 14. Remove the four governor distributor sleeve bolts. (See Fig. 22) Remove sleeve and governor tubes. Remove parking gear. (See Fig. 23) Remove parking gear thrust washer. Remove park pawl spring, pawl and shaft. Put the small parts in the oil pan.

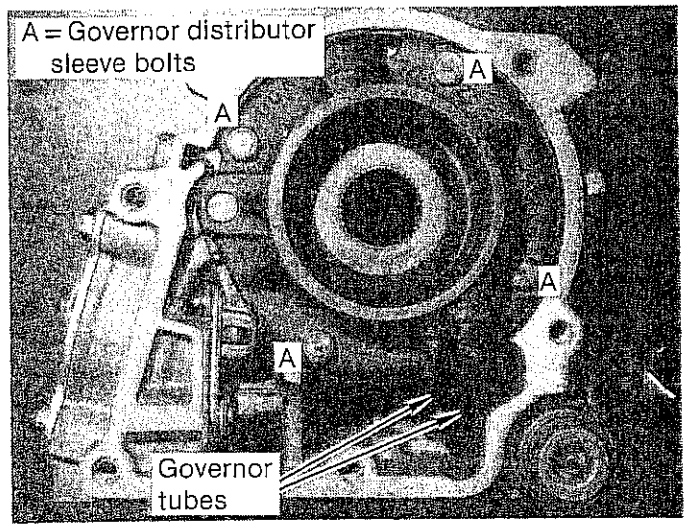


FIGURE 22

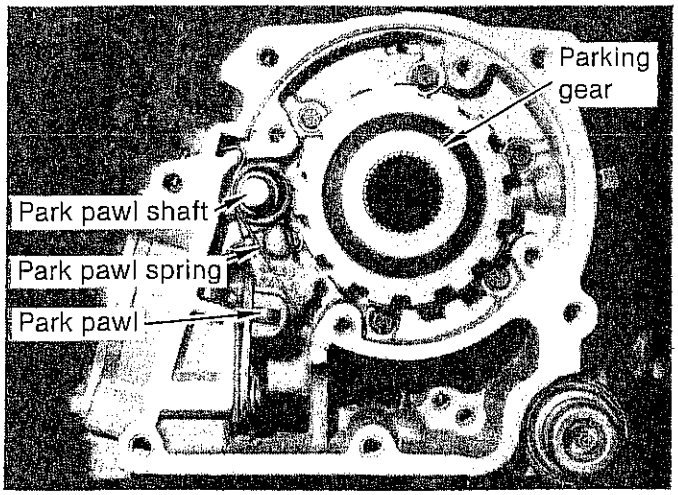


FIGURE 23

STEP 15. Remove four low-reverse servo bolts. (See Fig. 24) Remove servo cover, piston and spring. Remove and discard O-ring on servo cover. Note: The piston seal is molded into place and is not removable. Set the servo aside.

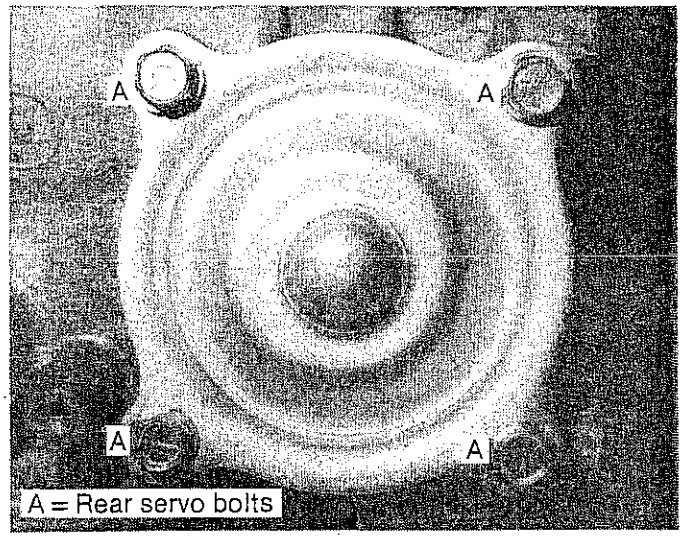


FIGURE 24

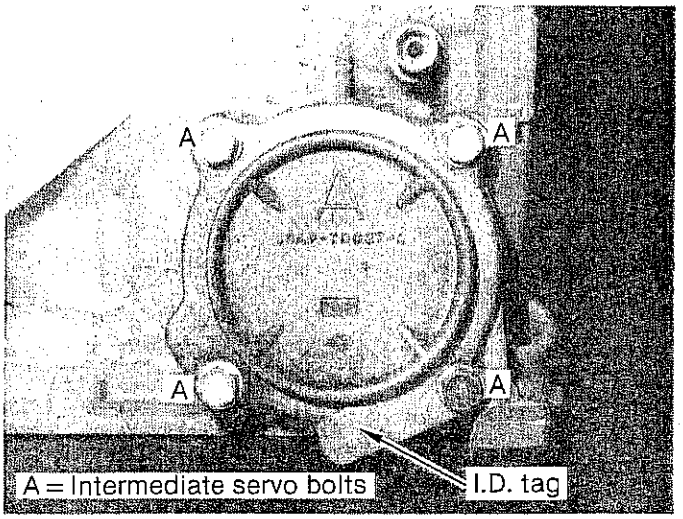


FIGURE 25

STEP 16. Remove four intermediate servo bolts. (See Fig. 25) Remove servo assembly by tapping on servo pin inside case gently with a hammer. Hold your hand over the servo cover so it doesn't fly out and splatter oil all over. Remove servo cover, piston and spring. Remove and discard gasket and piston inner and outer seals. Set the servo aside.

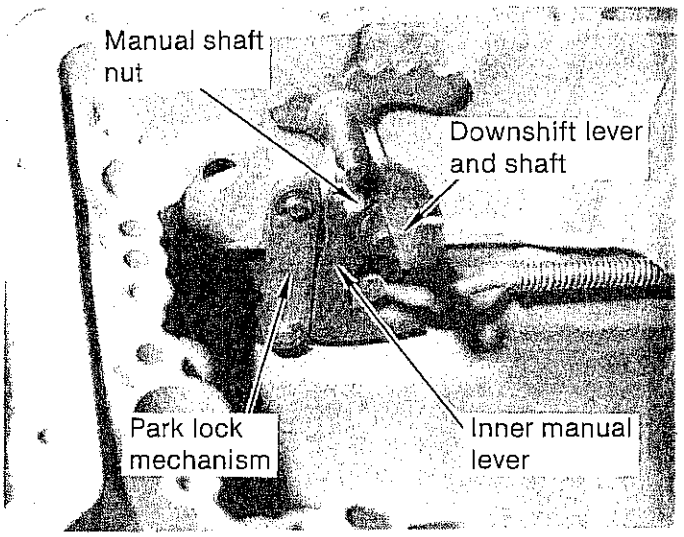


FIGURE 26

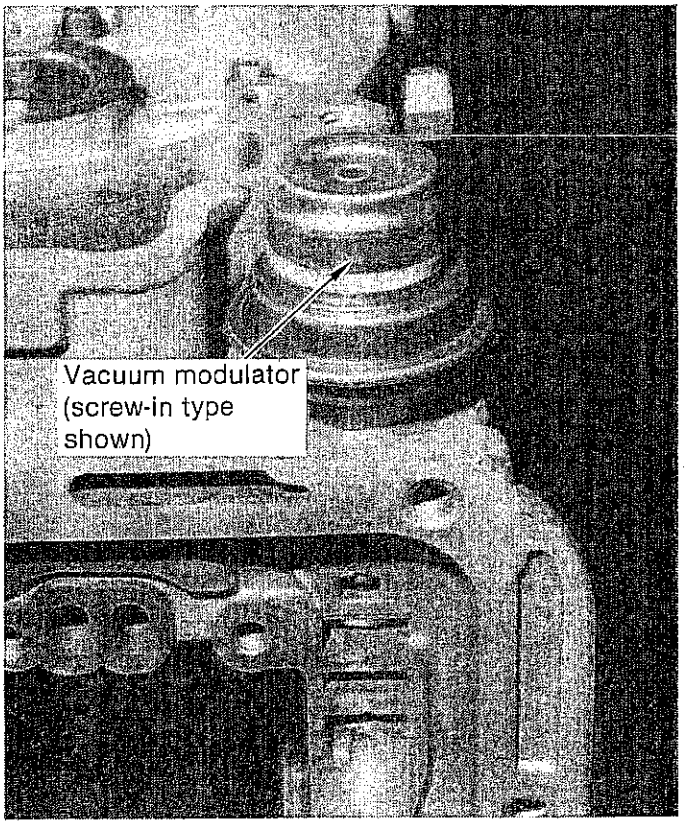


FIGURE 27

STEP 17. Slide the downshift lever and shaft out of the manual lever from the inside. (See Fig. 26) Discard the downshift shaft O-ring on the outside of the manual shaft. Note the position of the outer manual lever on your transmission and how the inner lever engages the

park lock mechanism. Remove the manual shaft nut on the inside. Remove the inner manual lever from the case. Slide the outer manual lever and shaft out of the case. Put the parts in the oil pan. Remove and discard the manual shaft seal on the outside of the case. You do not need to remove the park lock mechanism or one-way clutch outer race for cleaning.

STEP 18. Remove the vacuum modulator. Some modulators are screw in and are removed by a wrench on the hex portion of the modulator. (See Fig. 27) Do not apply wrenching action to the modulator as you can damage the diaphragm. Some model units retain the modulator with a clamp which was removed with the extension housing. Pull the modulator out of the case. Discard gasket or O-ring. Remove the modulator rod and valve from the case. Put them in the oil pan.

STEP 19. Remove one or two 1/8" pipe plugs from the case. Remove cooler fittings. Remove smog switch, if your unit is so equipped. (See Figs. 1 and 2) Put them in the oil pan.

The case is now ready to clean.

DISASSEMBLY OF SUB-UNITS

Section B

I. Oil Pump

STEP 1. Remove and discard the O-ring on the outside diameter of the pump if your model has one and the four metal hook-type seal rings on the rear of the pump. (See Fig. 28) Remove the selective thrust washer and the small two-tab washer on the back of the pump. Set it in the oil pan.

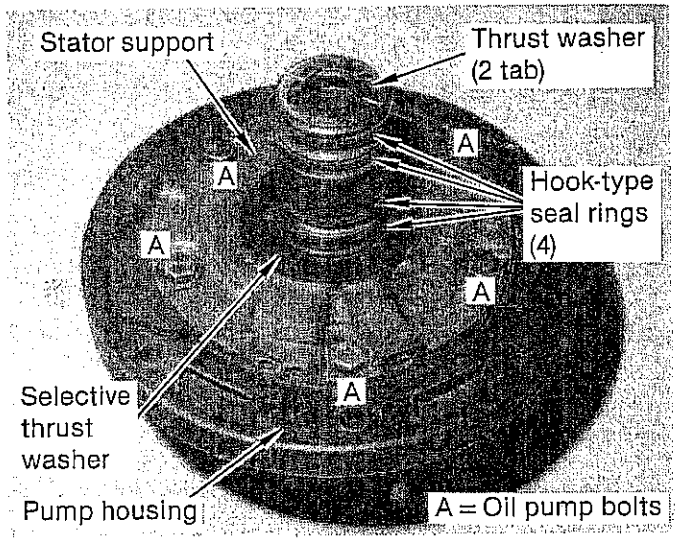


FIGURE 28

STEP 2. Remove the five oil pump bolts from rear of oil pump. (See Fig. 28) Remove stator support from pump housing. Remove pump drive gear and driven gear. Remove and discard front pump oil seal. Be careful not to damage the pump bushing.

The pump is now ready to clean.

II. Reverse-High Clutch Assembly

STEP 1. Set the reverse-high clutch assembly in front of you with the clutches facing up. Remove the snap ring holding the pressure plate in place with a screwdriver. Remove the thick pressure plate and two to four reverse-high clutch plates and steel plates. (See Fig. 29) Set the pressure plate and snap ring aside.

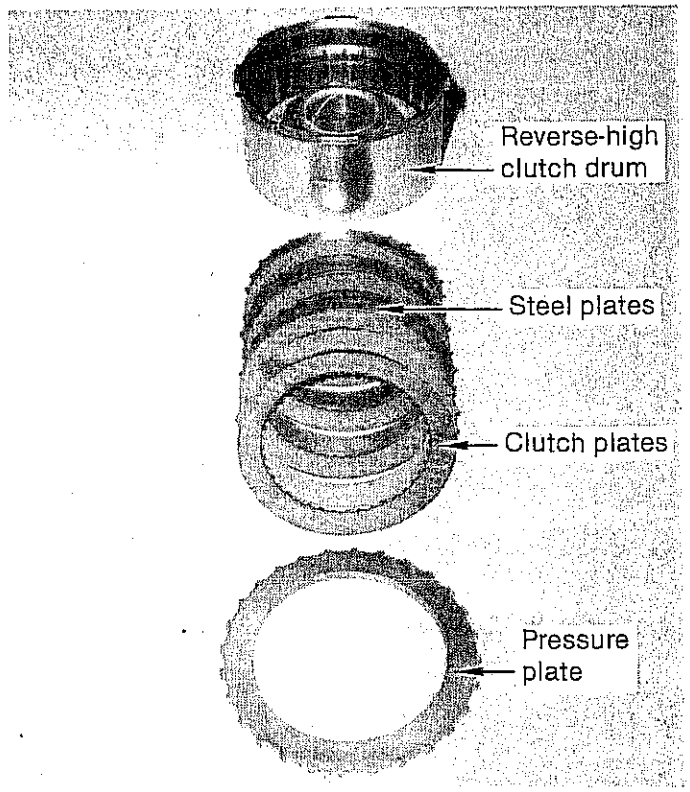


FIGURE 29

STEP 2. Use an arbor press or two C-clamps to compress the piston return spring retainer. (See Fig. 30) Be careful not to distort the retainer. Remove the snap ring and release the press carefully. Remove spring retainer and ten return springs. Remove the clutch piston from the drum. Remove and discard the outer rubber lip seal from the piston and the inner rubber lip seal from the clutch drum. Set the piston, springs, spring retainer and snap ring in the oil pan.

The reverse-high assembly is ready to clean.

III. Forward Clutch Assembly

STEP 1. Remove the snap ring holding the backing plate in place with a screwdriver. Remove the thick rear pressure plate. Remove three to five forward clutch plates and two to four steel plates. Remove the thick front pressure plate. (See Fig. 31)

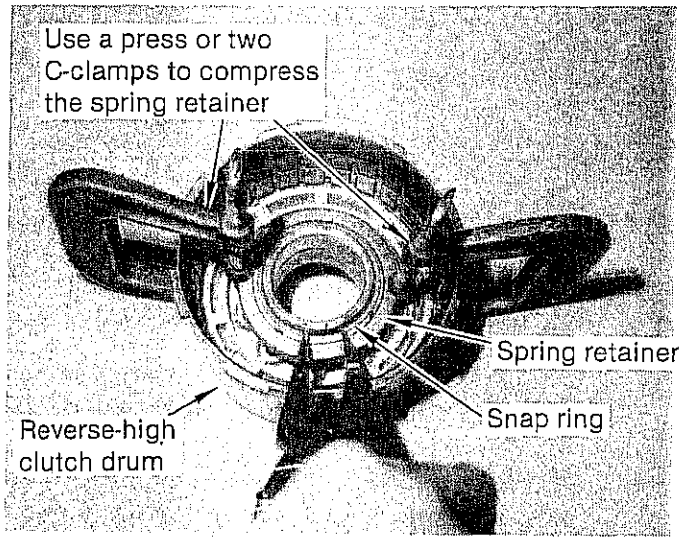


FIGURE 30

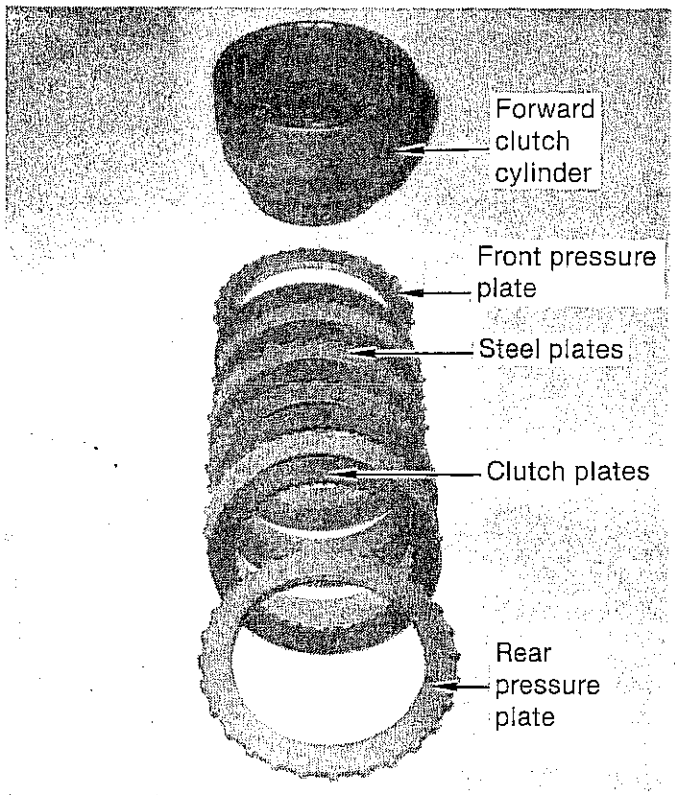


FIGURE 31

STEP 2. Remove the snap ring holding the dished disc spring in place. (See Fig. 32) Remove piston return spring and steel ring. Remove the piston from the clutch cylinder. Remove and discard the outer rubber lip seal from the piston and the inner seal from the clutch cylinder.

The rear clutch assembly is ready to clean.

IV. Governor

STEP 1. Remove and discard three metal seal rings from the governor distributor body. (See Fig. 20) Remove four governor housing bolts and separate governor. Remove and discard any metal oil screens in the distributor body. The governor is now ready to clean. Exercise care in cleaning to avoid losing governor parts.

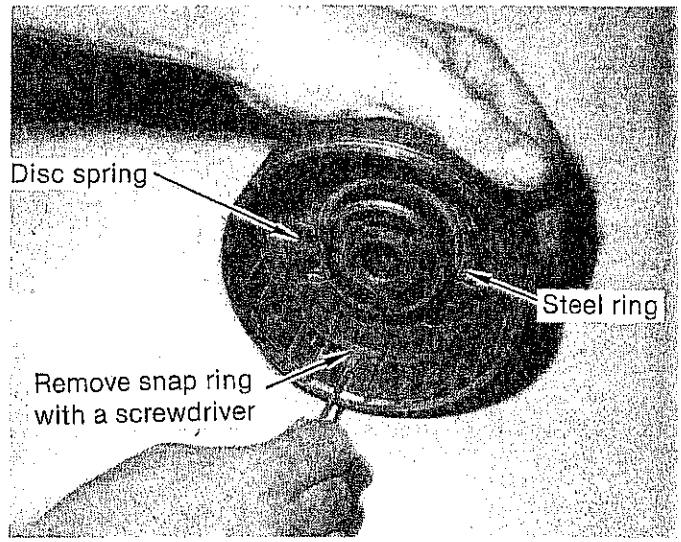


FIGURE 32

CLEANING

At this point it is time to clean the parts. You will clean the valve body during modification. If your transmission has no amount of visible hard residue or varnish you can clean the parts satisfactorily in cleaning solvent. For varnished or excessively crusted parts, use a cold degreaser such as a carburetor cleaner or "Gunk." To prevent rusting, dip parts in solvent after washing carburetor cleaner off with water. Clean the following parts in solvent only: Governor, servo piston with molded seal, springs with a color code, smog switch and any plastic parts carburetor cleaner may damage. Also clean any friction materials or bands in solvent only. Exercise care when handling parts not to nick or damage mating surfaces, ring grooves or machined areas. Do not wipe off internal parts with linty rags.

SUB-ASSEMBLY AND MODIFICATIONS

Section C

Note: There are several machining operations B&M does to the transmission to improve performance and life. Some of these operations require tools and/or machines not readily accessible to everyone. Any operations that are not absolutely necessary will be marked "optional" and can be performed if you so desire to get the most out of your transmission.

When performing modification and assembly steps it is important that you do not mix modifications from one level of performance to another (i.e. Heavy Duty in one step, and Street in another step). Also, remember the

"Competition" modifications are not intended to be driven on the street. Shift point calibration is altered and shift points may be unacceptable for street use.
We suggest you have an oil can full of transmission fluid and a supply of grease (Vasoline, white grease, etc.) handy for prelubing during assembly.

I. Valve Body

Note: FoMoCo has produced two styles of valve bodies. They will be noted "Pinto" and "All Except Pinto." The "Pinto" style may be found in Pinto, Bobcat, and now some '79 and later Intermediate Cars. Check Fig. 34 for identification.

STEP 1. Lay the valve body on the bench with the filter side down. Remove the two upper ¼" bolts with a 7/16" wrench. (See Fig. 33)

STEP 2. Turn the valve body over and remove the filter screws. (See Fig. 34 or 34A). Remove filter and set it aside. Note: These screws are long. All except Pinto will have a check valve and spring under a tab in the corner of the filter. Remove the valve and spring and set them aside. (See Fig. 35).

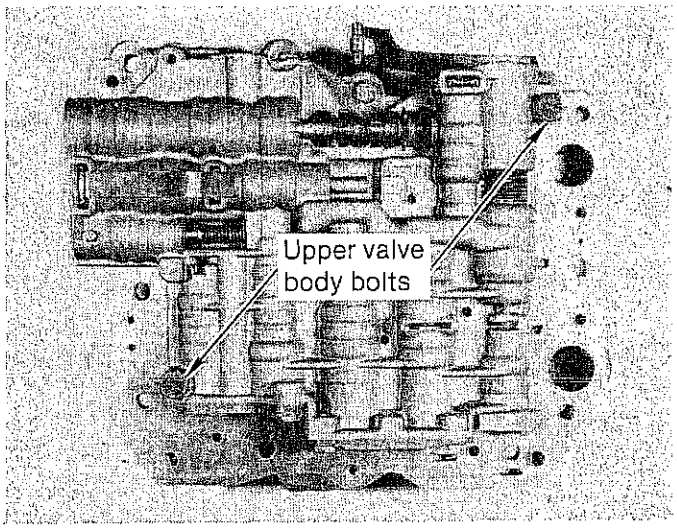


FIGURE 33

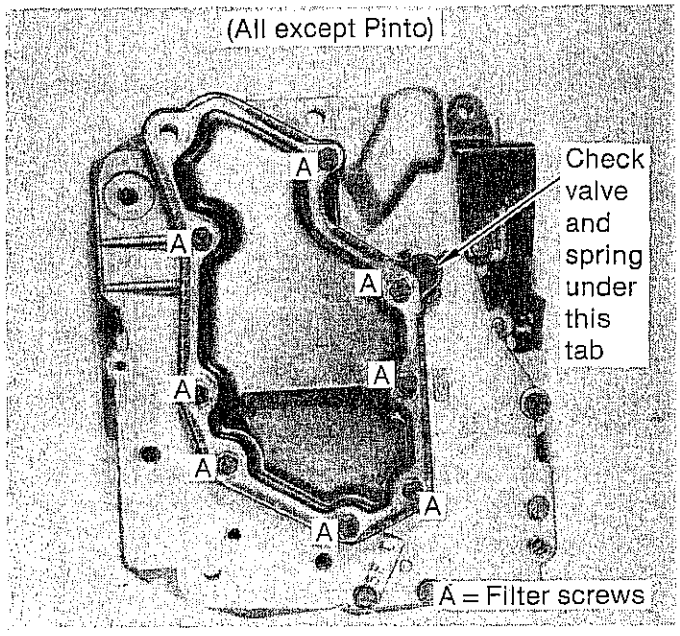


FIGURE 34

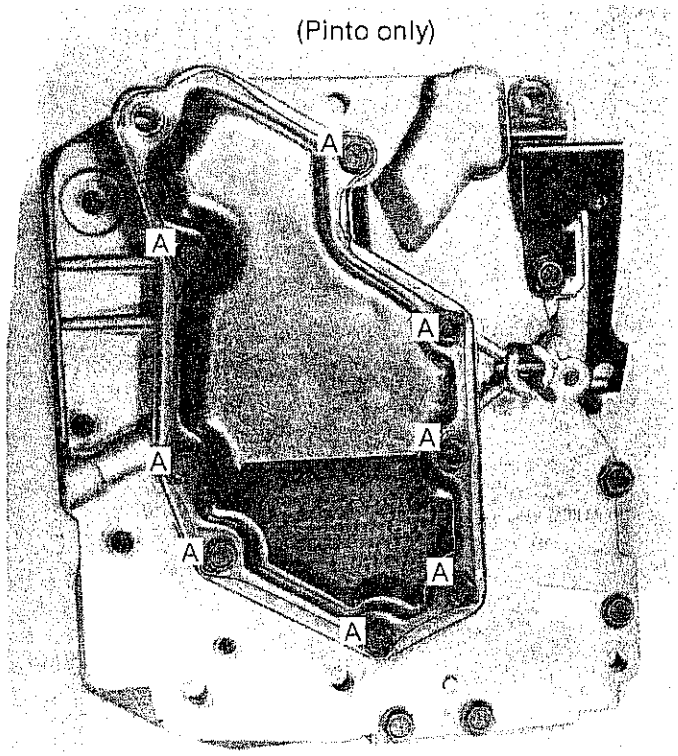


FIGURE 34A

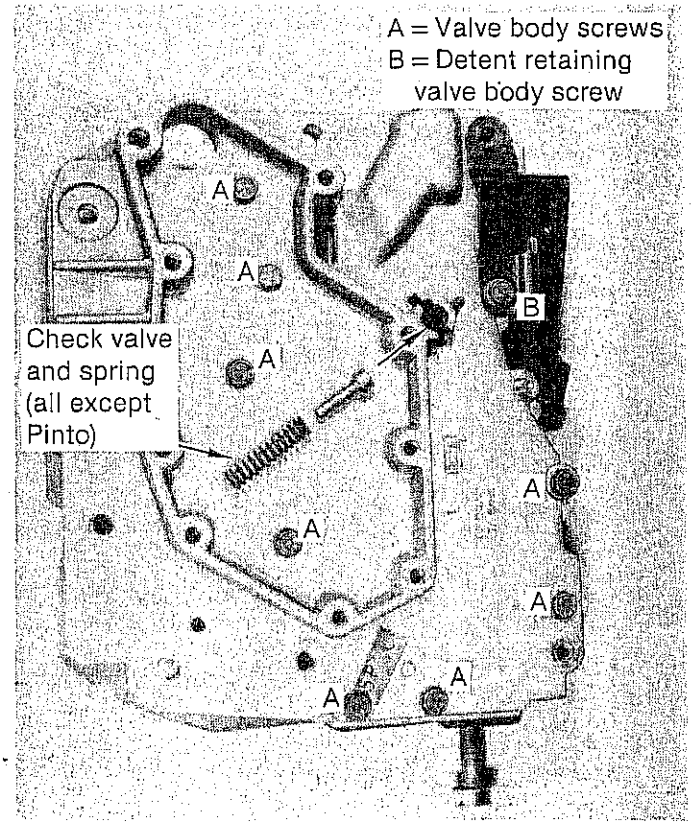


FIGURE 35

STEP 3. Remove the remaining valve body screws and detent roller spring. There are nine of these screws and they are medium length. The valve body consists of three main components. The main housing with the valve is called a **casting.** The thinner aluminum casting that the filter is attached to is call the **transfer plate.** The thin steel plate with all the holes is called a **separator plate.**

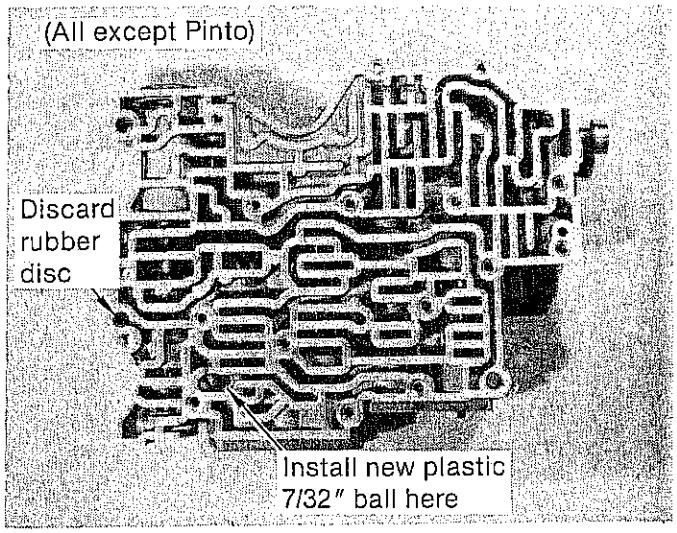


FIGURE 36

STEP 4. Lift the **transfer plate** assembly off the **casting.** There is one black plastic check ball (all except Pinto) or two check balls (Pinto only) and a flat black rubber disc in the **casting.** (See Fig. 36 or 36A) Remove these and discard them. Set the **transfer plate** assembly aside.

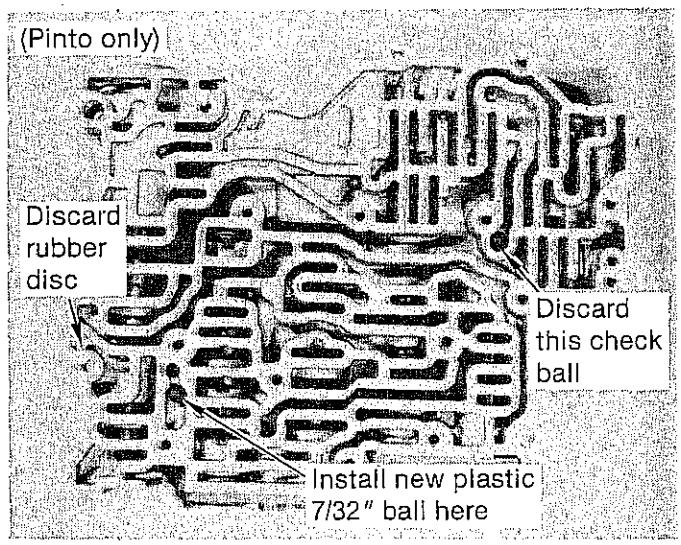


FIGURE 36A

STEP 5. Remove the accumulator valve end plug. (See Fig. 37 or 37A) This plug is held in by a retaining pin. Push in on the plug to allow the pin to fall out. There is a spring underneath that will push the plug out. Remove the plug and the intermediate servo accumulator valve and spring. Install accumulator valve first into bore and spring second. Install end plug as removed. Push in on

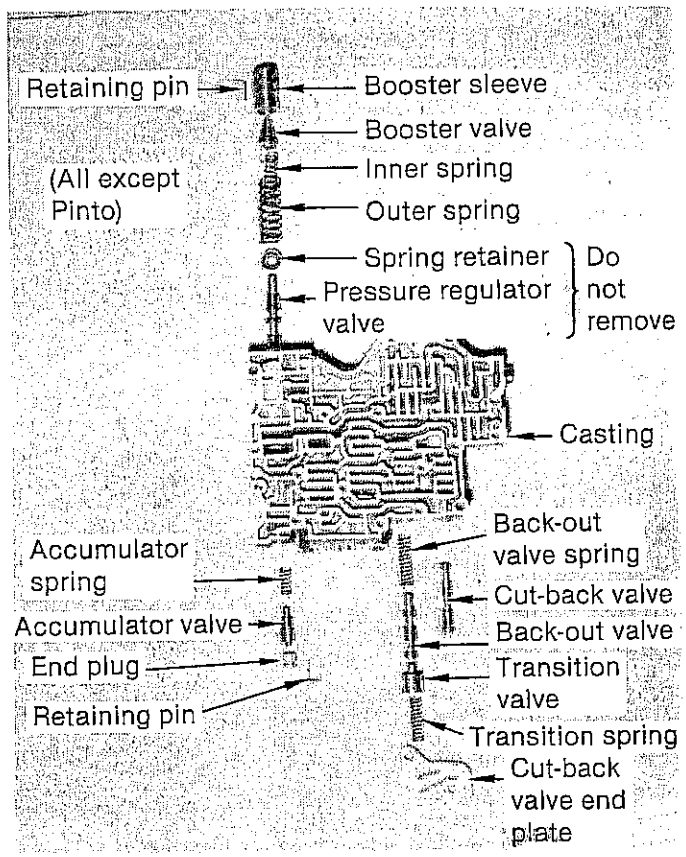


FIGURE 37

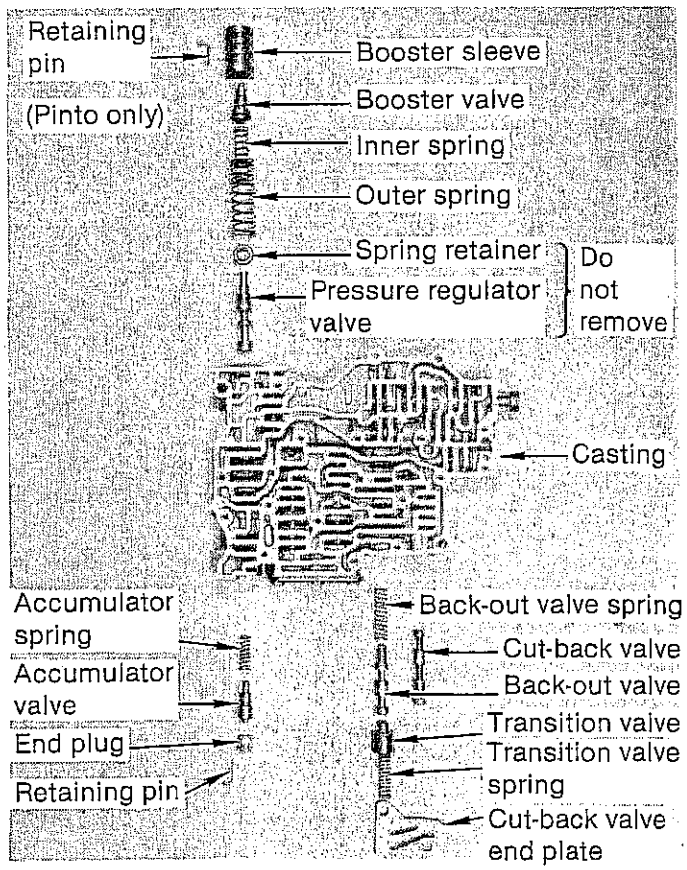


FIGURE 37A

plug until retaining pin can drop in place and install pin. Spring tension will hold pin in place.

STEP 6. Remove the cut-back valve end plate bolts and end plate.

Heavy Duty: No modification necessary for this application.

Street and Competition: Remove the cut-back valve. Install the 7/32" diameter steel ball from the kit into the cut-back valve bore. Install the cut-back valve as removed. The end of the valve should be below the surface of the **casting.** If it is not, grind a sufficient amount off the small end of the valve.

Remove the transition spring and valve. Remove the 2-3 back-out valve and spring. Discard the springs. Install the 2-3 back-out valve plug into the bore. Install 2-3 back-out valve and transition valve as removed. Transition valve must be below the surface of the **casting.** If not, grind a sufficient amount off the small end of the transition valve. Install the cut-back end plate as removed and install two bolts finger tight.

STEP 7. Remove the booster valve sleeve. This sleeve is held in by a retaining pin. (See Fig. 37 or 37A) Push in on the sleeve to allow the pin to fall out. There is a spring underneath that will push the sleeve and valve out. Remove the aluminum sleeve and valve. Remove the outer pressure regulator spring (large diameter) and replace it with the yellow spring from the kit.

Heavy Duty & Street: Leave stock inner (small diameter) pressure regulator spring installed in ore .

Competition: Remove and discard stock inner (small diameter) pressure regulator spring from bore. Replace with the brown spring from the kit.

Install booster valve and sleeve as removed. Make sure valve is properly installed in sleeve before assembly. Hold sleeve in place and install retaining pin. Spring tension will hold pin in place.

STEP 8.

Heavy Duty & Street go to next step.

Competition: Turn casting over. Push in on lo servo modulator retainer plug. Carefully remove spring retainer by pulling straight up as retainer plug has spring behind. (See Fig. 38). Leave lo servo modulator valve and spring in bore. Install 7/32" diameter steel ball inside spring. Against valve. Install lo servo modulator retainer plug & push into bore. Install spring retainer. Tip of lo servo modulator plug will fit into hole of the spring retainer when properly installed. Turn casting back with passages facing up. Make sure that none of the retaining pins have fallen out (See Fig. 37).

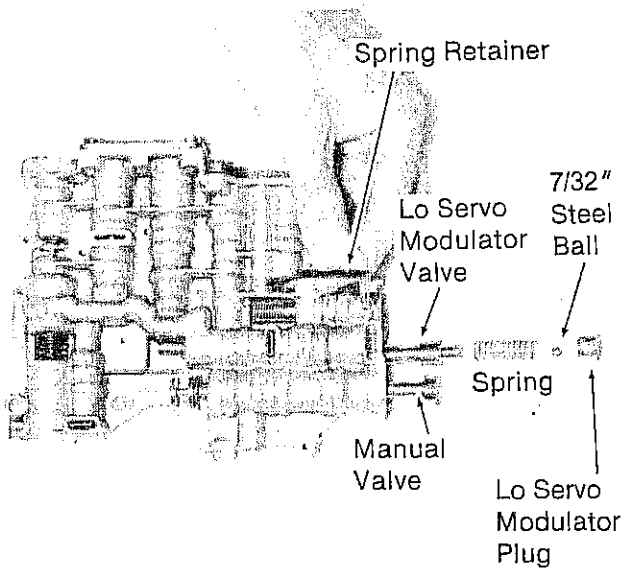


FIGURE 38

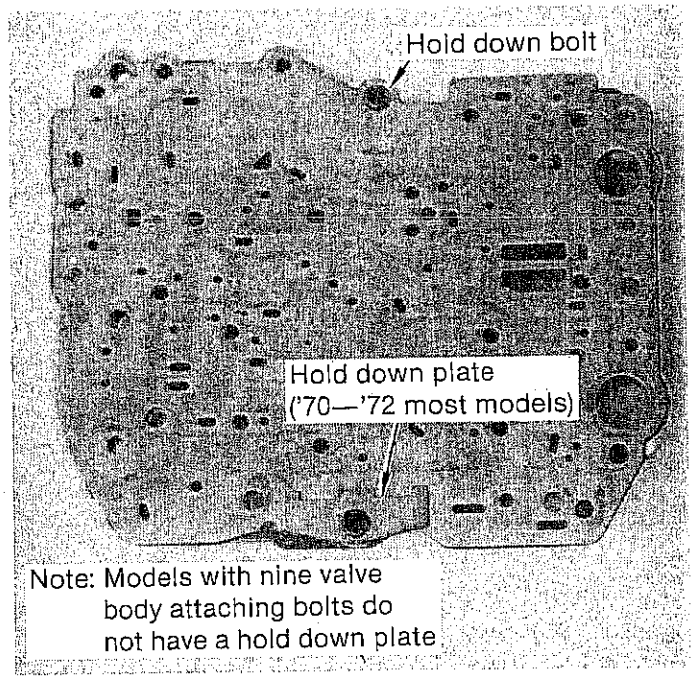


FIGURE 39

STEP 9. Lay **casting** on bench with passages facing up. Install new 7/32" plastic ball in passage indicated in Figure 36 or 36A. Set the **casting** aside.

STEP 10. Place the **transfer plate** assembly in front of you with the **separator plate** up. (See Fig. 39) Note the position of the hold-down plates. Remove the hold-down plates and the **separator plate. Pinto only:** There will be a check valve and spring under the **separator plate.** Remove it and set it aside.

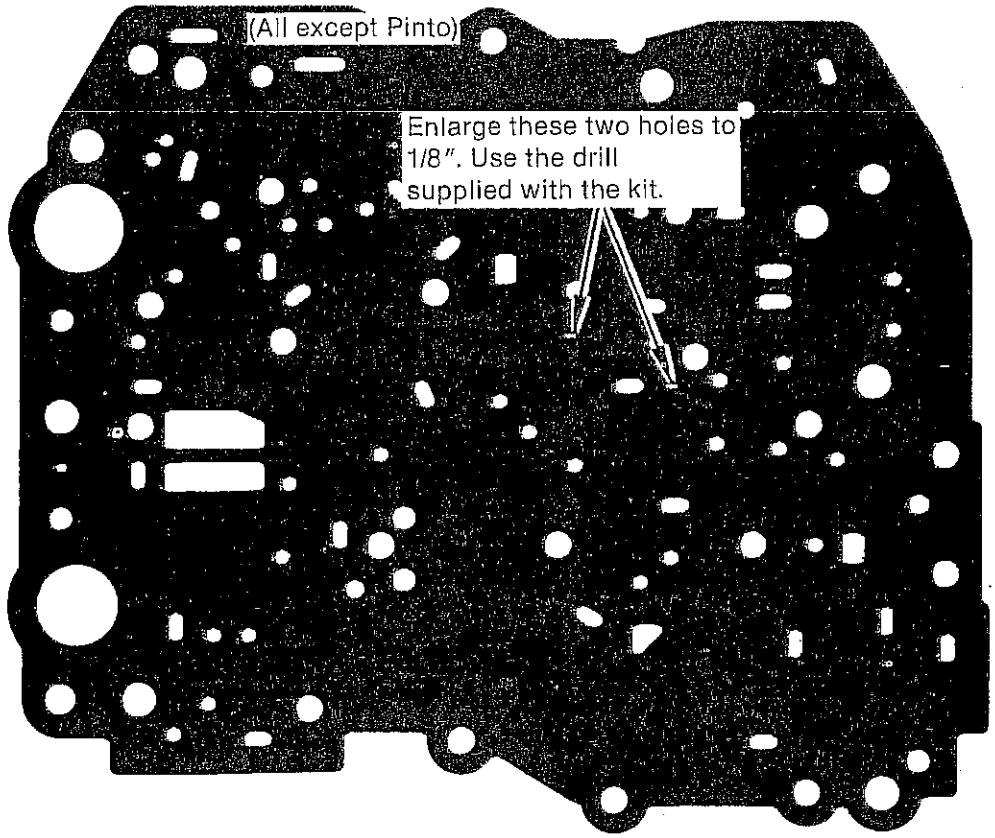


FIGURE 40

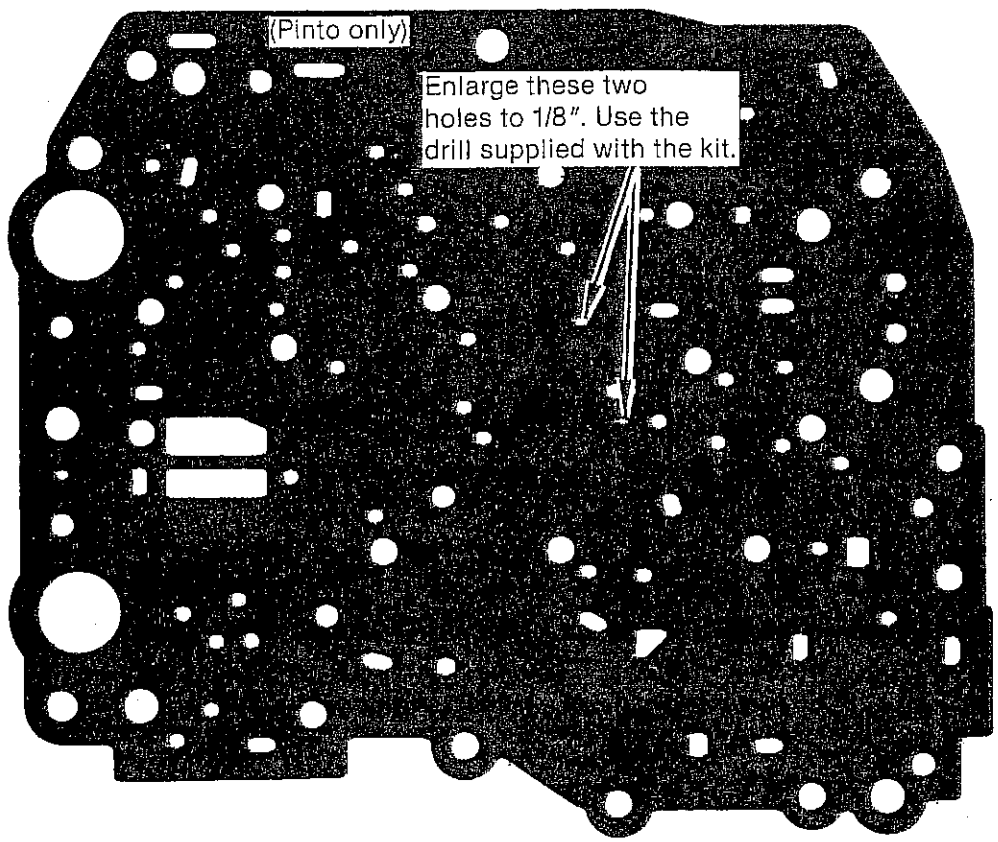


FIGURE 40A

STEP 11. Scrape off any excess gasket material from the separator plate and transfer plate casting. Discard the rubber check balls in the transfer plate. Wash the transfer plate in solvent. See Fig. 40 or 40A for separator plate drilling.

Heavy Duty Street & Competition: Use the 1/8" drill supplied and enlarge the two holes marked.

Deburr the drilled holes with a file, sandpaper or stone. Wash the separator plate in solvent.

STEP 12. Lay the **transfer plate** in front of you with the passages up. Install new plastic 7/32" diameter ball supplied with kit in position shown in Figure 41 or 41A.

Pinto only: Install check valve and spring as removed with face of valve against **separator plate.**

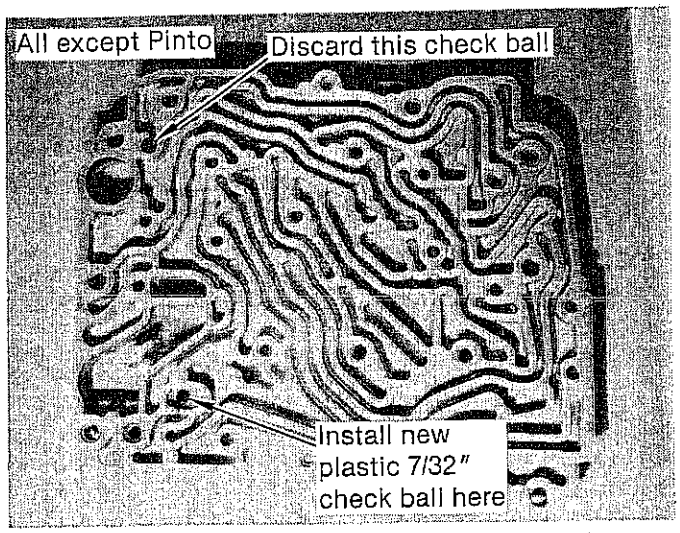


FIGURE 41

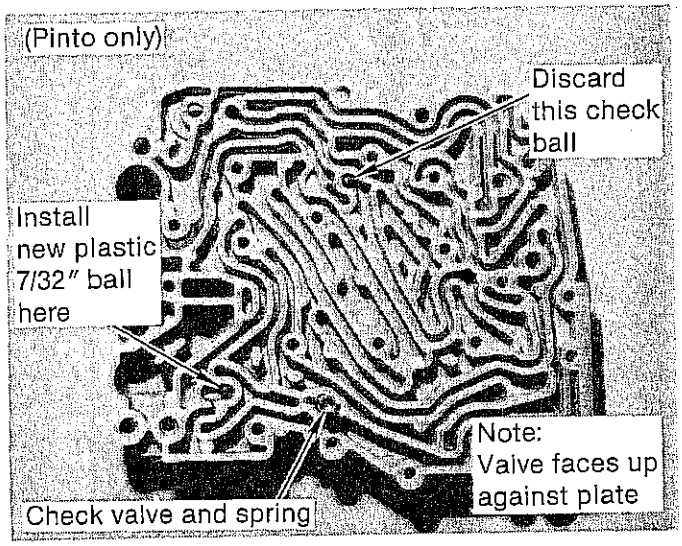


FIGURE 41A

Install **separator plate** in place on **transfer plate.** Do not use a gasket. Install hold-down plates in their proper positions. (See Fig. 39) Install bolts in place and tighten bolts finger tight.

STEP 13. Install **transfer plate** assembly onto **casting.** Make sure that all **casting** end plates and pins are below machined hydraulic surface. Make sure casting check ball is in place. (See Fig. 36 or 36A). Install eight medium length valve body bolts in place in position shown in Fig. 35. Tighten finger tight. The **casting** and **transfer plate** should be flat against the **separator plate.** If it is not there is an interference problem that must be corrected. Do not install detent roller spring yet.

STEP 14. Turn valve body over and install the two long ¼" bolts. (See Fig. 33). Tighten to 80-120 in.-lbs. Also tighten all valve body end plate bolts to 20-40 in.-lbs. This includes one end plate, eight valve body bolts and one or two hold down plates.

All except Pinto: Install check valve and spring.

Face of valve goes into **casting** first with spring on top. Tab on filter will hold valve assembly in place. Select correct filter from kit similar to stock filter. Install new filter. (Note: Bronco transmissions are factory equipped with an extension tube as part of the filter. Install tube onto new filter.) Align large hole in screen with **casting** and install filter bolts and tighten to 20-40 in.-lbs. The valve body is now assembled. Set aside where it won't get dirty.

II. Oil Pump

STEP 1. Inspect oil pump housing for damage. The area where the pump gears ride should have no excessive wear. (See Fig. 42) Some scratch marks are normal. The gear face of the stator support should have no step at any point where the gears ride. (See Fig. 43) The gears themselves should have clean faces and the outer edge of the large gear should show no metal transfer or wear. (See Fig. 44)

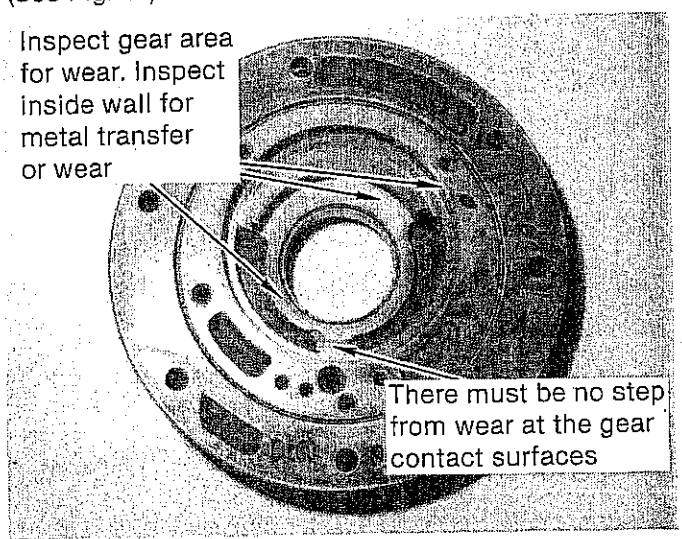


FIGURE 42

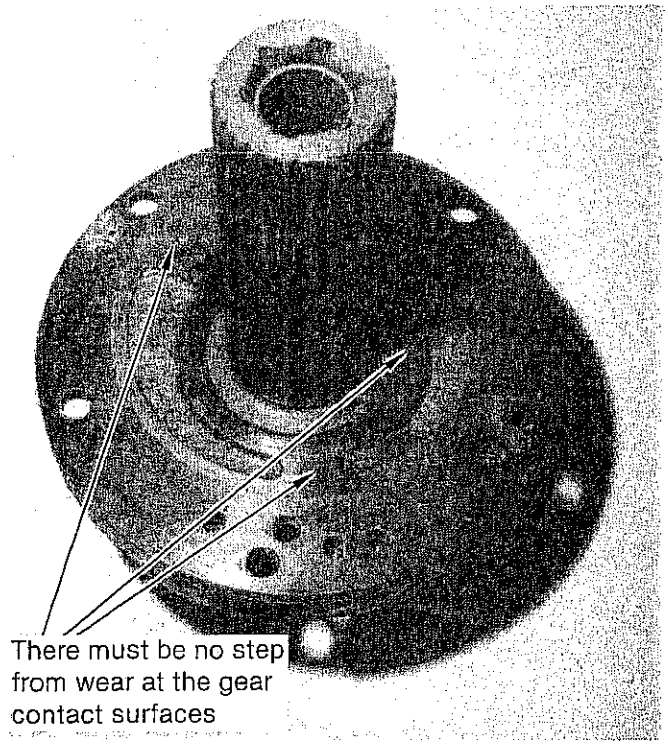


FIGURE 43

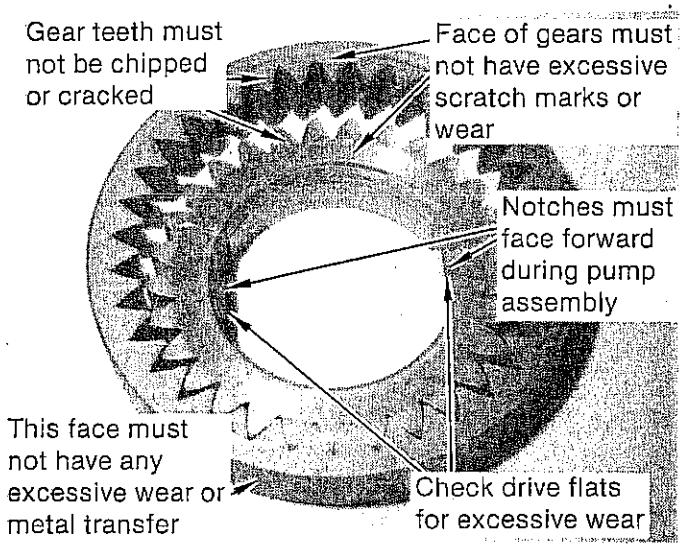


FIGURE 44

STEP 2. Inspect the following areas:

Pump Bushing: Replace as necessary.

Seal Ring Grooves: Install a sealing ring on each ring groove and make sure it spins freely. Remove any interference with a small flat file.

Stator Support: Check bushing diameter for wear. Inspect bushings; replace as necessary.

STEP 3. Install new front pump seal in the housing. Check the fit of the gears in the pump housing. The gears should slip in easily into the housing with a close fit and rotate freely. Any interference from burrs or nicks can be removed with an Arkansas stone.

STEP 4. Lubricate the pump housing and gears with transmission fluid and install the gears into the pump housing. The drive gear must be installed with the engagement notches towards the front of the pump or the converter will damage the gear. (See Fig. 44)

OPTIONAL: For maximum converter oil flow machine stator support neck as shown in Drawing #1.

STEP 5. Position the stator support over the pump housing. Align the bolt holes and hold the pump halves together while installing the five bolts. Tighten pump bolts 12 to 20ft.-lbs. Set the pump carefully over the neck of the torque converter. Rotate the entire pump assembly on the converter. It should rotate freely with a slight even resistance. Any bind or tightness indicates dirt, burrs or warpage interferring with the gears. The pump will have to be disassembled and the problem corrected. **An incorrectly assembled pump will fail immediately!**

III. Forward Clutch (Refer to Figures 31 and 32)

STEP 1. Inspect the splines on the hub portion of the clutch cylinder for grooves or damage. Inspect the seal ring bore at the front of the cylinder for wear or grooving. Excessive grooving will require cylinder replacement as the wear could fail the seal rings prematurely.

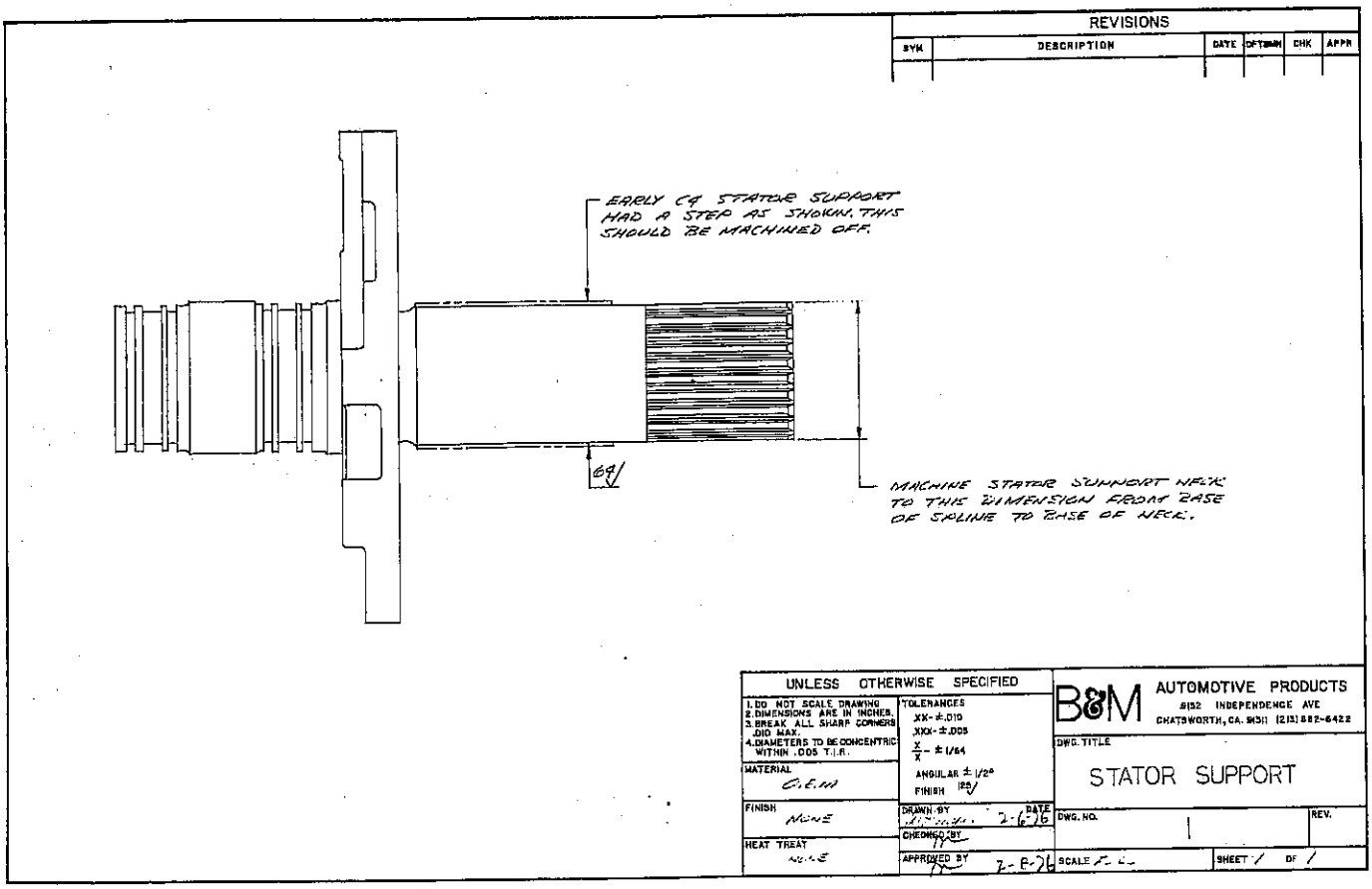
OPTIONAL: Drill the oil holes in the forward clutch cylinder as shown in Drawing #2 for improved reverse-high clutch lubrication. Clean the cylinder in solvent to remove any metal chips.

STEP 2. Install outer seal on the forward clutch piston. Install inner seal on the clutch cylinder. Some units use a lathe cut seal and others use an O-ring. Both are provided in the kit. Lubricate the seals with automatic transmission fluid. Install the piston into the cylinder. Carefully tap the piston into place with a hammer. Be careful not to cut or nick the seals during assembly.

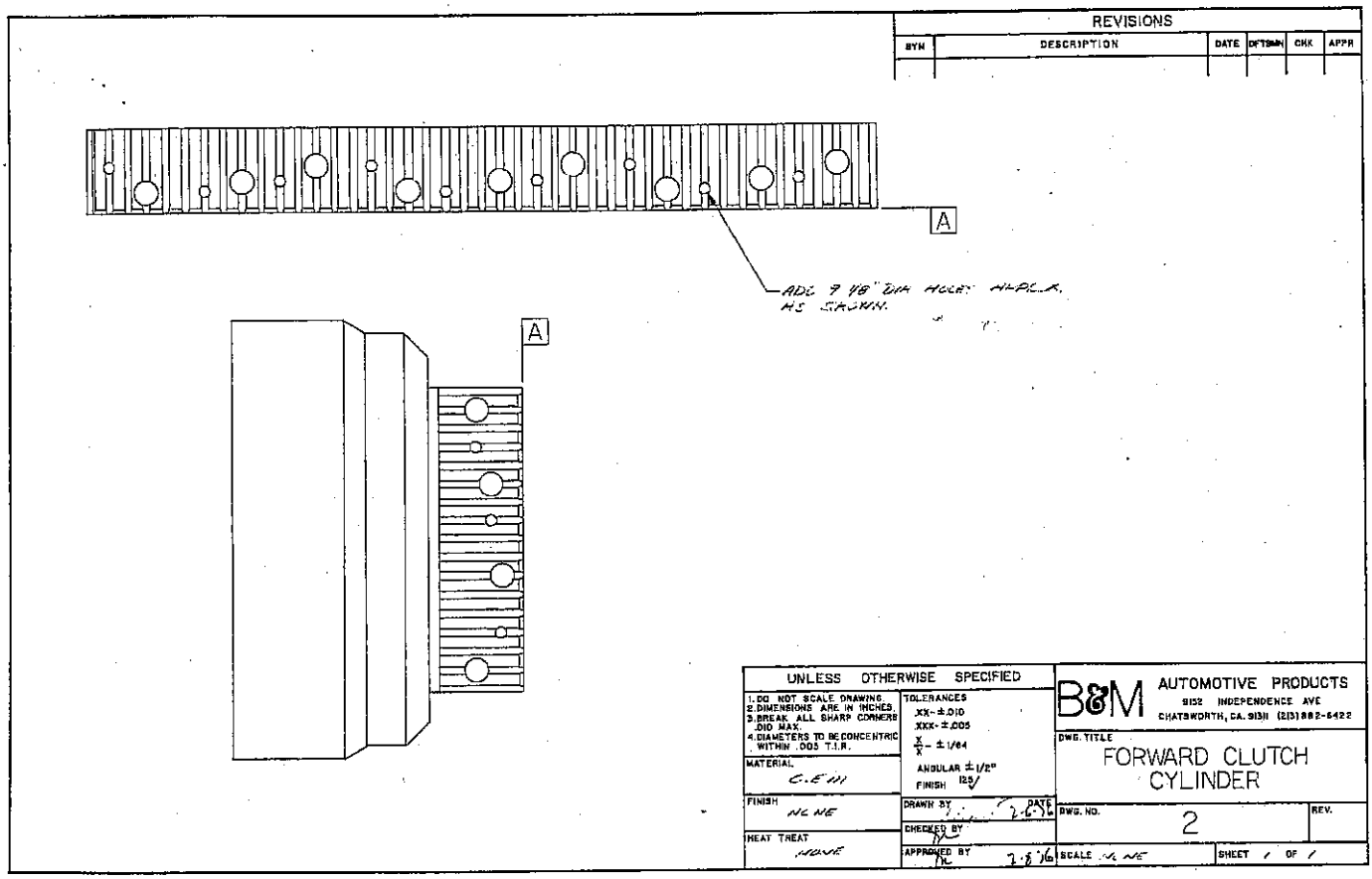
STEP 3. Install steel ring in place on piston. Install disc spring in place. This is a Bellville-type spring. Refer to snap ring chart and select the correct snap ring. Install retaining snap ring. Make sure the snap ring is fully seated in its groove.

STEP 4. Install forward pressure plate with raised portion against the return spring and the flat face towards the rear.

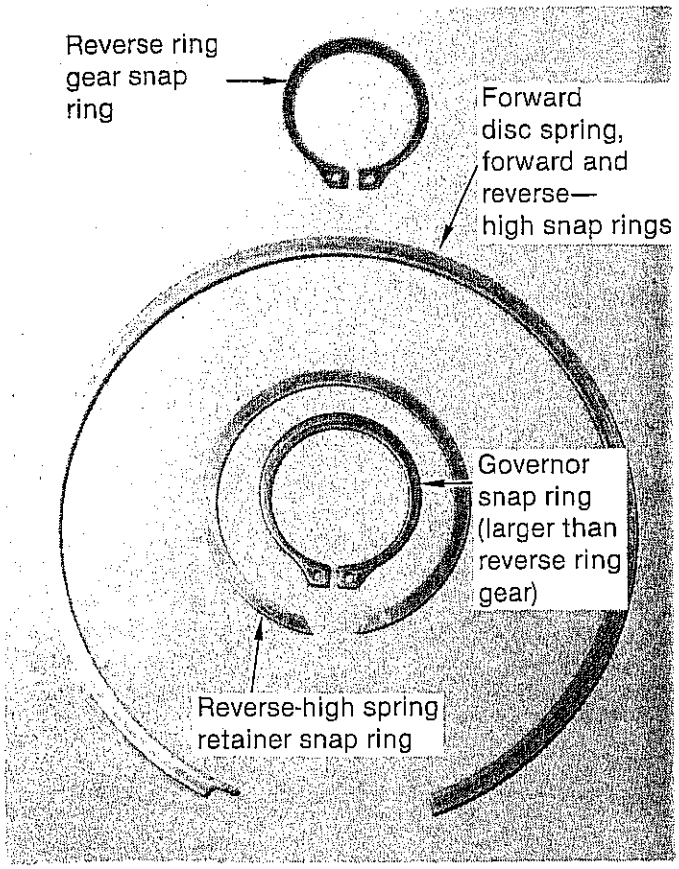
STEP 5. Soak new B&M forward friction plates in automatic transmission fluid for 15 minutes. Install a friction disk and steels to equal your original clutch pack. Install thick flat rear pressure plate. Install selective snap ring.



DRAWING 1



DRAWING 2



SNAP RING CHART

STEP 6. Check end play by inserting a feeler gage between the pressure plate and snap ring. (See Fig. 45) Clearance must be .025-.040 inch. Clearance can be adjusted with selective snap rings available from your Ford dealer. (.060-.064, .074-.078, .088-.092, .102-.106) Set the forward clutch assembly aside.

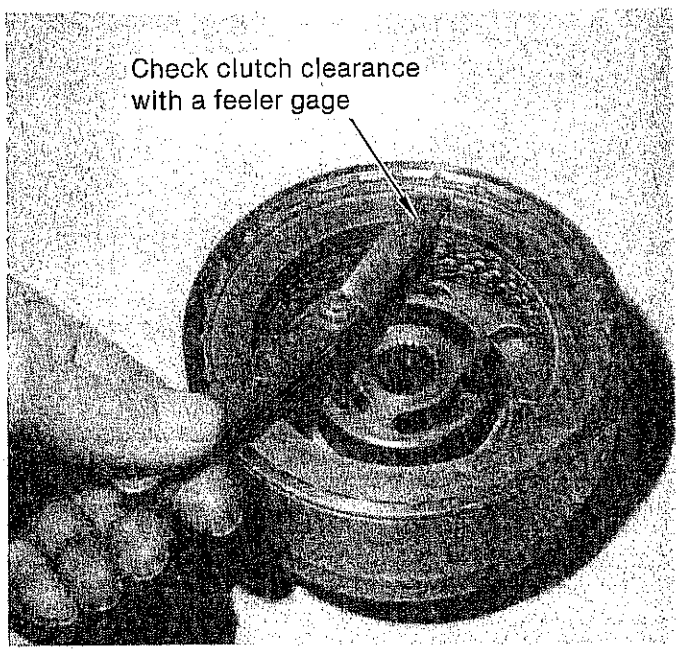


FIGURE 45

IV. Reverse-High Clutch (Refer to Figure 29)

STEP 1. Inspect the seal ring bore in the clutch drum for wear or grooves. Excessive grooving will require drum replacement as the wear could fail the seal rings prematurely. Inspect the bushing and replace as necessary. Inspect the outer surface of the retainer for damage from a worn band. Glazing should be removed by polishing with 240 or 180 emery paper.

OPTIONAL: Models with only two or three reverse-high clutch plates can be increased to four plates by installing a new reverse-high clutch drum. (Ford Part No. DOAZ-7D044-A) This will give a 25%-50% increase in reverse-high clutch capacity. The original stock drum cannot be machined for more clutches due to lack of material.

STEP 2. Install new rubber outer seal on the front clutch piston. Install new rubber inner seal on the clutch drum.

STEP 3. Lubricate the seals lightly with automatic transmission fluid. Install the piston into the clutch drum. Carefully tap the piston into place with a hammer. Be careful not to cut or nick the seals during assembly.

STEP 4. Install ten return springs into the piston locations. Install spring retainer. Refer to the snap ring chart and select the retainer snap ring. Compress the retainer and springs with a press or C-clamps. Be careful not to bend or distort the retainer. Install the snap ring making sure it is seated in its groove. Release the retainer so it stops against the snap ring. Snap ring must be inside four raised tabs on retainer for proper installation.

STEP 5. Soak the B&M reverse-high clutch plates supplied with the kit in automatic transmission fluid for 15 minutes. Install alternately two to four steel plates supplied and two to four B&M friction discs starting with a steel plate and ending with a friction disc. Install the thick flat pressure plate. Install selective snap ring.

STEP 6. Check end play by inserting a feeler gage between the pressure plate and snap ring. Clearance must be .050-.066 inch. Clearance can be adjusted with selective snap rings available from your Ford dealer. (.060-.064, 074-.078, .088-.092, .102-.106)

V. Geartrain

STEP 1. Set the reverse-high clutch assembly in front of you with the clutches facing up. Lubricate the bushing face with automatic transmission fluid.

STEP 2. Install the forward clutch assembly. Rotate the clutch assembly as you install it to engage the reverse-high clutches. (See Fig. 46) The forward clutch

cylinder should spin freely with some slight drag. Binding indicates the clutches are not properly engaged.

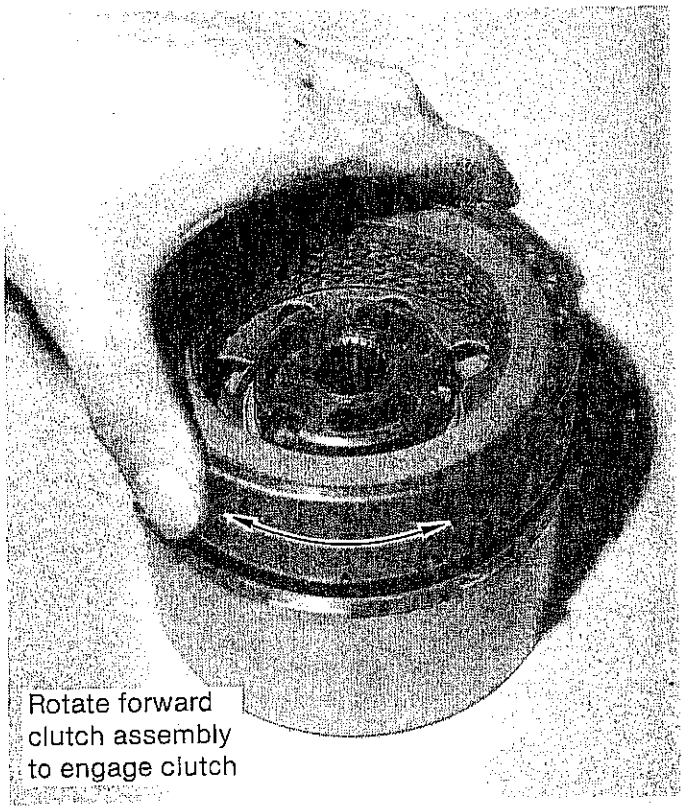


FIGURE 46

STEP 3. Inspect geartrain components.

Reverse Ring Gear and Hub: Wear and pitting of gear teeth, wear at thrust washer surfaces.

Reverse Planetary Carrier: Worn or pitted pinion gears, excessive pinion endplay, rough or tilted pinions, ear for damage.

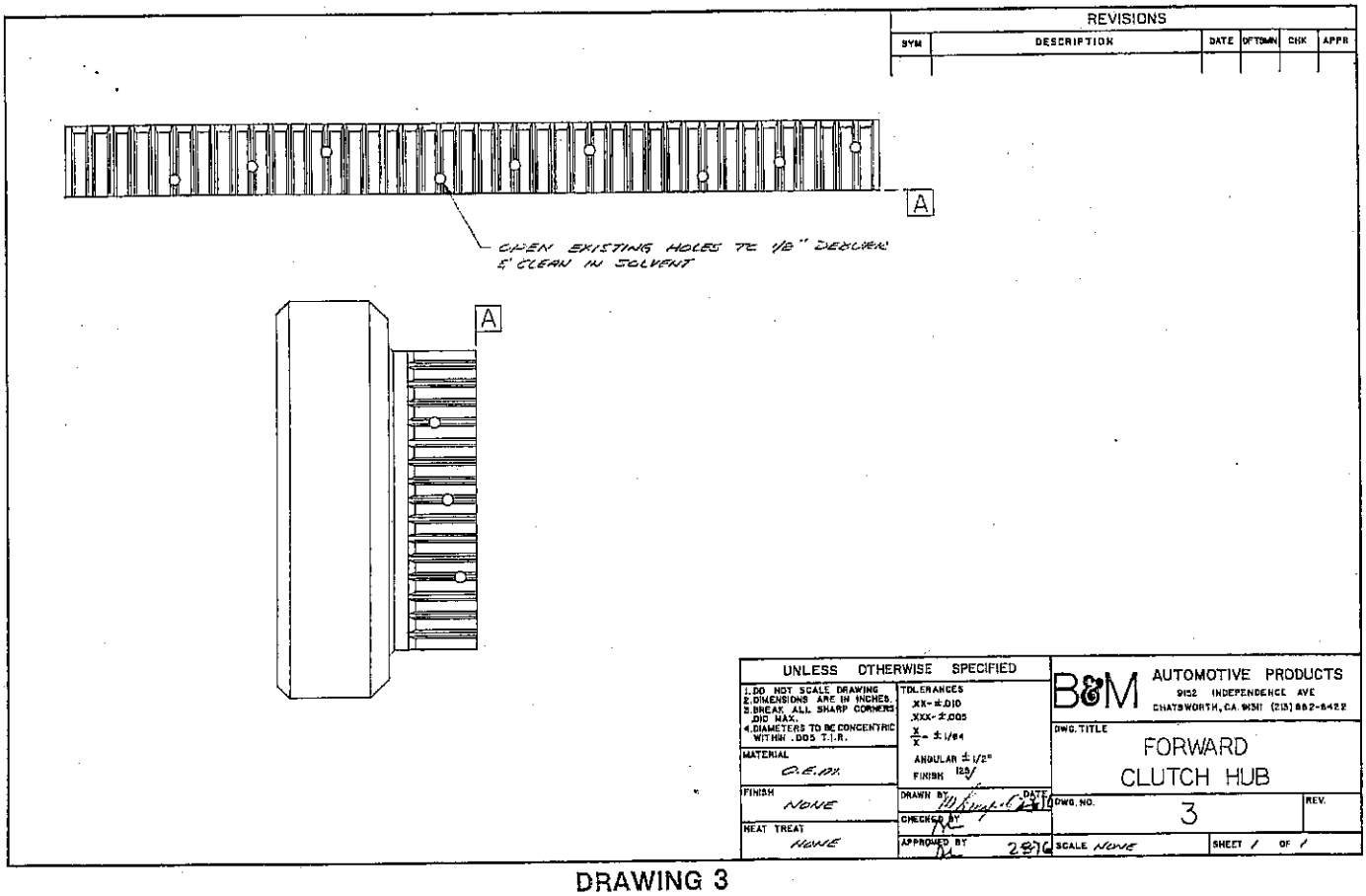
Sun Gear/Input Shell: Gear for wear or pitting, bushings, bent or distorted input shell.

Front Planetary Carrier: Worn or pitted pinion gears, excessive pinion endplay, rough or tilted pinions, spline for damage or wear, needle bearings for damage or wear.

Forward Clutch Hub and Ring Gear: Wear or pitting of gear teeth, damaged splines, wear at thrust washer surfaces, bushing (some models) for wear.

OPTIONAL: For improved forward clutch lubrication, drill the forward clutch hub as shown in Drawing #3.

STEP 4. Install the forward clutch hub thrust washer in position on the forward clutch cylinder. (See Fig. 47) Use grease to retain it if necessary. Install the clutch hub into the forward clutch cylinder, rotating the hub as necessary to engage the forward clutches. Make sure the thrust washer does not fall out of place during hub



DRAWING 3

installation. The clutch hub should spin freely with some slight drag. Binding indicates the clutches are not properly engaged.

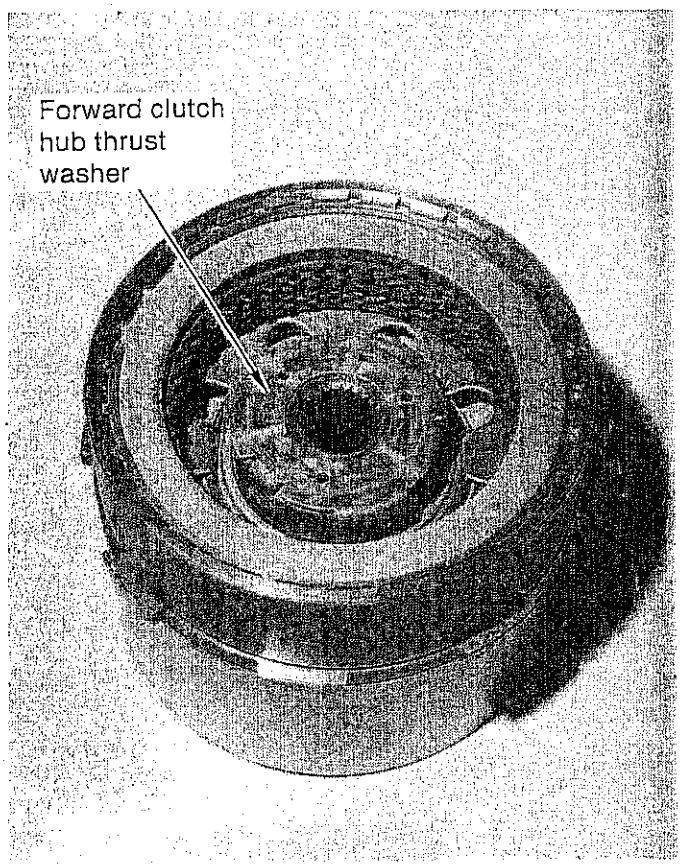


FIGURE 47

STEP 5. Install thrust washer on front face of front planet carrier. (See Fig. 48) Use grease to retain it, if necessary. Lubricate washer with automatic transmission fluid and install planetary into forward clutch hub. Planetary should spin freely. Binding indicates worn or dirty pinion gears. Make sure bearing race is in place with the I.D. flange facing up inside the rear of the carrier.

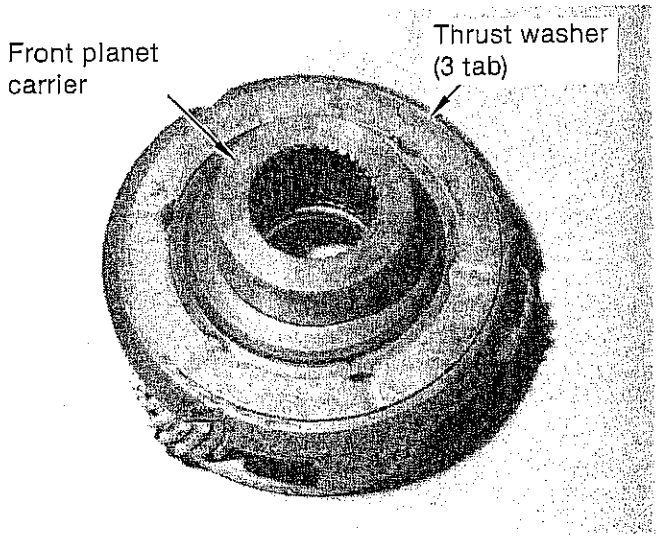


FIGURE 48

STEP 6. Install input shell/sun gear onto geartrain. (See Fig. 49) Notches in input shell will engage ears of reverse-high clutch drum when input shell/sun gear is properly installed. Set geartrain assembly aside.

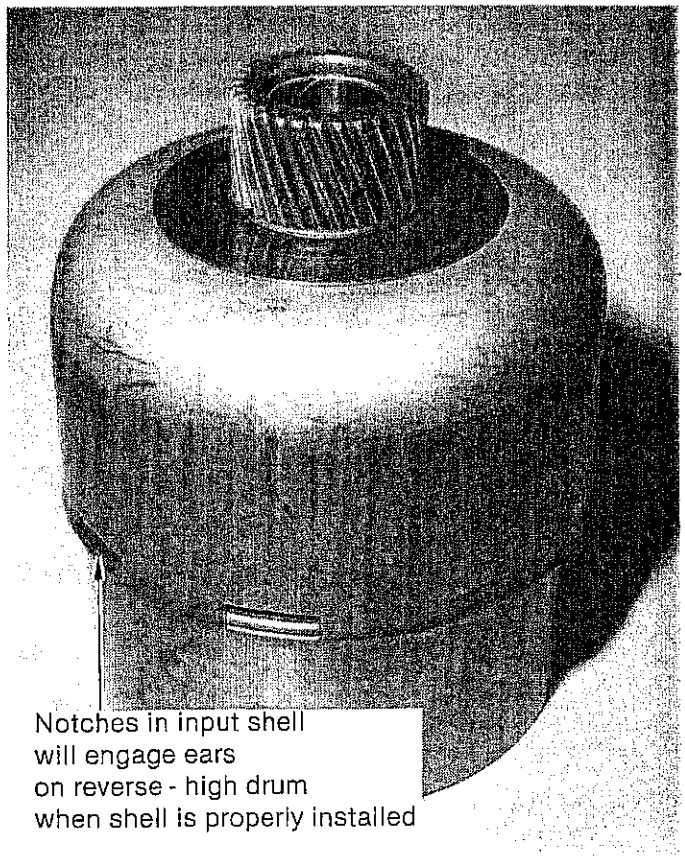


FIGURE 49

VI. Governor

STEP 1. Check free operation of both governor valves. Valves must work smoothly against the springs for proper operation. It may be necessary to disassemble each valve and deburr it for smooth operation. Use an Arkansas stone and be careful not to round the edges of the valves.

STEP 2. Install governor body in position on the distributor. Do not use an oil screen if your governor had one. They only cause problems. The bolt pattern is keyed so the governor body can only install one way. Install four bolts and tighten 80 to 120 in.-lbs. Do not overtighten governor bolts as this could distort the governor body.

STEP 3. Install three governor seal rings in position on the distributor. Spread the rings only as necessary to install them. Seal rings must spin freely. Remove any burrs or interference with a small file.

Set the governor aside where it won't get dirty.

VII. Case Preparation and Assembly

STEP 1. Drill a hole in the area shown in Figure 50 with

a #56 drill to pressure lubricate the one-way clutch and thrust washer. Drill the case carefully to just break into the rear cooler line passage. Pressure lubrication is far superior to the stock splash lubrication.

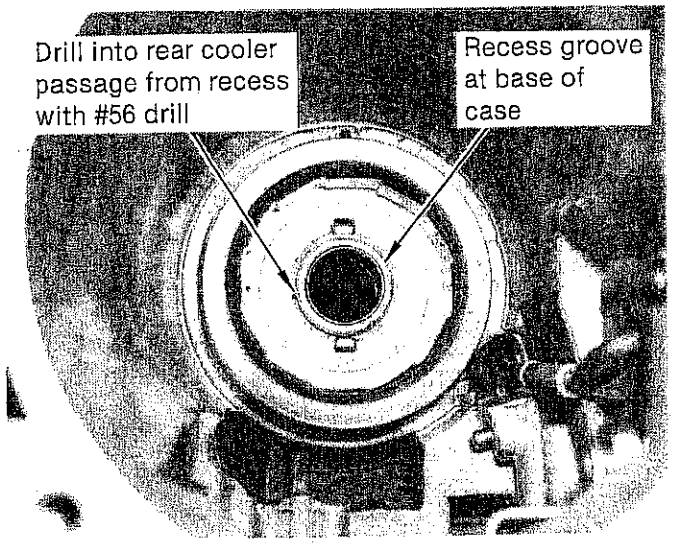


FIGURE 50

STEP 2. Install vacuum modulator valve into case. The small diameter with the hole in the end faces out. Install modulator rod into valve.

Screw-in Modulators: Install modulator with new gasket. Tighten 15 to 23 ft.-lbs. Do not wrench the modulator can. This will damage the diaphragm.

Push-in Modulators: Install new O-ring on modulator. Coat O-ring lightly with automatic transmission fluid and push modulator into case.

STEP 3. Install new seals on intermediate servo piston. (See Fig. 51) Coat servo piston seals lightly with automatic transmission fluid and install servo piston into cover. Tap the piston down carefully until it is fully installed.

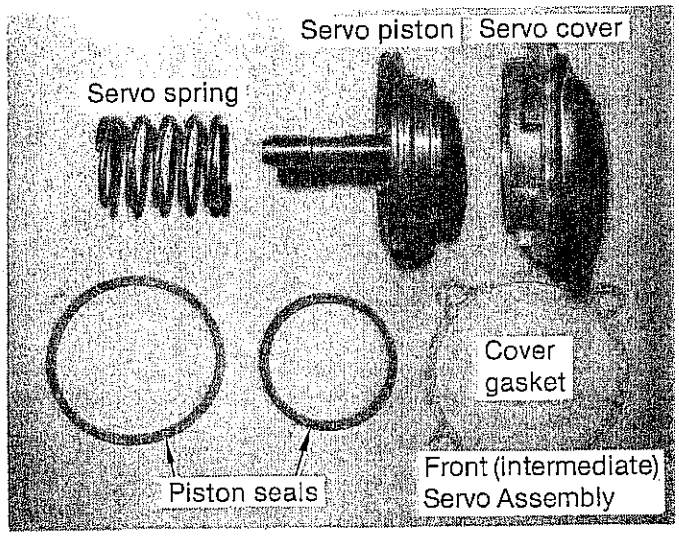


FIGURE 51

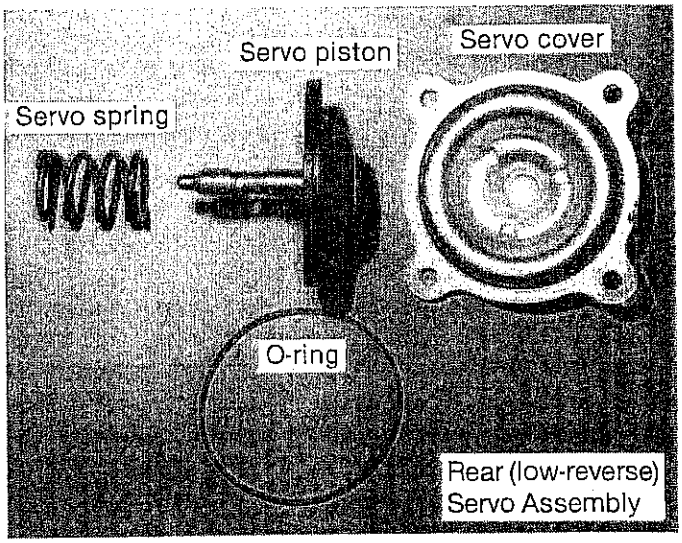


FIGURE 52

STEP 4. Position new gasket on servo cover. Install servo assembly into case. Make sure servo return spring is in place. Install four bolts and tighten 16 to 22 ft.-lbs. Inspect rear servo piston. (See Fig. 52). If molded seal is damaged you will have to replace the piston. Install rear servo spring and piston into case. Install new O-ring seal in place on rear servo cover. Install cover into position. Install breather tube and retainer. Install four bolts and tighten 12 to 20 ft.-lbs. Make sure servo cover seal does not fall out of place when you tighten the bolts.

STEP 5. Inspect one-way clutch outer race for wear or galling. Replace if necessary. Position case with front face up. Install two-tab one-way clutch inner race thrust washer. Install spring retainer. Lubricate thrust washer with automatic transmission fluid. Install one-way clutch inner race with polished, machined face against the thrust washer. (See Fig. 53) Install twelve rollers first and then twelve accordian shaped springs. If any springs are broken or distorted, replace them.

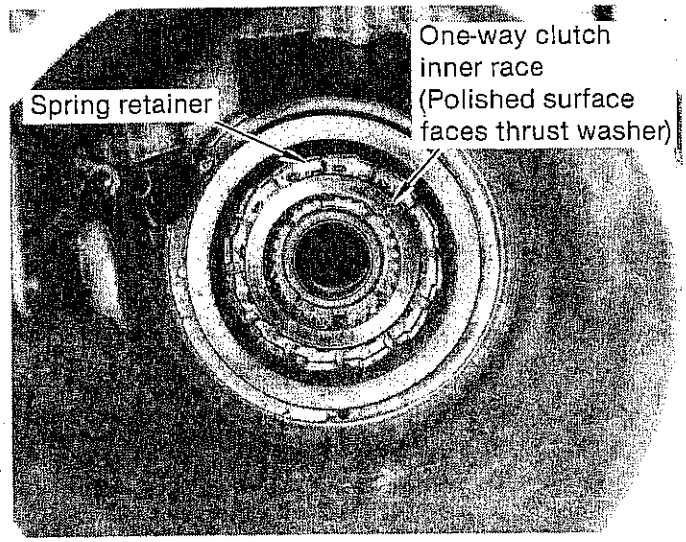


FIGURE 53

STEP 6. Turn case over, pump face down. Lubricate and install the park gear thrust washer and park gear. (See Fig. 54) Install the park pawl and shaft so the pawl points toward the park gear. (See Fig. 23) Install the park pawl spring. The spring hooks inside the edge of the case.

STEP 7. Inspect the inside of the governor distributor sleeve for wear or grooving. Excessive grooving will cause premature governor ring wear. Install governor oil tubes in place on distributor sleeve. Note: One tube is longer than the other. The longer tube goes in the upper hole so the tube ends will be even. Install the sleeve/tube assembly engaging the governor holes in the case and park pawl shaft. Tap the sleeve down to seat it against the case. Install four bolts and tighten 12 to 20-ft. lbs.

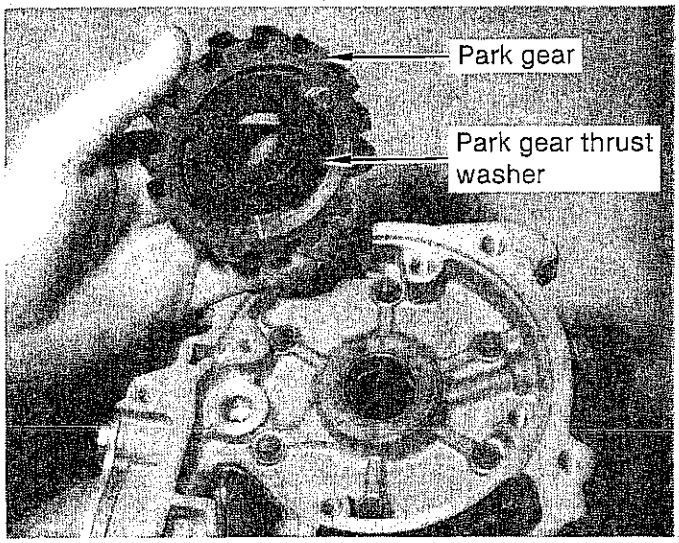


FIGURE 54

STEP 8. Position new extension housing gasket on the back of the case. Install governor onto output shaft. Select correct snap ring and install snap ring onto output shaft to retain governor in position. (See Fig. 20) Lubricate the governor seal rings with automatic transmission fluid. Install output shaft assembly into transmission.

Slip Yoke Units: Install output shaft assembly. Exercise care not to damage seal rings on governor. Shaft should spin freely. Binding indicates broken oil rings or damaged case bushing. Install new seal in extension housing. Install extension housing onto transmission. Install six extension housing bolts and modulator clamp on push-in modulator units. Tighten bolts 28 to 40 ft.-lbs.

Flange Units: Install extension housing/output shaft assembly onto transmission. Exercise care not to damage seal rings on governor. Shaft should spin freely. Binding indicates broken oil rings or damaged case bushings. Install six extension housing bolts and modulator clamp on push-in modulator units. Tighten bolts 20 to 40 ft.-lbs.

The vacuum modulator hose clamp attaches underneath the upper right extension housing bolt. Lay transmission on its side with the pan surface facing you and the extension housing to your right. Passenger car units: Be careful not to let the output shaft slide out of position or the park pawl thrust washer will fall out of place.

STEP 9. Install B&M low reverse band. Guide band into case and position at rear of transmission. Single anchor tab must face rear servo. (See Fig. 55)

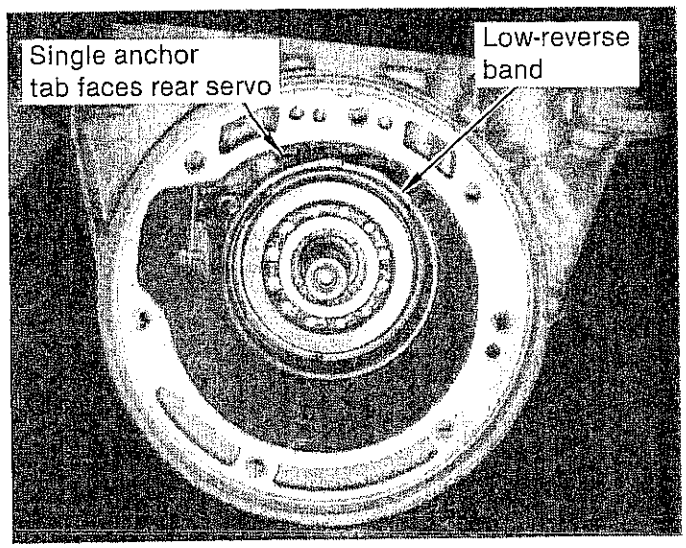


FIGURE 55

STEP 10. Install three-tab thrust washer on front face of low-reverse drum. Use grease to hold it in place. Lubricate one-way clutch with automatic transmission fluid. Install low-reverse drum into case rotating clockwise to engage one-way clutch. Push in on the drum until it bottoms out. The drum **must** rotate **clockwise** only for proper operation.(See Fig.56)Counterclockwise rotation indicates the one-way clutch is improperly installed.

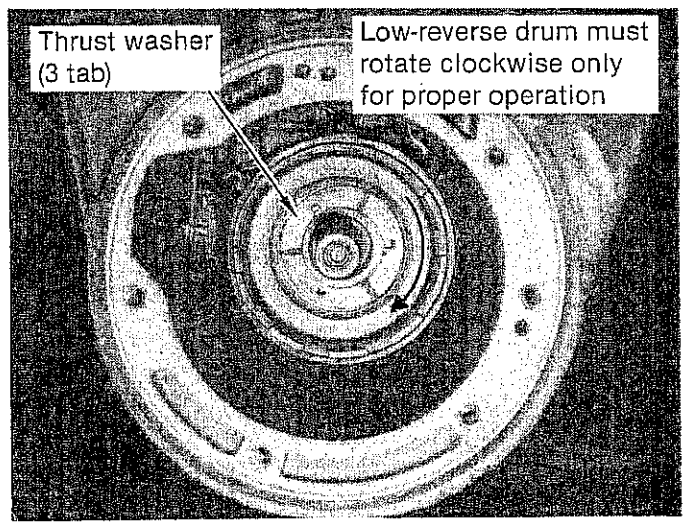


FIGURE 56

STEP 11. Install the reverse ring gear and hub into the transmission onto the output shaft. Push in until the gear/hub is fully seated. Be careful not to push the output shaft out of position on slip yoke models.

Slip Yoke Models: Install snap ring to retain reverse ring gear and hub in place. Make sure snap ring is fully seated in its groove.

Flange Units: There is no snap ring holding the reverse ring gear in position on these models.

STEP 12. Install thrust washer on front and rear of reverse planet carrier. (See Fig. 57) Use grease to retain them. Note: These washers are different. The **wide** thrust washer is installed on the **rear** of the carrier. Install reverse planet carrier into transmission engaging ears on planetary with slots in low-reverse drum.

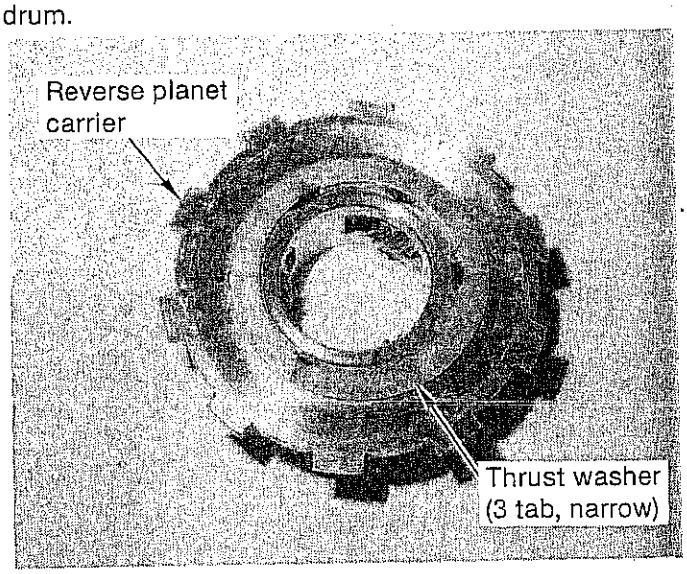


FIGURE 57

STEP 13. Install new manual shaft seal into case on the outside of the manual shaft bore. Install manual lever/shaft into case. Install inner manual level into case engaging park lock mechanism. (See Fig. 26) Position outer manual lever and engage inner manual level into manual shaft. Install nut and tighten 30 to 40 ft.-lbs. Install new downshift shaft O-ring into manual shaft on the outside recess. Install downshift lever into manual shaft from the inside. Slide lever in until it stops.

STEP 14. Stand transmission up on its output shaft. Lubricate output shaft bushing diameters with automatic transmission fluid. Install geartrain/clutch pack assembly into transmission. (See Fig. 58) Do not let assembly separate during installation or a thrust washer may fall out of position.

STEP 15. Install new pump gasket in place on front of the case. Install two-tab selective washer in position on back of stator support. Use grease to retain it. Do not install a fiber washer on the rear of pump. Install two guide pins in opposite pump bolt locations. Guide pins can be made by cutting the heads off two 3/8 x 2½" bolts. Align pump and install into transmission. Install bellhousing if necessary where it bolts to the pump. Do not use an O-ring on the pump for this step. Install two pump bolts snugly.

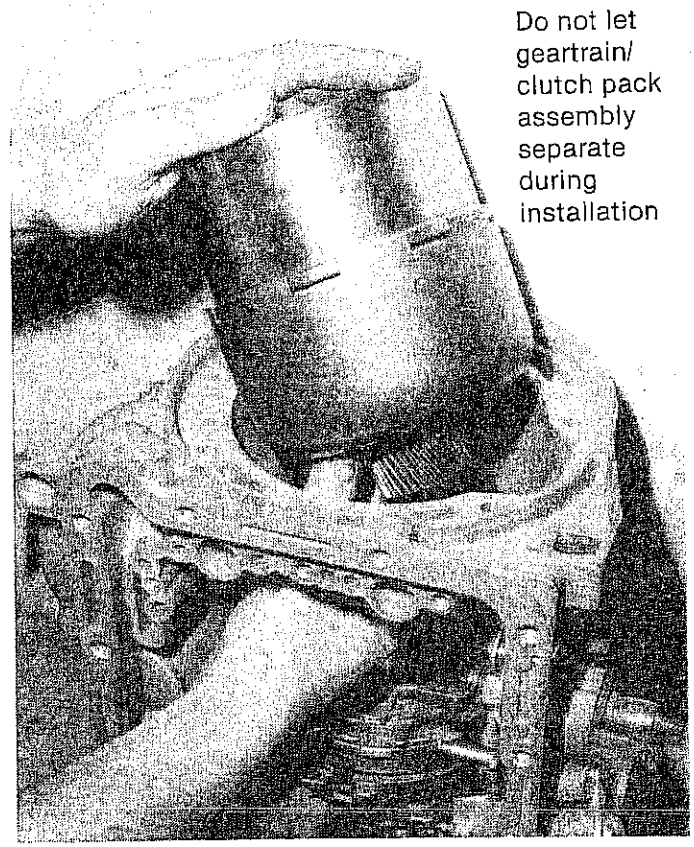


FIGURE 58

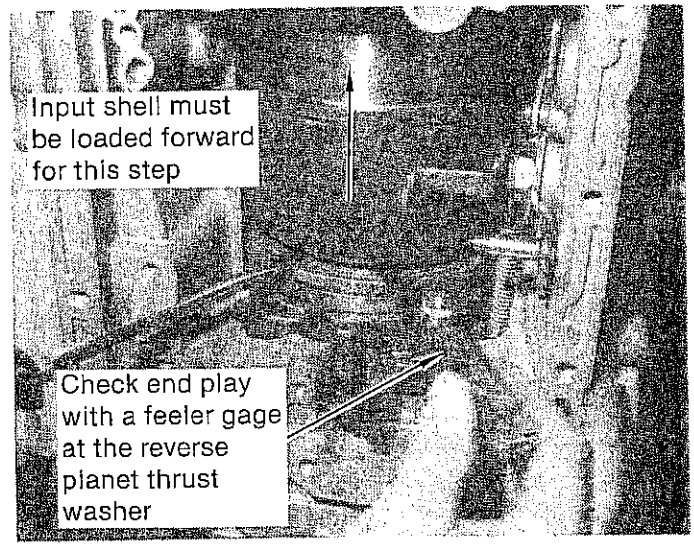


FIGURE 59

STEP 16. Check endplay of transmission:

Method 1: Load the input shell to the front of the transmission with a screwdriver and measure the clearance at the thrust washer on the front of the reverse planet carrier. (See Fig. 59)

Method 2: Install input shaft and check endplay with a dial indicator on the input shaft by loading the geartrain forward and backward with a screwdriver.

Endplay must be between .008-.042". Selective washers are available from your Ford dealer. (.041-.043, .056-.058, .073-.075, .090-.092, .107-.109)

STEP 17. Remove two pump bolts and lift input shaft and pump out of case. Be careful not to dislodge geartrain assembly. Set pump on the bench face down. Install selective fiber washer in position on rear of pump. Remove geartrain assembly from case. If reverse planetary thrust washer comes out, install it back in position. Make sure two-tab selective thrust washer is still in place on rear of pump stator support. Install geartrain onto oil pump. Measure endplay between reverse high clutch drum and selective fiber washer with a feeler gage. (See Fig. 60) Clearance must be .005-.025". Selective washers are available from your Ford dealer. (.053-.057, .070-.074, .087-.091, .104-.108, .121-.125, .138-.142)

STEP 18. Install geartrain/clutch pack assembly into transmission. (See Fig. 58) Do not let assembly separate during installation or a thrust washer may fall out of position. Install special intermediate band supplied with kit.

FIGURE 60

STEP 19. Install new O-ring on outside of oil pump on models with an O-ring groove. Install four hook-type seal rings on back of oil pump. Rings must spin freely for proper operation. Remove any interference with a small file. Lubricate O-ring and pump seal rings with automatic transmission fluid. Check position of pump gasket and selective thrust washer. Install pump into transmission. Install bellhousing, if necessary, where it bolts to pump. Install two opposite pump bolts and tighten bolts 2 turns at a time until the pump is fully seated. Remove guide pins and install remaining pump bolts. Tighten pump bolts 28 to 40 ft.-lbs. Install input shaft into the transmission.

STEP 20. Place transmission back on bench. Install band apply linkages. (See Fig. 5) On some models originally equipped with a flex-type intermediate band, it may be necessary to widen the engagement slot in the end of the strut. Adjust bands.

Intermediate (front) Band:

Heavy Duty and Street: Tighten the band adjusting screw to 120 in.-lbs. and back off 1¾ turns. Hold band adjusting screw in this position and tighten jam nut securely.

Competition: Tighten the band adjusting screw to 120 in.-lbs. and back off 1½ turns. Hold band adjusting screw in this position and tighten jam nut securely.

Low-Reverse (rear) Band:

Tighten adjustment screws to 120 in.-lbs. Back screw off 3 turns. Hold adjustment screw in this position and tighten locknut 35 to 45 ft.-lbs.

STEP 21. Install valve body into transmission carefully. Align selector lever tabs to manual valve slot and align kickdown lever to approximate position. Engage selector lever into manual valve while working the kickdown lever slightly by hand to find its working position. (A spring action will be felt.) You should be able to hold the valve body in place flat against the case without excessive force. The kickdown lever should move freely with no bind as it did before removal (reference Step 2, Section A). Install valve body bolts finger tight. Install detent roller spring in corner (See Fig. 3) the two long bolts go thru the filter. Again check for free operation of kickdown and shifter linkage. If everything is operating properly, tighten bolts 80 to 120 in.-lbs. Tighten detent roller spring casting bolt 20-40 in.-lbs. Failure to properly install valve body linkage can result in damage to linkage, valve body, and/or case.

STEP 22. Drill ½" hole in the area shown in Figure 61. Deburr hole and install drain plug kit. Install sleeve and gasket from outside. Install nut on inside and tighten snugly. Hold sleeve with a wrench whenever removing or installing plug.

STEP 23. Install pan with new gasket. Install eleven pan bolts and tighten 12 to 16 ft.-lbs. Do not overtighten pan bolts as this will cause leaks.

STEP 24. Install one ot two 1/8" pipe plugs into case. Install smog switch if your unit is so equipped. Install cooler fittings. Tighten to 80 to 120 in.-lbs.

This transmission is assembled. The final step is installation in the vehicle.

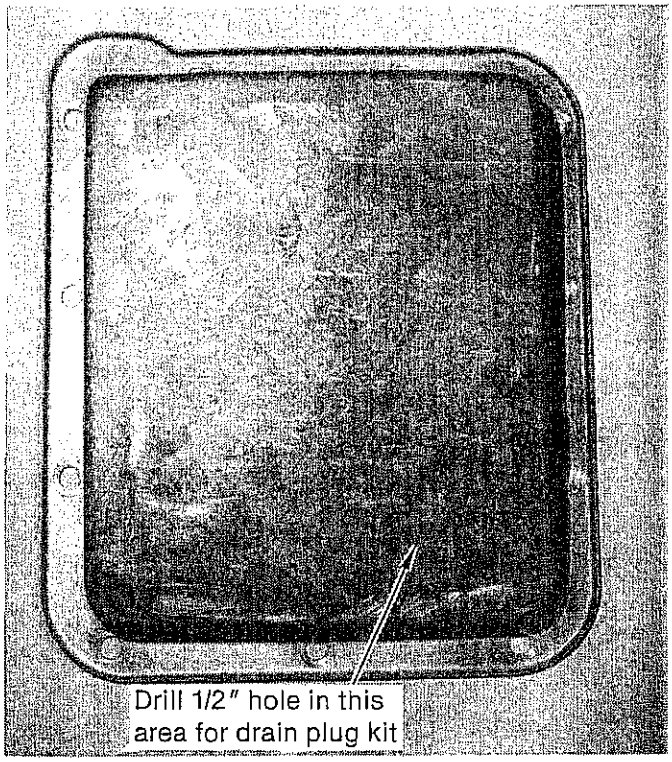


FIGURE 61

TRANSMISSION INSTALLATION

STEP 1. Lubricate the pump bushing with automatic transmission fluid. Install the torque converter, pushing and rotating until the stud face is a minimum ½" inside the bellhousing. If converter is not correctly engaged in pump and transmission you will break the drive gear and ruin the pump.

STEP 2. Install transmission/converter assembly against engine. Align converter drain plugs with holes in the flexplate during installation. Make sure the converter does not fall out of position. Transmission must sit flush against the engine block. Check the crank shaft pilot hole and converter installation on the transmission if transmission case will not contact engine block squarely.

STEP 3. Install bellhousing bolts and tighten 40 to 45 ft.-lbs. Converter studs should extend through flexplate at this point. Install rear mount and crossmember. Tighten mount and crossmember bolts.

STEP 4. Install starter motor onto bellhousing. Also install any struts or braces to the engine and bellhousing that may be on your vehicle. Install converter nuts and tighten 20 to 30 ft.-lbs. Install dust cover.

STEP 5. Install driveshaft and tighten U-joint bolts securely. Connect speedometer cable. Connect shift linkage. Snap shift linkage rod into grommet on manual lever or install rod and cotter key or E-clip. Check shifter adjustment: Make sure detents in shifter coincide with detents in transmission. Adjustment should be made in Drive. Loosen pinch bolt located on shift rod and align shifter and transmission in Drive position and tighten pinch bolt.

STEP 6. Install neutral safety switch if your model is so equipped. With transmission in neutral, rotate switch housing until a paper clip or small nail will insert in alignment hole. (See Fig. 3) Tighten bolts 55 to 75 in.-lbs. Connect vacuum modulator line.

Competition: Use stock modulator rod. Disconnect modulator vacuum hose to modulator and plug source at manifold. If screw-in type modulator, use supplied modulator. If shift points are too late for particular track usage, reconnect vacuum source to modulator.

STEP 7. Install downshift lever onto shaft. Install washer, lockwasher and nut and tighten 12 to 16 ft.-lbs. Check downshift adjustment: Depress gas pedal and make sure you are getting full throttle. Adjust if necessary. Hold downshift rod in full throttle position. There should be about 1/16" clearance between the adjustment screw and its stop.

STEP 8. Install dipstick and tube. Use new O-ring from seal kit on units where tube installs into case. Connect oil cooler lines.

STEP 9. Lower vehicle, but try to keep rear wheels off the ground if possible. Add four (4) quarts of B&M Trick Shift ATF. Trick Shift automatic transmission fluid is superior in heat capacity, lubrication, and friction material performance. If Trick Shift is not available we suggest using Type F fluid.

STEP 10. Keep the rear wheels off the ground, if possible. Start engine and place shifter in the **neutral** position. Add fluid until the oil is between the **add** and **full** marks. Shift the transmission through all gear positions. If the rear wheels are off the ground, allow the transmission to shift through all gears several times. Place the selector in **neutral** and check fluid. Do not overfill. Check for leaks at cooler lines, etc.

STEP 11. Drive vehicle for 1-2 miles to warm up transmission. Check fluid level. It must be between the **add** and **full** marks. **Do not overfill!** This will cause foaming and overheating.

TO RAISE OR LOWER SHIFT POINTS

Part throttle shift points can be adjusted for personal preference. Method of adjustment varies depending on type of modulator.

A. Modulator supplied with kit: A small screw adjustment inside the vacuum tube can be turned to change shift points. Turn screw clockwise to raise shift points. Turn screw counterclockwise to lower shift points. Do not turn screw more than four turns in either direction.

B. Non-adjustable push-in type with clamp retainer: Three steps can be made to obtain lower part throttle shift points only. Shift points cannot be raised.

1. Replace factory modulator rod with special gold rod supplied kit. This will lower your shift points approximately 5 mph.

2. Install shim under modulator base using factory modulator rod. This will lower your shift points approximately 7-8 mph.

3. Install both shim and special gold rod. This will lower your shift points by approximately 12-15 mph.

Note: The above modifications will have no noticeable effect on full throttle shift points.

C-4 TRANSKIT
TROUBLE SHOOTING GUIDE

Malfunction	Probable Cause
1. Slips	Valve body bolts loose
	Low fluid level
	Oil pump bolts loose
	Piston seals cut or improperly installed
	Check balls improperly installed in valve body
	Oil seal rings on pump or forward clutch cylinder broken
2. Slips 1-2 Shift	Check #1 first
	Intermediate servo seals damaged
	Intermediate servo bore damaged
	Intermediate band out of adjustment
3. Slips 2-3 Shift	Check #1 first
	Reverse-high clutch piston seals damaged
	Excessive clutch clearance
	Reverse-high clutch snap ring out of position
4. No Drive in "D" Range	Low fluid level
	Shifter misadjusted
	Rear clutch not operating properly
	Manual valve disengaged from manual lever on valve body
	One-way clutch not operating properly
5. No 1-2 Upshift	Governor sticking
	Governor seal rings damaged
	1-2 Shift valve stuck or assembled improperly
	Intermediate servo damaged
	Intermediate band linkage disengaged or broken
	Valve body bolts loose
6. No 2-3 Upshift	Check #5 first
	2-3 Shift valve stuck
7. No 3-2 Downshift (No engine breaking)	Check #5 first
	Will not have second either
8. No 2-1 Downshift (No engine breaking)	Low-reverse servo damaged
	Low-reverse band out of adjustment
	Low-reverse band linkage disengaged or broken
	Valve body assembled improperly

C-4 TRANSKIT
TROUBLE SHOOTING GUIDE (Cont)

Malfunction	Probable Cause
	The above will also affect reverse
No Reverse	Check #8 first
	Reverse-high clutch inoperative
	Shifter misadjusted
Late, Hard Shifts	Vacuum modulator diaphragm ruptured
	Vacuum line broken, cracked or leaking
	Kickdown valve or lever stuck
	Competition modifications being driven on the street
Pump Buzz or Whine	Low fluid level (oil starvation)
	High fluid level (foaming)
	Filter defective or restricted
	Oil pan crushing filter
Overheating, Forming Oil at Dipstick or Breather	Insufficient cooler capacity
	High fluid level
	Restricted or plugged cooler lines

TOOLS AND MATERIALS REQUIRED FOR C-4 TRANSKIT INSTALLATION

(1)	Speed Handle or Ratchet
(1)	9/16″ Socket
(1)	½″ Socket
(1)	7/16″ Socket
(1)	5/16″ Socket
(1)	¾″ Tappet Wrench (Thin)
(1)	7/8″ Wrench
(1)	Crescent Wrench
(1)	Large Blade Screwdriver
(1)	Medium Blade Screwdriver
(1)	Small Blade Screwdriver
(1)	Snap Ring Pliers, Expansion
(1)	Snap Ring Pliers, Needle Tip, Compression
(1)	Snap Ring Pliers, Needle Tip, Expansion
(1)	Needle Nose Pliers
(1)	Arkansas Stone
(1)	Small Hammer
(1)	Torque Wrench 0 to 50 ft.-lbs.
(1)	Torque Wrench 0 to 150 in.-lbs.
(1)	¼″ Square Drive
(1)	¼″ Drill Motor
(1)	Vise
(1)	Small File
(2)	5″ C-Clamps or Arbor Press
(1)	Feeler Gage
(1)	Dial Indicator (optional)
(12)	Quarts of Trick Shift or Type "F" Automatic Transmission Fluid
(1)	Gallon of Cleaning Solvent
	Vasoline or White Grease
	Carburetor Cleaner or "Gunk", if required

C-4 Transkit Parts List

5 ea . . . . . .Forward clutches
4 ea . . . . . .Forward steels
4 ea . . . . . .Reverse high clutches
4 ea . . . . . .Reverse high steels
1 ea . . . . . .Low reverse band
1 ea . . . . . .Intermediate band
1 ea . . . . . Drain plug kit
2 ea . . . . . .7/32" Nylon ball
1 ea . . . . . .Vacuum modulator with washer

2 ea . . . . . .Filter screens
1 ea . . . . . Yellow pressure regulator spring
1 ea . . . . . Brown pressure regulator spring
1 ea . . . . . .Modulator shim
1 ea . . . . . .Modulator rod
1 ea . . . . . .1/8" drill
1 ea . . . . . .2 - 3 backout valve plug
2 ea . . . . . .7/32" steel balls

B&M

Trick Shift™ Automatic Transmission Fluid

- Compatible with all automatic transmission fluids including Dexron™, Type F & Mercon™ fluids.

Trick Shift is a blend of foam inhibitors, extreme pressure agents and shift modifiers which in combination provide extended transmission life and dramatically improved shift feel. B&M's Trick Shift Performance Transmission Fluid is the most inexpensive way to measurably improve the transmission performance of your vehicle. You can literally pour in performance. Trick Shift can be mixed with other fluids. However, to attain the maximum improvement you should try to utilize Trick Shift exclusively. Ideal for towing, light trucks and RV applications.

TRICK SHIFT Transmission Fluid - 1 US Quart **80259**

TRICK SHIFT TEST DATA

TRANSMISSION FLUID COMPARISON TEST RESULTS					
Test		Type "F" Ford Brand	Dexron II	Improved Trick Shift	Specifications
4-Ball wear test (Ave. wear spot dia., mm)		.38 mm	.39 mm	.36 mm	Ford max. allowed .45 mm
Flash Point		380° F	350° F	385° F	Ford min. 350° F
Fire Point		420° F	390° F	435° F	Ford min. 380° F
Pour Point		- 70° F	- 45° F	- 45° F	Ford min. - 40° F
Copper Strip Corrosion		Slight Tarnish 1A	Slight Tarnish 1A	Slight Tarnish 1A	Ford Max. 1B
Viscosity @ 210° F		7.74 cs	7.36 cs	7.72 cs	Ford min. 7.0 cs
Viscosity @ 0° F		1,397 cs	Test ran at -10° F	1,180 cs	Phoenix lab results acceptable
Viscosity @ - 40° F		38,081 cs	50,000 cps (max.)	22,540 cps	
Foaming Tendency and Stability		Acceptable	Acceptable	Acceptable	ASTM D892 Test standards
Rubber Swell % Buna N		- .51 %	+ 2.5 %	+ 3.8 %	Phoenix lab pos. swell acceptable
Rubber Swell % Silicone		+ 18.21 %	+ 6.5 %	+ 13.11 %	Phoenix lab pos. swell up to 20 % acceptable
Dynamometer Shift Times with Stock TH-400 Trans.	1 - 2	1.17 sec.	1.20 sec.	.99 sec.	B&M Dyno Lab
	2 - 3	.95 sec.	1.08 sec.	.65 sec.	B&M Dyno Lab

TRANSMISSION OIL CAPACITY CHART*

GENERAL MOTORS			
TRANSMISSION	STOCK PAN	WITH B&M DEEP PAN	STOCK TORQUE CONVERTER
Turbo-Hydro 700R4	5 quarts	Add 3 Quarts	4.5 quarts
Turbo-Hydro 400	3 quarts	Add 2 Quarts	7.0 quarts
Turbo-Hydro 350	3 quarts	Add 3 Quarts	6.0 quarts
Powerglide	4 quarts	Add 2 quarts	5.0 quarts
Turbo-Hydro 200	3 quarts		4.5 quarts
CHRYSLER			
TRANSMISSION	STOCK PAN	WITH B&M DEEP PAN	STOCK TORQUE CONVERTER
A-727 TF	4 quarts	Add 4 Quarts	4.0 quarts
A-904 TF	4 quarts	Add 3 Quarts	4.0 quarts
FORD MOTOR COMPANY			
TRANSMISSION	STOCK PAN	WITH B&M DEEP PAN	STOCK TORQUE CONVERTER
C6	5 quarts		5.0 quarts
C4	3 quarts		5.0 quarts
FMX	4 quarts		5.0 quarts
AOD	6 quarts		5.0 quarts
B&M CONVERTER CAPACITIES			
12" Converters ..... 5 quarts			
11" Converters ..... 5 quarts			
10" Converters ..... 4 quarts			
9" Converters ..... 3 quarts			
8" Converters ..... 3 quarts			

*Capacities listed are approximated. **Note:** If you change or remove the valve body get additional oil equal to half your torque converter capacity.

TEST DATA ON TRICK SHIFT

Trick shift has been comparison tested with Dexron™ and Ford Type "F" fluids by two independent laboratories. B&M has also conducted shift time tests on the B&M transmission dyno. See results above left.

Instruction Addendum
B&M TransKit

The B&M TransKits now contain all the friction materials needed to completely rebuild the transmission. The TransKit instructions must be read through completely before you begin installation in order to become familiar with the terms and components you will be working with. The . instructions will mention to save certain friction material for reinstallation, however we now supply all new friction materials. Retain the old used friction materials for comparison only.

TRANSKIT #10229

CONTAINS THE FOLLOWING FRICTION MATERIALS:

- FORWARD CLUTCHES (REAR CLUTCH) 4 EA.
- FORWARD STEELS 4 EA. RECOMMENDED CLEARANCE: .015-.035'.
- DIRECT CLUTCHES (FRONT CLUTCH) 5 EA.
- DIRECT STEELS 4 EA. RECOMMENDED CLEARANCE: .060-.080'.
- INTERMEDIATE BAND (KICKDOWN BAND) 1 EA.
  ADJUSTMENT: TIGHTEN BAND ADJUSTING SCREW TO 72 INCH LBS. AND BACK OFF 1 1/2 TURNS, THE SUPPLIED 5.0 SERVO LEVER MUST BE USED WITH THE SUPPLIED INTERMEDIATE BAND FOR OPTIMUM RESULTS.
- REAR BAND 1 EA.
  ADJUSTMENT: TIGHTEN INTERNAL ADJUSTING SCREW TO 72 INCH LBS. AND BACK OFF 3 TURNS.

TRANSKIT #20229

CONTAINS THE FOLLOWING FRICTION MATERIALS:

- FORWARD CLUTCHES 5 EA,
- FORWARD STEELS **(.077) 5 EA.** RECOMMENDED CLEARANCE: .025-.045"
- DIRECT CLUTCHES 5 EA.
- DIRECT STEELS (.090) 5 EA. RECOMMENDED CLEARANCE: .060-.080"
- INTERMEDIATE CLUTCHES 3 EA.
- INTERMEDIATE STEELS 3 EA.
- REAR BAND 1 EA.
- INTERMEDIATE KICKDOWN BAND 1 EA.

NOTE: #20229 CONTAINS THE VALVE BODY COMPONENTS FOR 1965-1987 ONLY. ~ NOT ATTEMPT TO INSTALL THESE COMPONENTS INTO A 1988 OR LATER TH400.

TRANSKIT #30229

CONTAINS THE FOLLOWING FRICTION MATERIALS:

- FORWARD CLUTCHES 5 EA.
- FORWARD STEELS 5 EA. RECOMMENDED CLEARANCE: .015-.030',
- DIRECT CLUTCHES 5 EA.
- DIRECT STEELS 5 EA. RECOMMENDED CLEARANCE: .060-.080
  NOTE: TO INSTALL 5 FRICTIONS INTO THE DIRECT DRUM A FORWARD CLUTCH PRESSURE PLATE MAY BE NEEDED (GM P/N 6261072).
- INTERMEDIATE CLUTCHES 3 EA.
- INTERMEDIATE STEELS 3 EA.
- LOW-REVERSE CLUTCHES 5 EA.
- LOW-REVERSE STEELS 5 EA.
- INTERMEDIATE OVERRUN BRAKE BAND 1 EA.

TRANSKIT #40230

CONTAINS THE FOLLOWING FRICTION MATERIALS:

- REVERSE-HIGH CLUTCHES (DIRECT CLUTCHES) 5 EA.
- REVERSE-HIGH STEELS 5 EA. RECOMMENDED CLEARANCE: .060-80"
- FORWARD CLUTCHES 5 EA.
- FORWARD STEELS 4 EA. RECOMMENDED CLEARANCE: .020-.040".
- LOW-REVERSE CLUTCHES 5 EA.
- LOW-REVERSE STEELS 5 EA.
- INTERMEDIATE BAND 1 EA.
  ADJUSTMENT: TIGHTEN BAND ADJUSTING SCREW TO 120 INCH LBS. AND BACK OFF I 1/2 TURNS.

TRANSKIT **#50231**

CONTAINS THE FOLLOWING FRICTION MATERIALS:

- FORWARD CLUTCHES 5 EA.
- FORWARD STEELS 4 EA. RECOMMENDED CLEARANCE: .025-.040".
- REVERSE-HIGH CLUTCHES (DIRECT) 4 EA.
- REVERSE-HIGH STEELS 4 EA. RECOMMENDED CLEARANCE: .050-.066".
- LOW-REVERSE (REAR) BAND 1 EA.
  ADJUSTMENT: TIGHTEN BAND ADJUSTING SCREW TO 120 INCH LBS. AND BACK OFF 3 TURNS.
- INTERMEDIATE (FRONT) BAND 1 EA.
  ADJUSTMENT: TIGHTEN BAND ADJUSTING SCREW TO 120 INCH LBS. AND BACK OFF 1 3/4 TURNS.

TRANSKIT **#70230**

CONTAINS THE FOLLOWING FRICTION MATERIALS:

- 3-4 CLUTCHES 6 EA.
- 3-4 STEELS .5 EA.
- FORWARD CLUTCHES 5 EA.
- FORWARD STEELS 4 EA.
- LOW & REVERSE CLUTCHES 5 EA.
- LOW & REVERSE STEELS 5 EA.
- REVERSE INPUT CLUTCHES 4 EA.
- REVERSE INPUT STEELS 3 EA.
- OVERRUN CLUTCHES 2 EA.
- OVERRUN STEELS 2 EA.
- 2-4 BAND 1 EA.