



# Torqueflite Transkit

## Installation Instructions

Part No. 10229

A-727

**1962-77 & 1978-79 Non-Lockup Torque Converter**

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 properly 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 Holeshot 2400 or, for those that want a little more performance, the Holeshot 3000 is an excellent choice. For racing applications, you will want to choose the 9" race converter. 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. **Deep Pan.** The special cast aluminum B&M Deep Pan (#10280) not only looks good it adds extra oil capacity for longer life and cooler temperatures, plus it actually makes the transmission case more rigid, an important consideration for competition and off-road vehicles.

3. **Manual Valve Body.** For all-out competition where full manual control is desired B&M offers a special Manualpak. This kit provides features that we are unable to offer in the TransKit such

as the exclusive B&M low band safety feature. Consult B&M catalog for details on Manualpak features.

**4. Transmission Oil Cooler.** We felt 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 several coolers that feature excellent efficiency and high oil flow. See the B&M catalog.

**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 after market 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, 4X4s. This is a heavy duty modification intended for high capacity without harsh shift feel.
- 2. Street:** Dual purpose Street/Strip vehicles. Firm, positive shift feel but acceptable for daily street driving.
- 3. Track:** Race cars only, not to be driven on the

street. Maximum shift feel. Trailered or towed race vehicles only. Extremely high shift points are unsuitable for street use.

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.

**1978-'79 Lockup:** This kit is for all '62-'77 & '78-'79 non-lockup torque converter transmissions. **Do not use with 1978-'79 lockup transmissions.** Lockup or non-lockup can be identified by removing inspection cover on transmission bellhousing and reading small decal on front cover of torque converter. Lockup converter will read "LS Lockup" or "HS Lockup" while non-lockups will read "Lo Stall" or "High Stall." If decal is missing remove pan and valve body for identification. (See Fig. 7.)

## TRANSMISSION REMOVAL

**STEP 1.** Some Torqueflite 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. 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)

**STEP 4.** Disconnect throttle linkage lever by loosening the pinch bolt on lever and prying lever off shaft. Allow throttle linkage to hang free. (See Fig. 3)

**STEP 5.**

**'62-'65 models:** Disconnect shift cable. Remove oil pan and remove bolt at cable adjusting wheel. Pry back spring clip holding cable end into adapter and pull cable out. (See Fig. 4) Remove

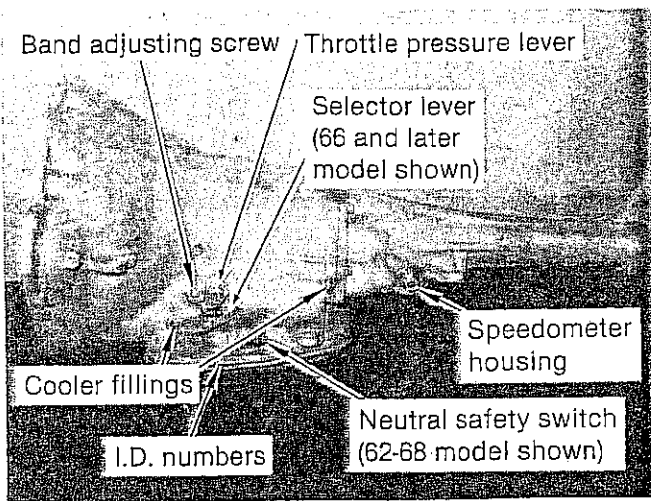


FIGURE 1

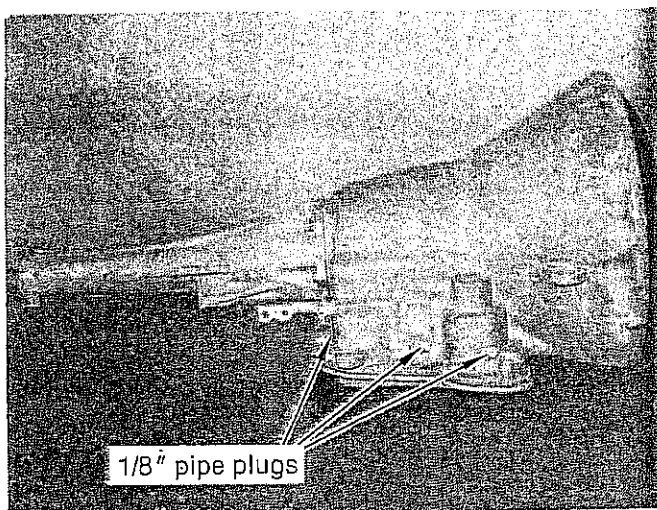


FIGURE 2

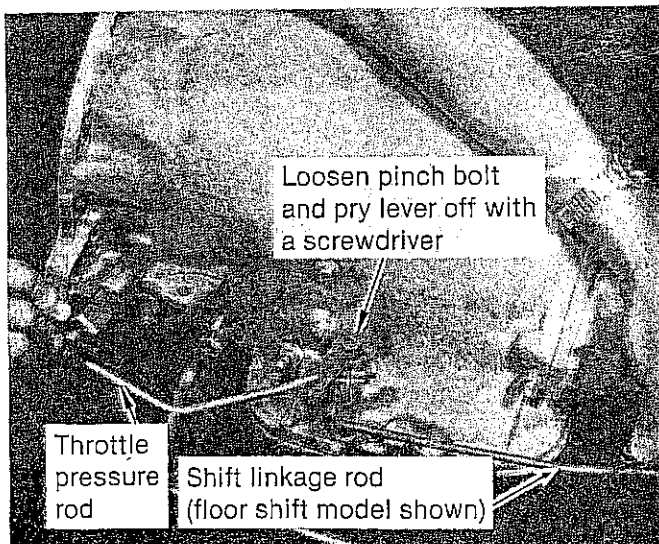


FIGURE 3

1/8" pipe plug from park housing on the bottom of the extension housing. Loosen park cable stud nut and tap stud in until cable is free. Reach inside pipe plug hole (with a screwdriver) and pry spring clip until cable pulls free. Install pipe plug finger tight. Install pan and bolts finger tight.

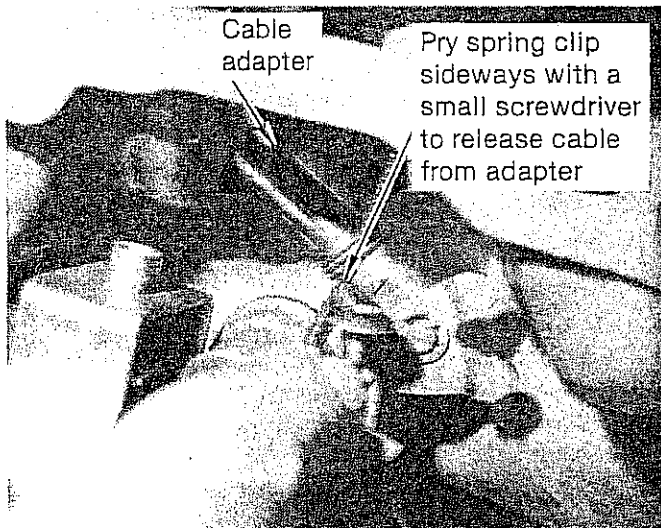


FIGURE 4

'66 and later models: Disconnect shift linkage lever by loosening pinch bolt on lever and prying lever off.

**Column Shift:** Remove linkage bracket from transmission bellhousing and let linkage hang free.

**Floor Shift:** Remove linkage bracket from extension housing and let linkage hang free.

'71 and later models with steering column lock: Disconnect bracket on bellhousing and let it hang free.

**STEP 6.** Remove dust cover on front face of bellhousing to expose converter bolts. Remove four converter bolts. The starter motor can be used to bump each bolt 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. Disconnect neutral safety switch wire harness and speedometer cable.

**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 several different model Torqueflite transmissions produced since 1962. 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 left side of the case just above the pan when you go to your Chrysler 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.

## DISASSEMBLY

### Section A

**STEP 1.** Remove oil pan bolts and remove oil pan. Use your oil pan for a parts tray.

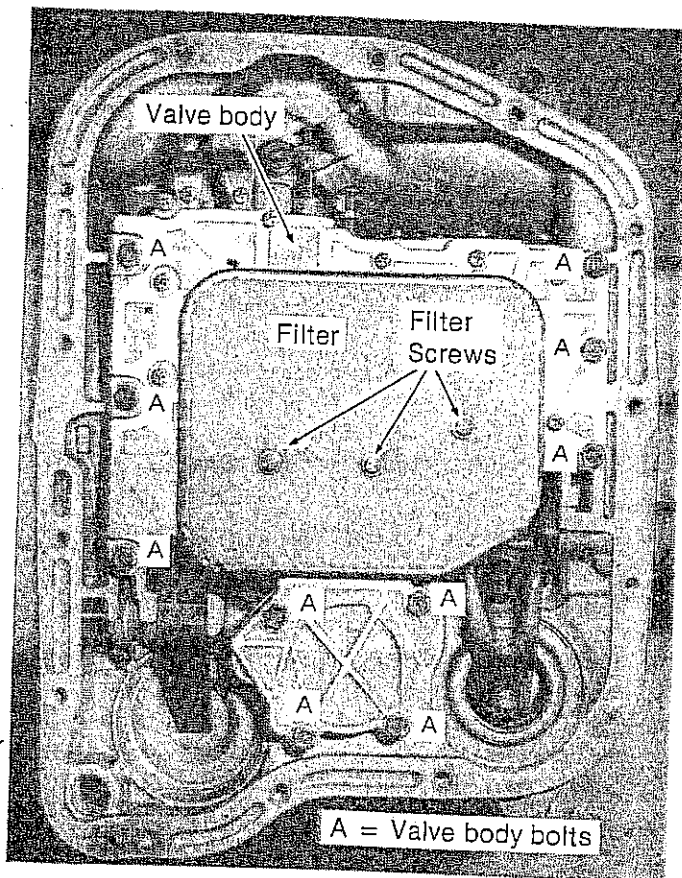


FIGURE 5

**STEP 2.** Remove ten 1/4" bolts holding the valve body in place. (See Fig. 5) Remove the last bolt carefully as there is a large spring between the valve body and the case. (See Fig. 6) Remove the valve body. On '66 and later models it may be necessary to turn the output shaft to free the park rod. Set the valve body aside. 1978-'79 lockup valve bodies can be readily identified by Lockup Valve assembly and transfer tube. (See Fig. 7). This kit is not to be used for this application.

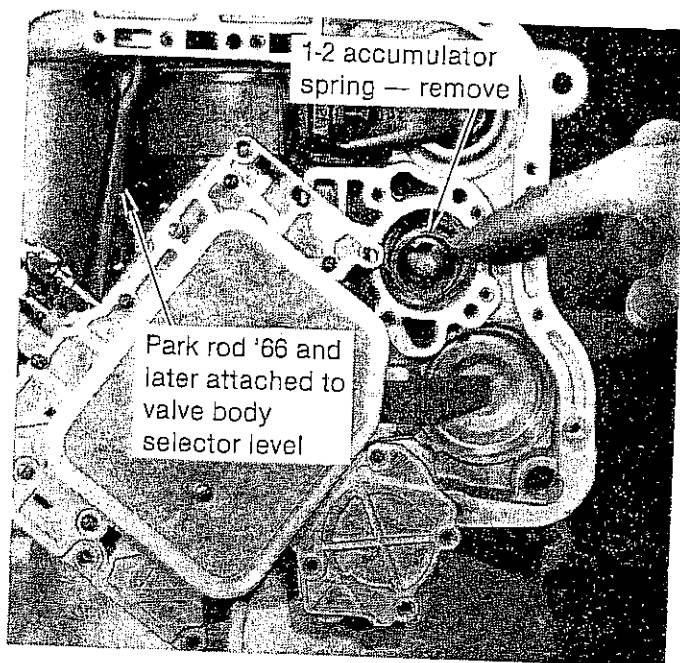


FIGURE 6

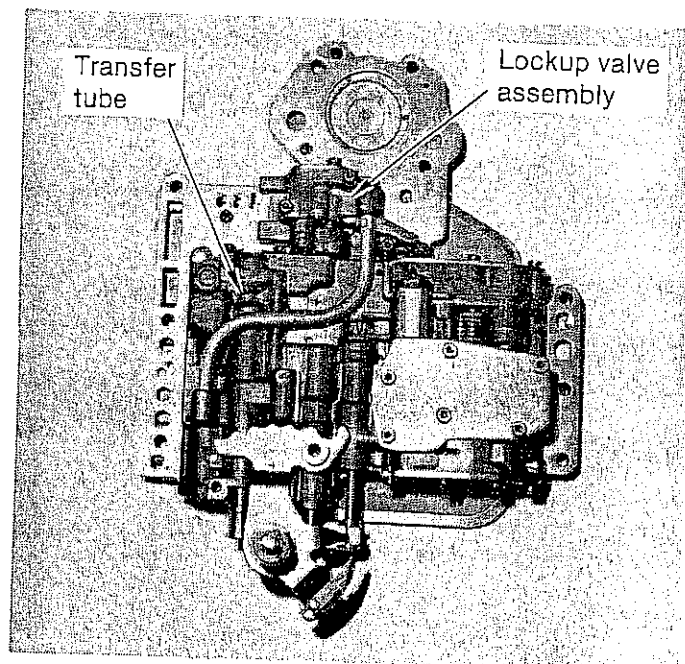


FIGURE 7

**STEP 3.** Remove and discard the large 1-2 accumulator spring that was under the valve body. Loosen and remove the band adjusting screw and locknut. (See Fig. 1) Remove the band anchor and apply strut. (See Fig. 8)

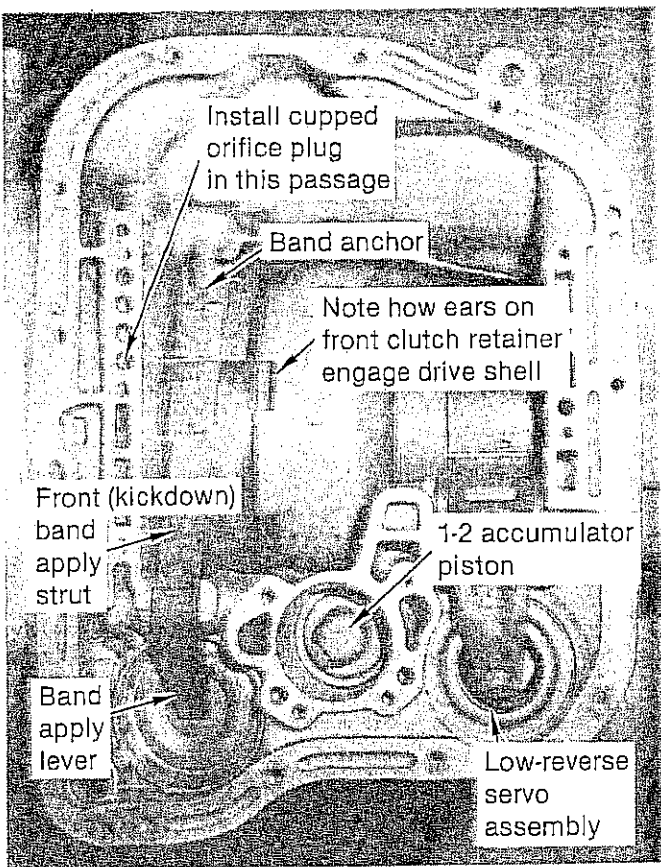


FIGURE 8

STEP 4. Remove seven 5/16" front pump bolts. (See Fig. 9) The pump bolt holes at the 3 and 9 o'clock positions are tapped for 3/8-16 thread. Use a pair of slide hammers or a length of chain at these locations to "bump" the pump out of the case. Remove the pump and set it aside.

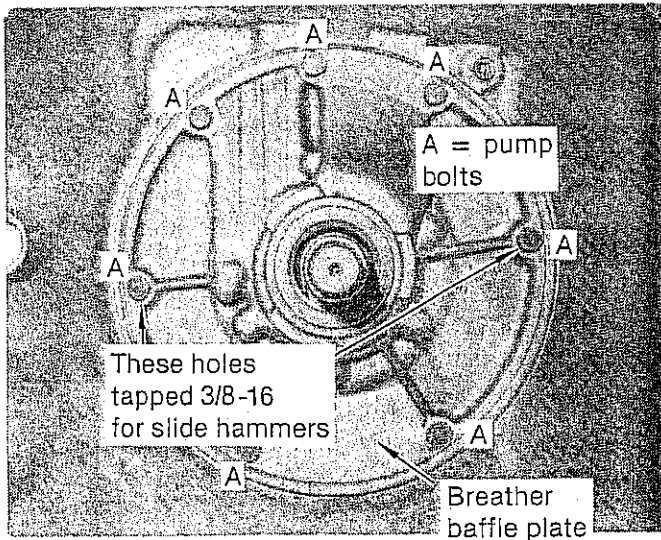


FIGURE 9

STEP 5. Remove the kickdown band and set it aside. (See Fig. 10) Grasp the input shaft and remove the entire clutch drum assembly. Be careful not to lose thrust washer between the input and output shafts. (See Fig. 11)

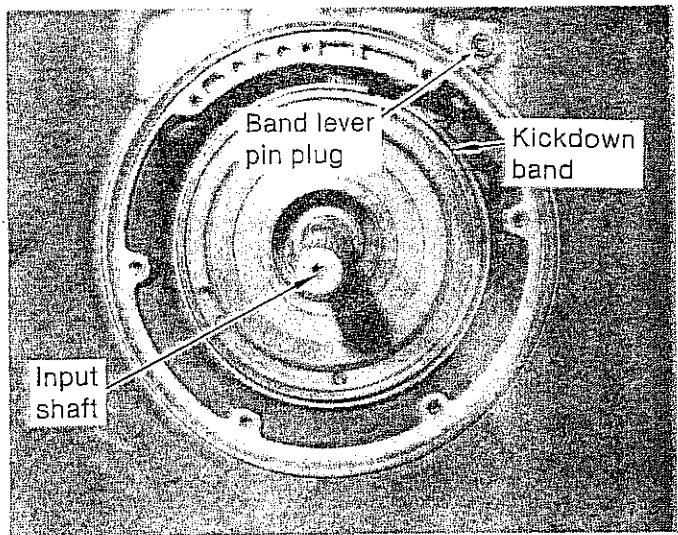


FIGURE 10

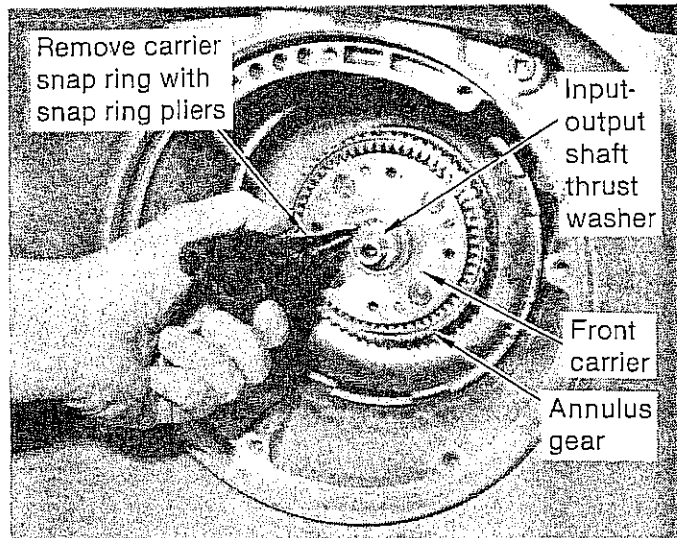


FIGURE 11

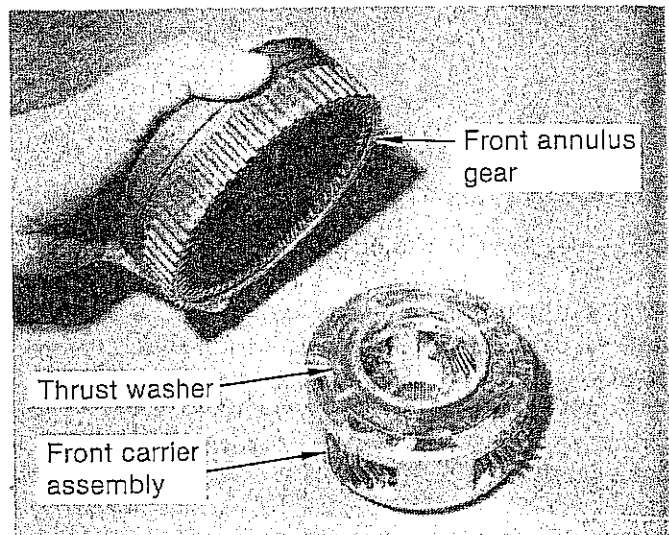
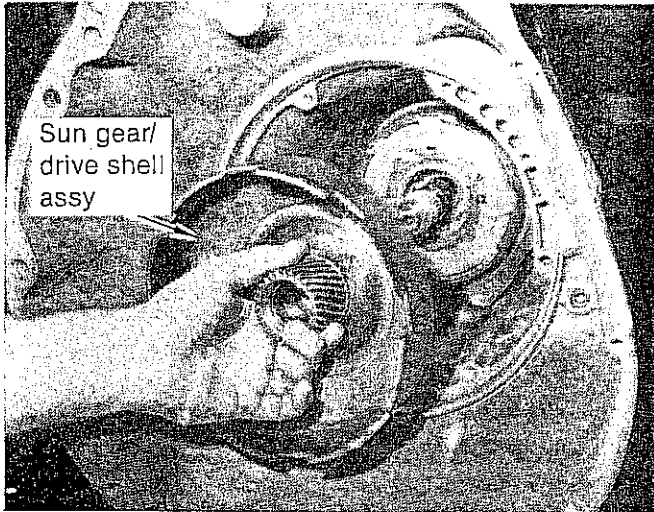


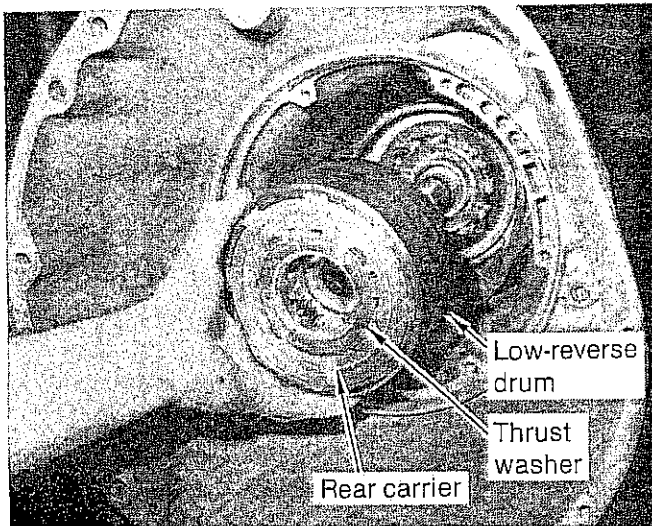
FIGURE 12

**STEP 6.** Remove the front carrier snap ring with a pair of snap ring pliers. (See Fig. 11) Remove the front carrier and annulus gear. The drive shell thrust washer will probably stick to the back of the annulus gear. Put it in the oil pan. Remove the carrier from the annulus gear. (See Fig. 12) There will be a thrust washer between the carrier and the annulus. Put it in the oil pan. Set the carrier and annulus aside.



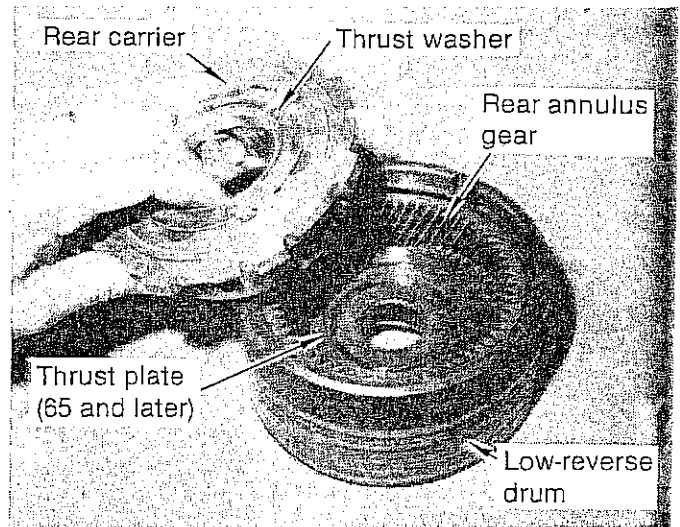
**FIGURE 13**

**STEP 7.** Remove the sun gear/drive shell assembly. (See Fig. 13) The rear carrier thrust washer will probably stick to the back of the drive shell. Put it in the oil pan. Set the drive shell assembly aside.



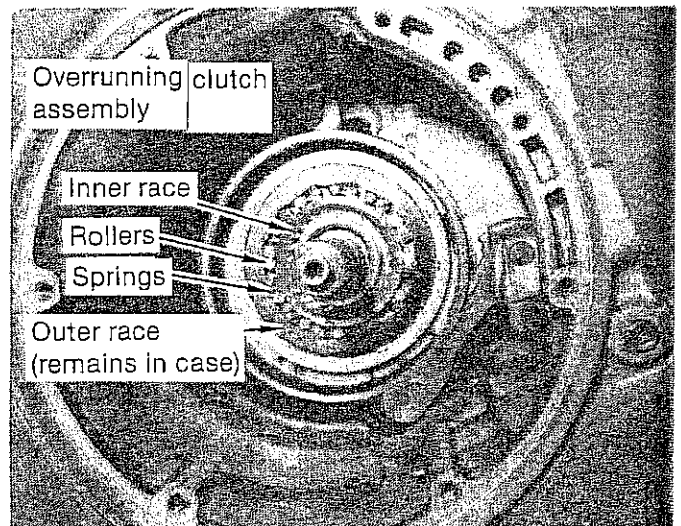
**FIGURE 14**

**STEP 8.** Grasp the low/reverse drum and remove the entire assembly from the case. (See Fig. 14) If the overrunning clutch falls apart don't be alarmed. Remove the rear carrier from the low/reverse drum. (See Fig. 15) On '65 and later models, there is a thrust plate between the carrier and the rear annulus gear which may stick to the carrier. Put it in the oil pan. '62-'64 models have no thrust plate. Remove the rear annulus gear from inside the low/reverse drum. Set the carrier, annulus gear and drum aside.



**FIGURE 15**

**STEP 9.** Remove the overrunning clutch inner race. (See Fig. 16) Remove twelve rollers and twelve accordian-type springs. Set them in the oil pan. The outer race will remain in the case as it is staked in place.



**FIGURE 16**

**STEP 10.** Lift up on the rear servo lever until the band strut "snaps" out of place. (See Fig. 17) Remove the low/reverse band and short apply strut. Put the strut in the oil pan. Set the band aside.

**STEP 11.** Turn the transmission case so the bell-housing is face down. Remove six extension housing bolts and put them in the oil pan. Remove the extension housing assembly from the transmission case. (See Fig. 18) Discard the extension housing gasket. Set the extension housing assembly aside. '62-'65 models: There is 1/4" steel ball in a pocket just in front of the governor support on the output shaft. Do not lose this ball as it drives the rear pump.

**STEP 12.** Remove the rear pump housing or output shaft support.

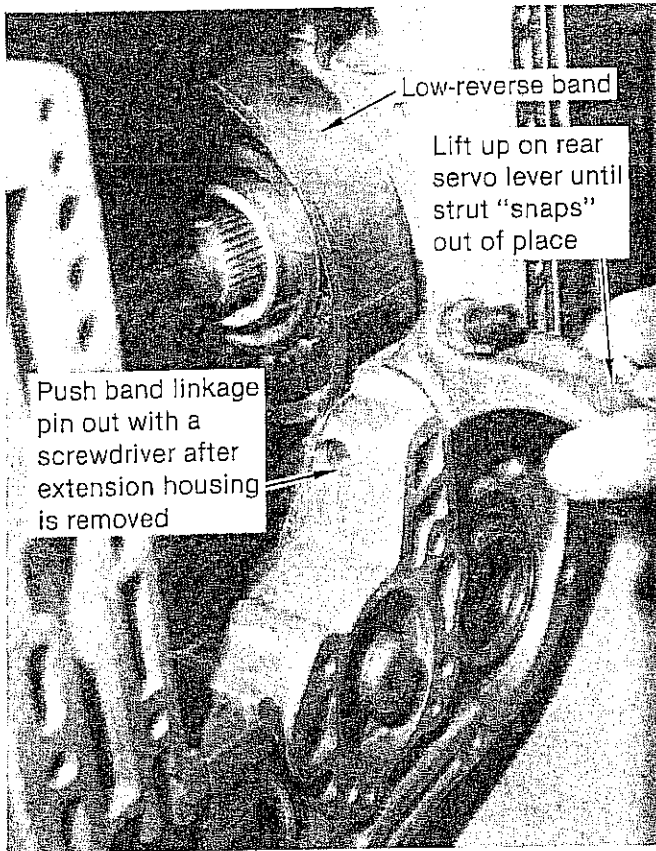


FIGURE 17

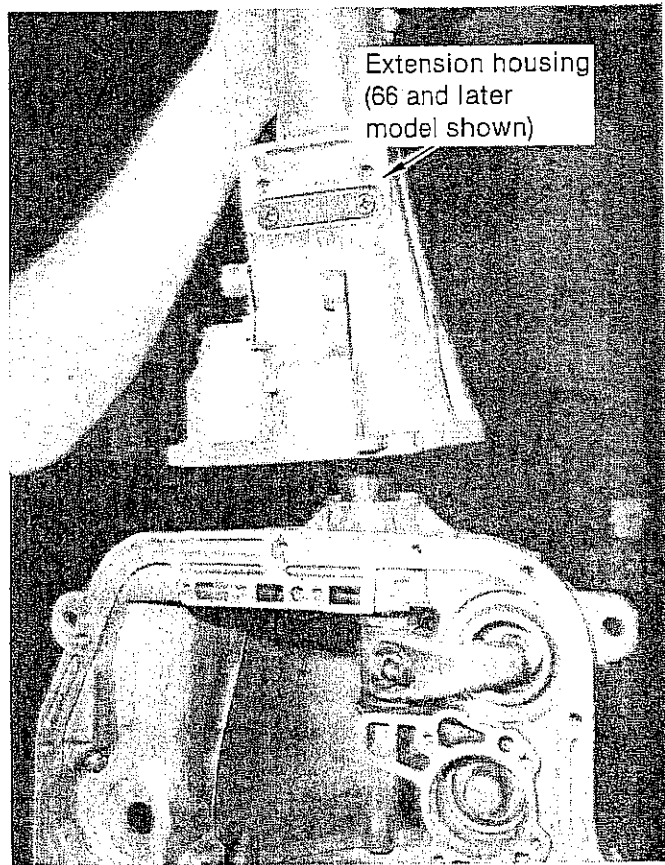


FIGURE 18

'62-'65: Remove six bolts holding the rear pump cover in place (See Fig. 19) Remove cover, inner and outer rotors. Set them in the oil pan.

'66 and later: Remove four bolts holding the output shaft support in place. (See Fig. 20) Set them in the oil pan.

Use a rubber or plastic hammer and tap the housing or support out of the case. Set it in the oil pan.

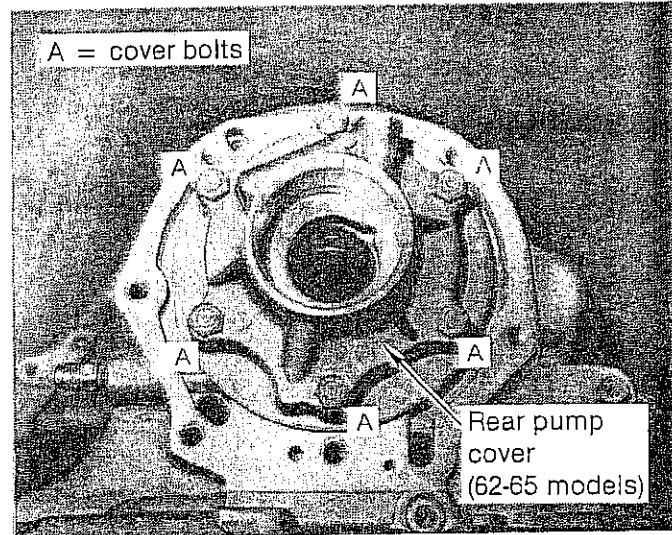


FIGURE 19

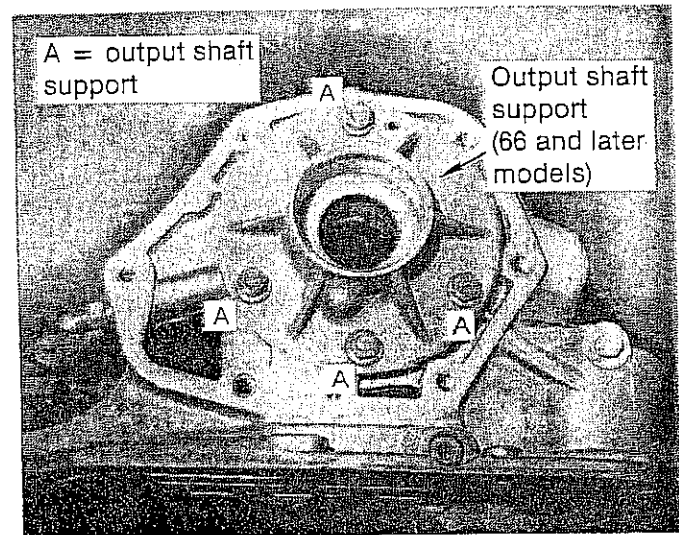


FIGURE 20

STEP 13. Remove the kickdown assembly. (See Fig. 21) Remove the snap ring with a screwdriver. There is some spring tension underneath the cover so hold your hand over the cover so it doesn't fly out. Remove the cover, one or two return springs, apply rod and piston. Inspect servo cover to determine type 1 or type 2 completely.

1. '70 and earlier: Servo cover is 2 3/4" in diameter and apply rod is 5/16" in diameter — Remove and discard the metal seal rings on

## Section B

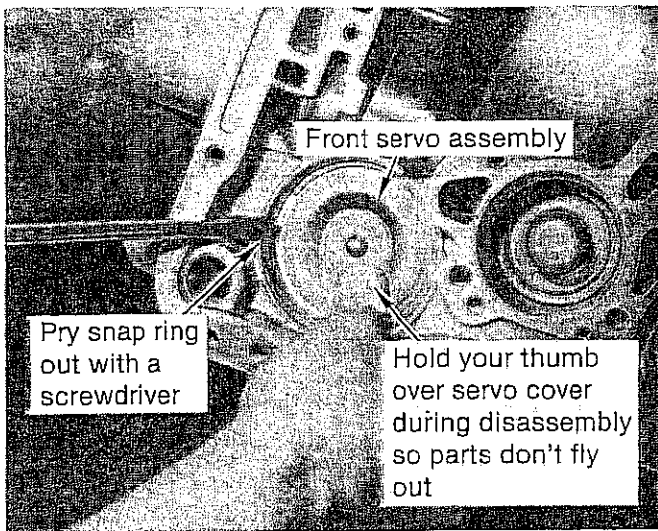


FIGURE 21

cover and piston. Discard servo return spring(s). Set assembly aside.

2. '71 and later: Servo cover is  $2\frac{3}{4}$ " in diameter and apply rod is  $\frac{5}{8}$ " in diameter (Controlled Load Servo) — Remove inner piston/rod and discard rubber lip seal and seal rings on piston. Set springs and rest of assembly aside.

**STEP 14.** Remove accumulator piston by pulling straight out. (See Fig. 8) Remove and discard metal seal rings on the piston. Discard spring if there is one under the accumulator piston.

**STEP 15.** Remove the reverse band lever shaft. (See Fig. 17) Push on it from the inside with a screwdriver until it can be removed from the back of the case. Remove and discard the O-ring and put the pin in the oil pan. Remove the link and anchor, short lever and long lever from the case. Set them in the oil pan.

**STEP 16.** Remove the low/reverse servo snap ring. (See Fig. 8) Again hold your hand over the retainer so it doesn't fly out. Remove the retainer. Remove and discard the servo spring. Remove the servo piston.

'62-'66: Disassemble servo. Discard rubber lip seal and servo inner spring.

'67 and later: Discard rubber lip seal.

Put the parts in the oil pan.

**STEP 17.** Remove the three  $\frac{1}{8}$ " pipe plugs on the right side of the case at the pressure check points. (See Fig. 2) Set them in the oil pan. Remove the neutral safety switch. Set it in the oil pan.

'66 and later: Remove the shifter shaft oil seal from the case.

The case is now ready to clean.

## 1. Oil Pump

**STEP 1.** Remove and discard the O-ring on the outside diameter of the pump and the two metal hook-type seal rings on the rear of the pump. (See Fig. 22) Remove the phenolic thrust washer on the back on the pump. Set it in the oil pan.

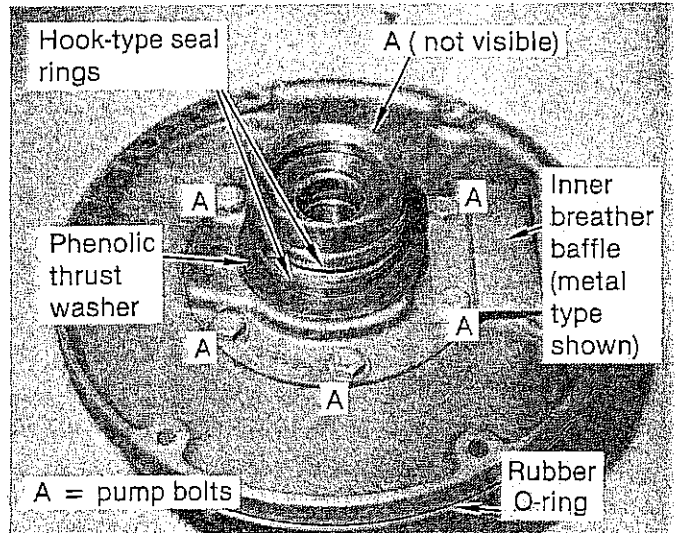


FIGURE 22

**STEP 2.** Remove six oil pump bolts and metal breather baffle from rear of oil pump. (See Fig. 22) Do not try to remove late model plastic breather baffles as they are riveted in place. Also take care not to crack the plastic baffle. Remove reaction shaft support from pump cover. Remove pump inner and outer rotors. Remove and discard front oil seal.

The oil pump is now ready to clean.

## II. Front Clutch Assembly

**STEP 1.** Lift the front clutch drum off the clutch pack assembly and set it in front of you with clutches facing up. There is a phenolic thrust washer between the front and rear clutch. Do not lose it. Remove the snap ring holding the backing plate in place with a screwdriver. Remove the thick backing plate and three to five front clutch plates and steel plates (See Fig. 23) Discard the clutch plates and save the steel plates.

**STEP 2.** Use an arbor press or two C-clamps to compress the piston return spring retainer. (See Fig. 24) Be careful not to distort the retainer. Remove the snap ring and release the press carefully. Remove spring retainer and six to fifteen return springs. Discard the 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 retainer. Set the piston, spring retainer and snap ring in the oil pan.

The front clutch assembly is ready to clean.



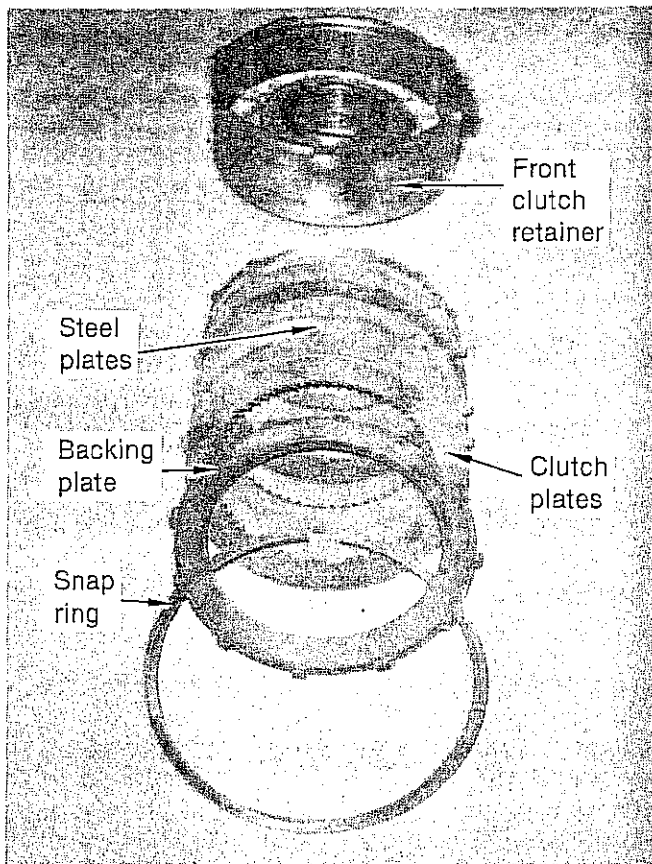


FIGURE 23

Remove spacer, if equipped and piston return spring. This will allow the rear clutch retainer to slide off the front of the piston retainer. Remove the piston from the piston retainer. Remove and discard the inner and outer rubber lip seals.

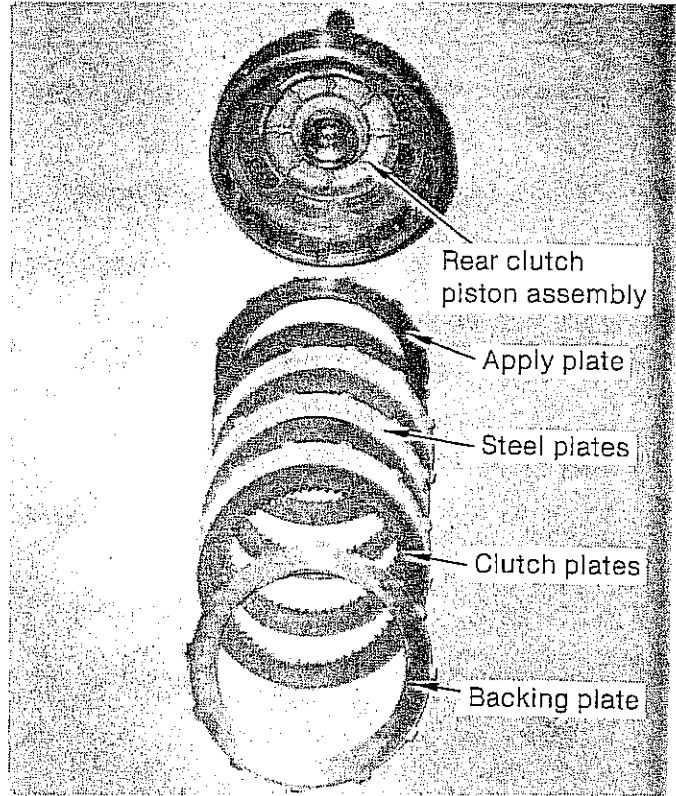


FIGURE 25

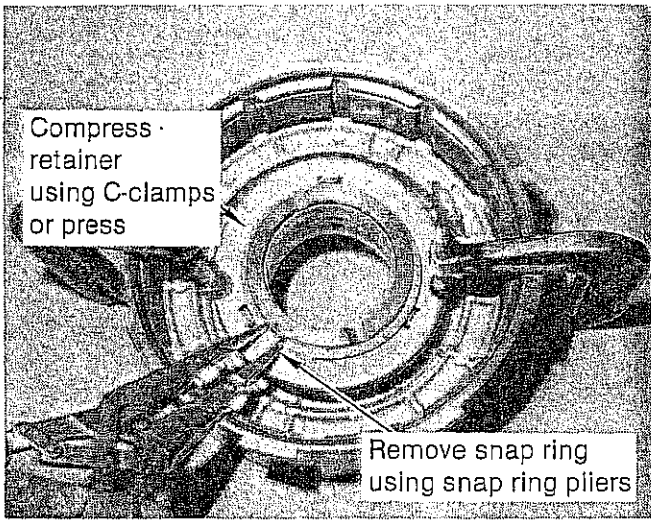


FIGURE 24

### III. Rear Clutch Assembly

**STEP 1.** Remove the snap ring holding the backing plate in place with a screwdriver. Remove the thick backing plate. Remove three or four rear clutch plates and two or three steel plates. Remove the thicker apply plate. (See Fig. 25)

**STEP 2.** Remove the snap ring holding the dished piston return spring in place. (See Fig. 26) Some models have a single 0.106 in. thick snap ring. Other models have a wavy snap ring and a steel or plastic spacer ring.

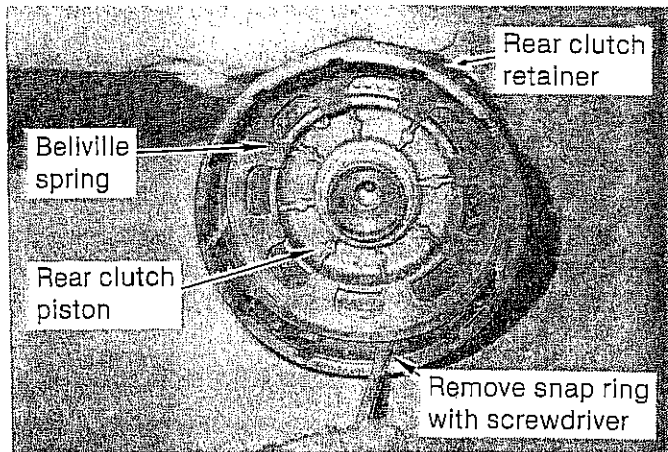


FIGURE 26

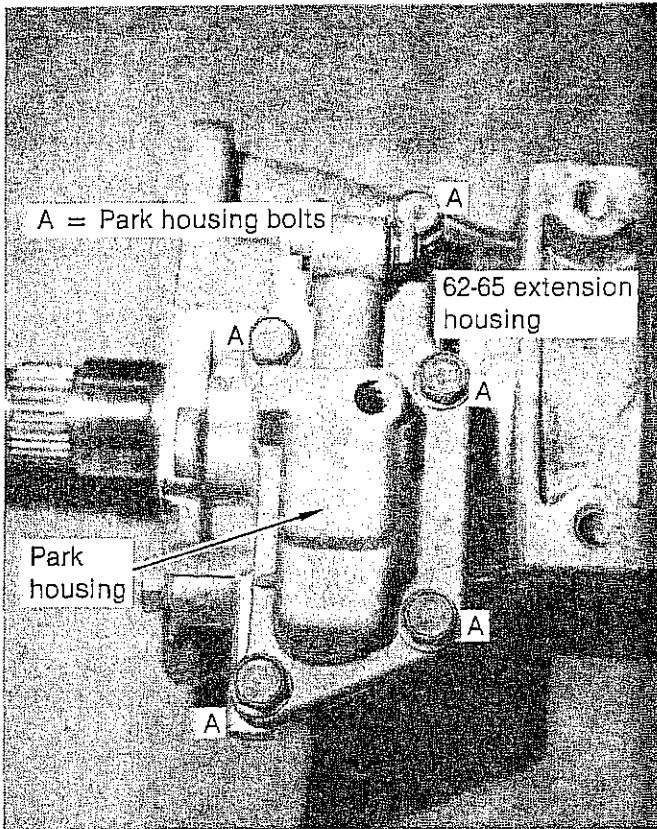
**STEP 3.** Remove and discard the two hook-type metal seal rings from the input shaft. It will not be necessary to disassemble the input shaft from the piston retainer unless either needs to be replaced due to damage. This rear clutch assembly is ready to clean.

### IV. Extension Housing Assembly

**Note:** Short truck extension housing assemblies are similar to 62-64 flange shaft units.

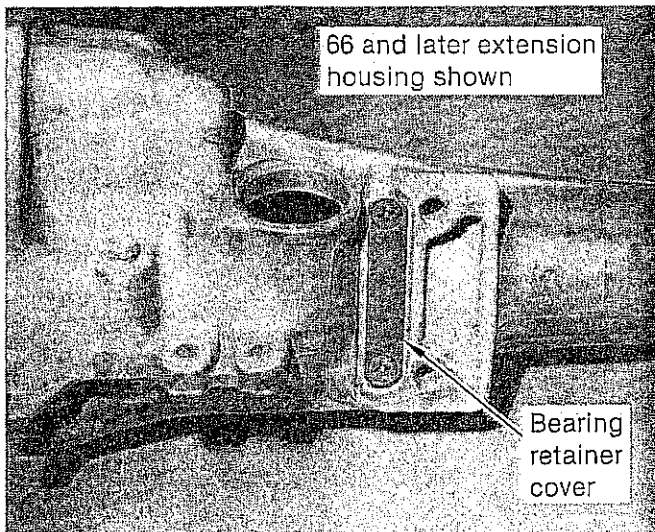
**STEP 1.**

'62-'65: Remove the park housing bolts and remove the park housing from the extension housing. (See Fig. 27) It will not be necessary to remove the park parts. Set the housing and bolts in the oil pan.



**FIGURE 27**

62-'64: Remove the large nut holding the output flange in place. Remove the output flange and slide the output shaft out the front of the extension housing. Remove and discard the extension housing seal. Set the housing aside.



**FIGURE 28**

'66 and later: Remove the speedometer housing retainer and bolt. Remove the speedometer housing and gear. Remove and discard the O-ring and inner seal on the housing. Do not lose the inner seal clip. Set the parts in the oil pan.

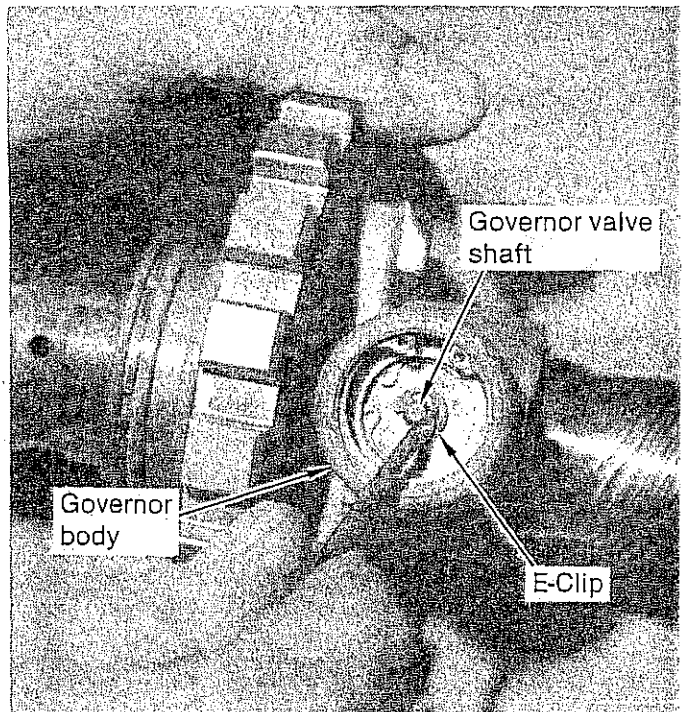
'65 and later: Remove two Phillips head screws holding the bearing retainer cover in place. (See Fig. 28) Remove the retainer. Discard the gasket. Spread the snap ring ends visible with a pair of snap ring pliers. Tap the end of the output shaft and remove the output shaft assembly from the extension housing. Remove and discard the extension housing seal. Set the extension housing aside.

**STEP 2.** Remove the E-clip holding the governor valve shaft in place. (See Fig. 29) Remove the shaft and the governor valve. Remove the large snap ring holding the weights in position in the governor body. Remove the governor weight assembly. Put the parts in the oil pan. Remove and discard two metal seal rings from the front of the governor support. It is necessary to remove the bearing or support for cleaning.

The extension housing assembly is now ready for cleaning.

**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 carburetor cleaner or "Gunk." To



**FIGURE 29**

prevent rusting, dip parts in solvent after washing carburetor cleaner off with water. Clean the following parts in solvent only: Governor, speedometer gear, neutral safety switch, springs 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 transmissions 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 "Track" 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 (Vaseline, white grease, etc.) handy for lubing during assembly.

### I. Valve Body

**STEP 1.** Your work bench should be clean as stressed in the beginning of the instructions. Place the valve body on the bench with filter side up. Remove the three filter screws and remove the filter. Screws may be phillips, slot head, or spline head on 1978 models. A 7/64" allen wrench may be a substitute in place of spline head drive if not available. The filter should be discarded at this time. Set the screws aside in a small tray, so they won't be lost. As you disassemble the valve body, when removing a valve and a spring, keep them together.

Now remove the pressure regulator spring retainer located next to the selector lever. (See Fig. 30)

'62-'74 (small cage): Remove three short screws.

'71 and later (with large cage): Remove throttle pressure adjustment screw first. Then remove screws that hold the retainer in place.

**CAUTION:** Hold your hand against the retainer while removing the last screw (See Fig. 30) so the large pressure regulator spring does not fly out, remove the retainer and adjustment plate, pressure regulator spring and converter valve spring and set them aside. Remove the regulator valve and converter valve and lay

them next to their respective springs. Remove kick-down sleeve and valve, throttle pressure spring, and throttle pressure valve and set aside. (See Fig. 34.)

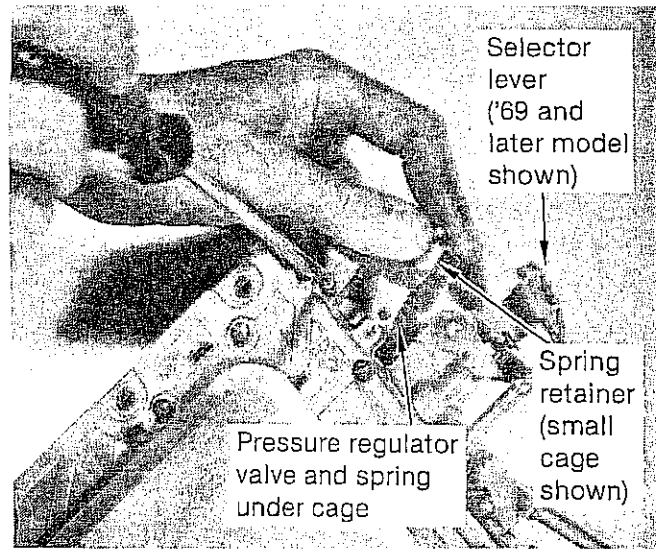


FIGURE 30

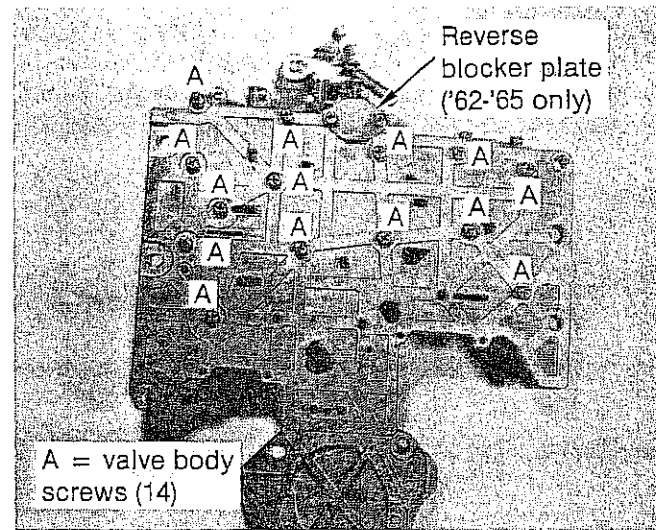


FIGURE 31

**STEP 2.** Set the valve body on the bench with the filter side up and the selector lever assembly in the top left corner. The valve body consists of: (1) a thick casting containing the valve bores and will be referred to as the **casting**; (2) a thin stamped steel plate with numerous different shaped holes called a **separator plate**; and (3) a thin aluminum casting that looks like a maze called a **transfer plate**.

**STEP 3.** Valve Body Disassembly: (See Fig. 31)

'62-'65: Remove two short Phillips screws at the top center portion of valve body that retains the reverse blocker plate. Slowly remove plate, reverse blocker piston and reverse blocker spring. Set these parts aside so the spring won't be confused.

'66 and later: These years do not have a reverse blocker.

**STEP 4.** Remove valve body screws from transfer plate. (See Fig. 31) There will be fourteen of them with either phillips, slot head, or spline head on 1978 models. Hold the casting and transfer plate together with one hand while removing the last screw so you won't lose any internal parts. Carefully lift the transfer plate assembly off the casting to expose the oil passages. Turn the transfer plate assembly over so the separator plate is facing up and set it to your right. Inspect your casting for the following: (See Fig. 32)

'62-'65: Small check valve and weak spring in lower left corner. Valve is a thin stamped metal disc about 1/2" diameter. Remove and place in tray.

'66-'68: No check valve.

'69-'76: Large steel ball on a stiff spring underneath. Remove the ball and spring and set it aside so it won't be confused with other parts.

'77-'79: No check valve.

**All valve bodies:** '62-'77 have five 1/4" diameter steel check balls and one 11/32" diameter steel check ball in the casting. '78-'79 have six 1/4" balls and one 11/32" ball. (See Fig. 32) Remove these and place them in the tray.

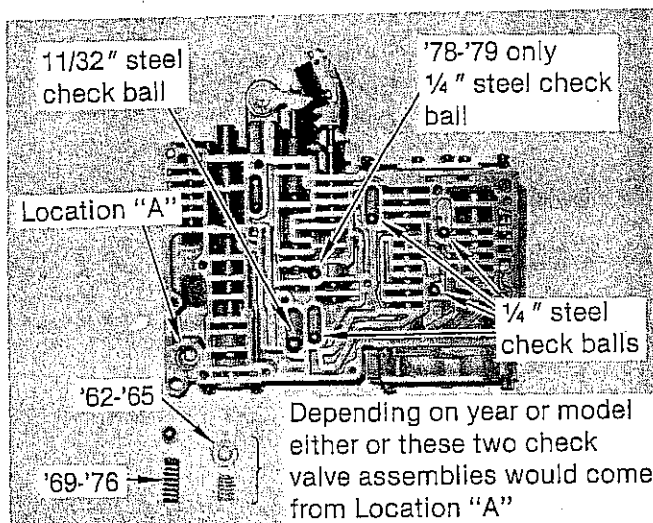


FIGURE 32

**STEP 5.** Shift Valve End Plate: Remove three screws that hold the shift valve end plate in place. There are three possible combinations you may encounter. (See Fig. 33)

1. '62-'70 (727): A flat plate held in place with three short Phillips screws. Remove the plate to expose the 1-2 shift valve and spring and the 2-3 shift valve and spring. Remove each valve and spring and set them aside.

'71 and later shift valve end plate (used in place of 3-2 down shift assembly shown below, some models)

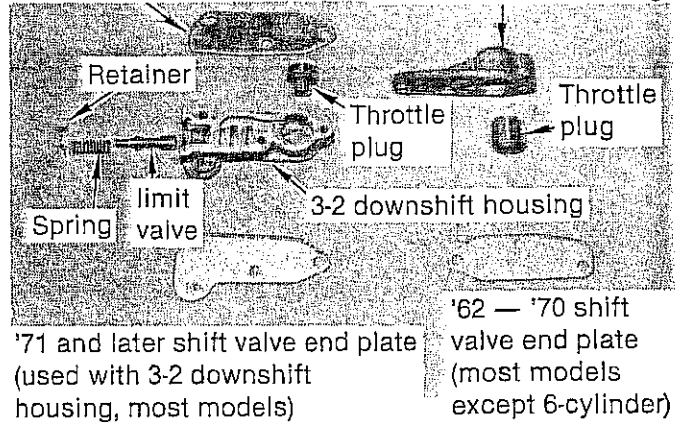


FIGURE 33

2. '71 and later (727): Some of these models have a 3-2 downshift and limit valve assembly and end plate. Remove three long screws and remove end plate and housing to expose 1-2 shift valve and spring, 2-3 shift valve and spring and 1-2 shift control valve and spring. Remove each valve and spring and set them aside.

**CAUTION:** All valves in the valve body ideally should fall out by turning the casting on its side. Some valves may require gentle tapping or careful removal with a screwdriver. Do not use excessive force! Damaged castings or burred, nicked valves will create problems later and cause erratic shifts.

**STEP 6.** Governor Plug End Plate: (See Fig. 34) Remove five short screws that hold the governor plug end plate in place. This will allow you to remove the 1-2 shift valve governor plug, 2-3 shift valve governor plug, shuttle valve throttle plug and shuttle valve spring. Set these valves aside and keep the spring with the shuttle valve throttle plug so it won't be confused. Do not rotate selector lever (See Fig. 30) and lose detent ball and spring. Turn casting over and remove four or six retaining screws holding top plate. Remove top plate for ease of cleaning the casting following drilling operation.

**STEP 7.** Drilling Main Casting: Install the special drill guide supplied with the kit in place on the casting as shown. (See Fig. 35) Use two short screws to hold it in place in the end holes with drill plate position as shown. The center hole is a drill guide to remove a section of the casting wall below it. Use a 3/16" drill supplied in the kit and wrap several layers of tape around the drill bit to act as a stop. You want 3/8" from the edge of the tape to the end of the drill. Use the gage to wrap the tape properly. (See Fig. 36) Use a high speed drill motor and slowly drill down into the casting wall until the tape just touches the face of the drill guide. Drilling further will

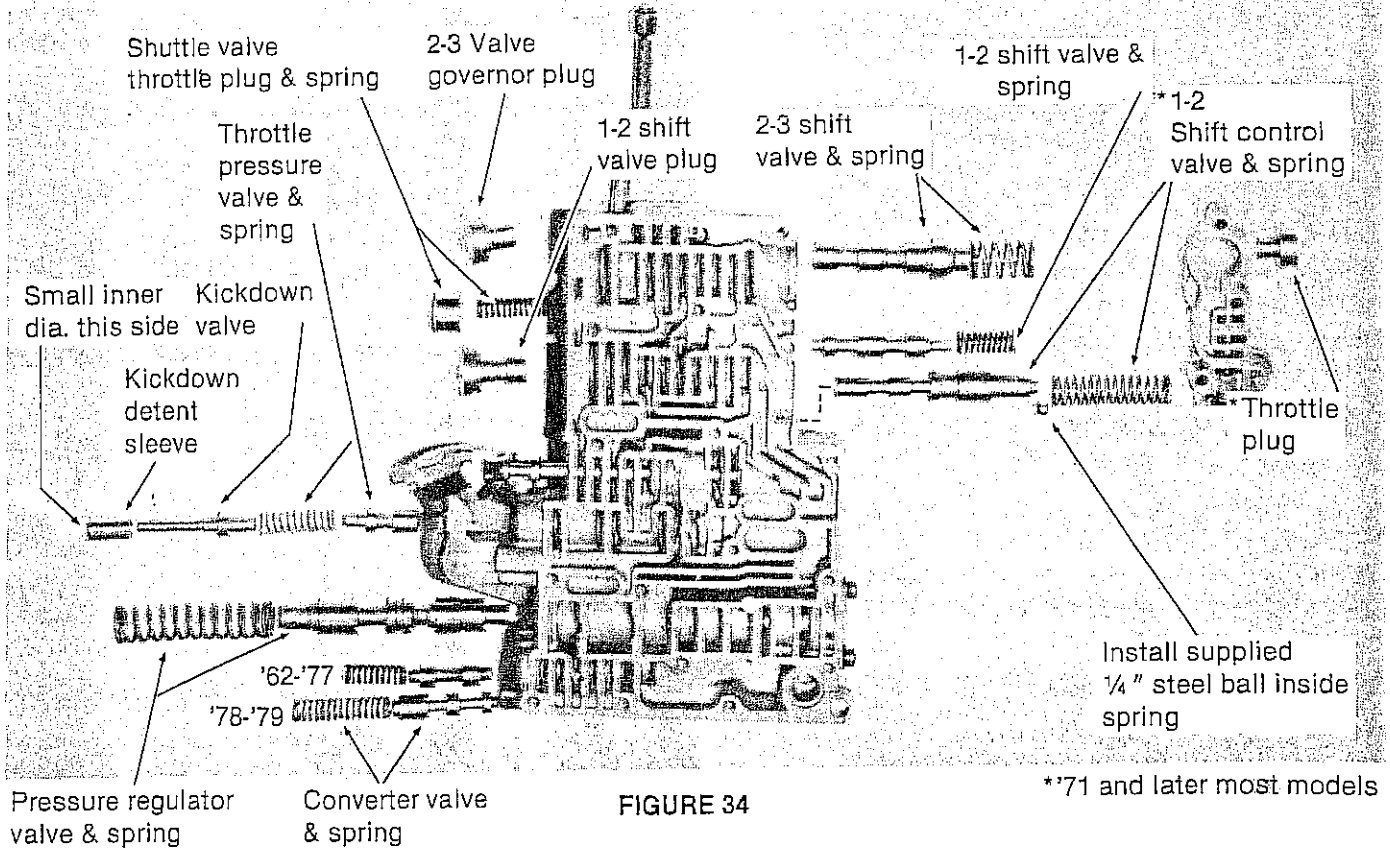


FIGURE 34

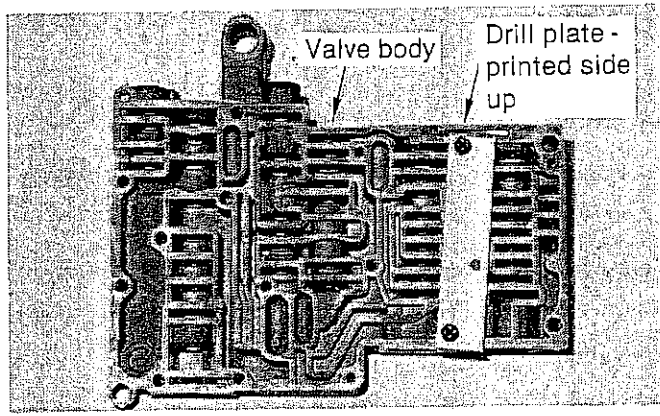


FIGURE 35

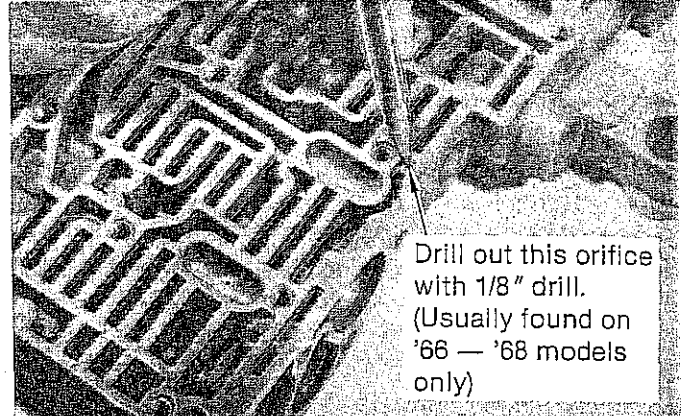


FIGURE 37

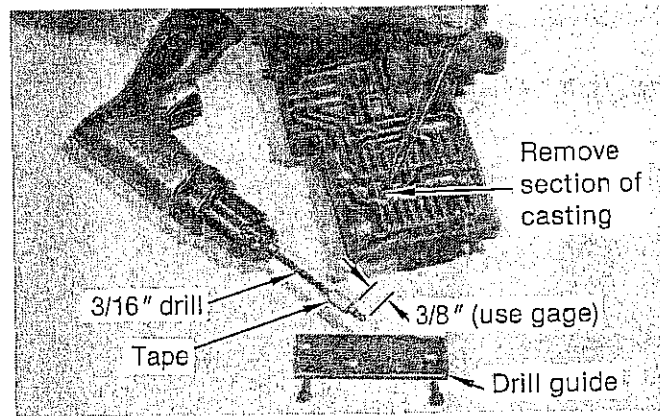


FIGURE 36

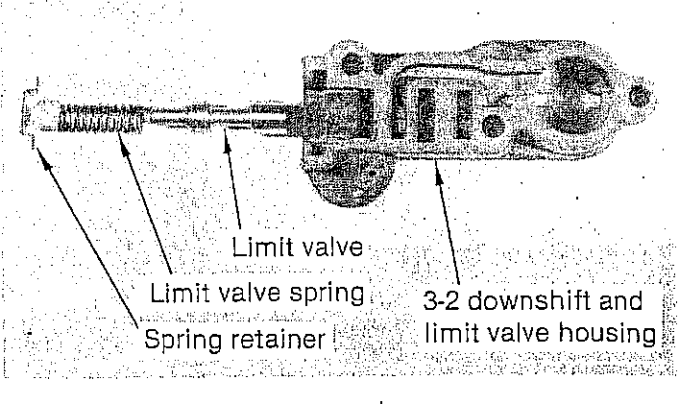


FIGURE 38

cause damage. Remove the drill guide to see if you have removed the wall separating two channels. The drill should have penetrated almost to the floor of the casting. Use solvent to clean the casting and remove all chips that were created by drilling. If your casting has an orifice as shown in Figure 37, drill orifice out with furnished 1/8" drill. Be careful to drill out only the orifice and not rest of casting.

**STEP 8. Limit Valve Spring:** Some '71 and later-727 units have a part throttle kick-down assembly located in the end plate and housing previously removed to expose the shift valves. (See Fig. 38) By installing the special black spring supplied with the kit, you can limit the operation of the valve to below 35-40 mph. This is recommended for all camper type vehicle, police and taxi use. Remove retainer and stock spring. Install black spring and retainer as removed.

**STEP 9. Assembly-Shift Valves:** (See Fig. 34) Install 1-2 shift valve and spring into its proper bore, install 2-3 shift valve and spring into its bore.

**'71 and later:** Install 1-2 shift control valve and spring. Install 1/4" diameter steel ball supplied with kit inside 1-2 shift control valve spring against 1-2 shift control valve.

Install end plate, or throttle plug housing and throttle plug, or 3-2 downshift assembly and end plate, depending on your model valve body (See Fig. 33) and hold in place with your thumb. Thumb pressure is all that should be necessary to hold end plate assembly in place and flush with casting. If plates do not fit flat determine the problem and repair it now. Install proper retaining screws and tighten finger tight.

**STEP 10. Governor Plug Valves:** (See Fig. 34) Install 2-3 shift valve governor plug. The valve should install almost flush with surface of casting and move freely

with a spring loaded action.

A special 1-2 shift valve governor plug has been supplied with the kit. Installing this plug will allow you to downshift into low at any speed. If you desire this capability choose the valve with the correct diameters to fit your model valve body and proceed. See Fig. 39 for correct special 1-2 shift valve governor plug. Correct valve should fit properly into casting bore (as did stock valve) and move freely. Deburr edges of valve if necessary with sandpaper or Arkansas stone.

Install 1-2 shift valve governor plug desired. The valve should install almost flush with the surface of the casting and move freely with a spring loaded action. Finally, install the shuttle valve spring and shuttle valve throttle plug. Hold governor end plate in place with your thumb and install five screws finger tight. You should be able to hold the end plate in place with thumb pressure only. If the plate does not fit flush with the casting, determine the problem and repair it now. Install top plate and four or six screws.

**STEP 11. Throttle Pressure Valve Assembly:**

**Heavy Duty and Street:** No modification is necessary for this application. Install stock throttle pressure valve (small diameter facing out) and spring.

**Track:** Grind the end of the small diameter of the throttle pressure valve so the distance from the end of the nearest large diameter to the ground end is 9/32". (See Fig. 34) Use the gage supplied for reference. Install valve into its bore with small diameter facing out. Install either red or green spring supplied with kit, whichever is the correct diameter.

Install the kickdown detent valve last with the small inside diameter facing **Out**. (See Fig. 34) Finally install throttle stop screw assembly finger tight.

**STEP 12. Pressure Regulator and Converter Valves:** (See Fig. 34) Install pressure regulator valve into its bore. Install converter valve into its bore. On 1978-'79 models the long machined diameter of the torque converter valve must face **out**. Both valves should move freely and easily. Remove any burrs that may cause stickiness or binding. Set casting aside.

**STEP 13.** Place transfer plate and separator plate assembly in front of you. The thin metal separator plate will be held with four to six short screws. **Note how your stiffener plate is positioned.** Remove the retaining screws and lift the separator plate off. ('62-'65 models will have a check valve and spring under the plate in the position shown. '78 models have a torque converter relief check valve and spring in position shown. Do not lose.) '74 and later models have a screen type filter in the separator plate. Remove and clean. Refer to Fig. 40

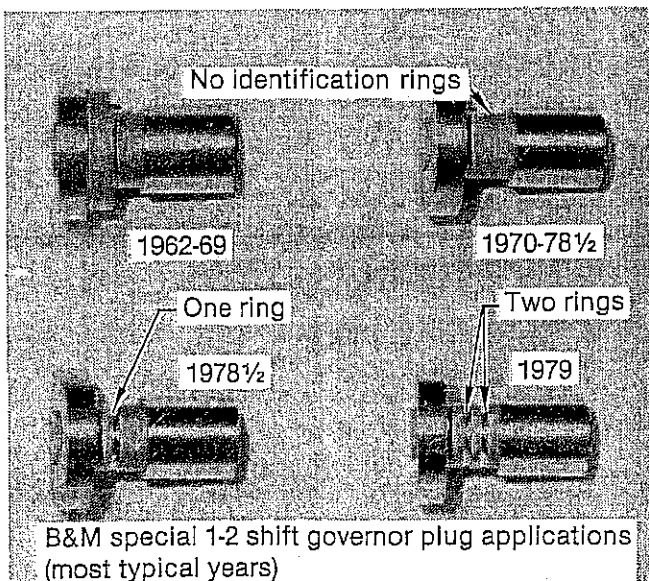


FIGURE 39

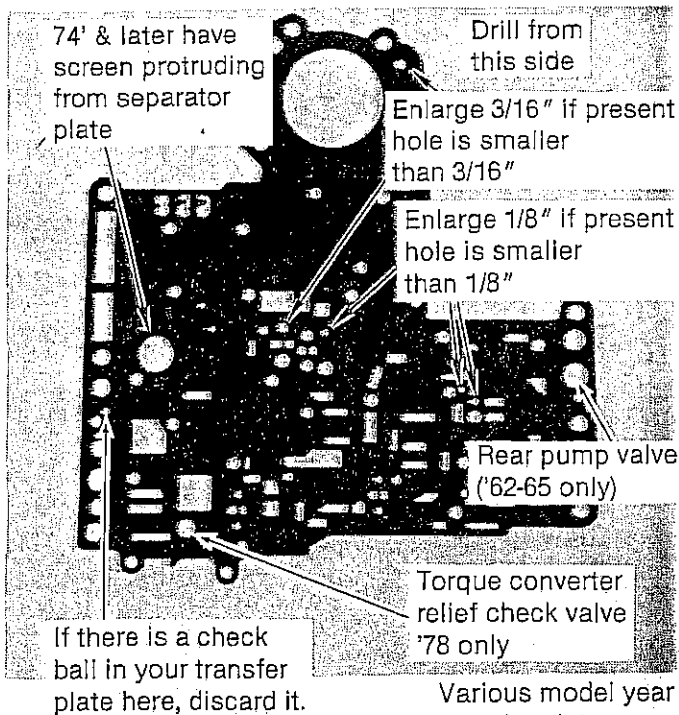


FIGURE 40

Various model year transfer plates may vary slightly from one pictured here.

and drill out all indicated holes, using drills supplied. Drill from side shown. Deburr holes when through drilling using a fine file, deburring stone or sandpaper.

Wash the transfer plate in solvent to remove any dirt and rinse the separator plate to remove any chips. Lay the transfer plate shown on the bench with the passages facing up. ('62-'65 models and '78 models, install check valve and spring as removed) '74 and later models, install filter into separator plate as removed. Lay separator plate on top of transfer plate and align the holes. Install stiffener plate and retaining screws and tighten screws finger tight. Make sure stiffener plate is reinstalled in same position as removed. (Check "ghost pattern" on separator plate if in doubt.)

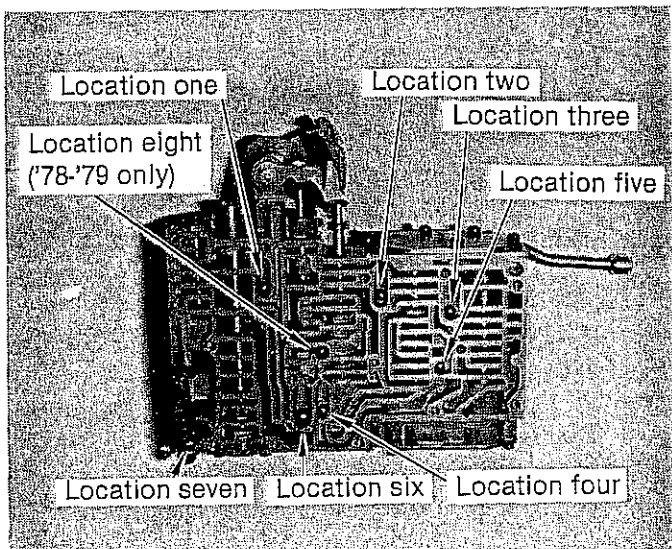


FIGURE 41

**STEP 14.** Lay casting in front of you and install steel check balls as follows: (See Fig. 41)

**All Models:** One 11/32" steel ball in location six. This steel ball is installed for Heavy Duty, Street and Track!!

'62-'65: Install check valve and spring in corner. (Location seven)

'69-'76: Install one 3/8" diameter check ball and spring in corner. (Location seven) (Note this check ball is larger than the one you installed in Location six.) Spring goes into pocket with ball on top of spring.

'78-'79 All Levels of Performance: One 1/4" steel ball in location eight.

**Heavy Duty:** Five 1/4" steel balls, one each in locations one through five.

**Street and Track:** Four 1/4" steel balls, one each in locations one through four.

Align transfer plate assembly over casting and hold the two halves together with your hand. Install fourteen screws in place finger tight. (Note: Three long screws are for the filter.) Install pressure regulator spring and converter valve spring in place. (See Fig. 34) Insert pressure regulator adjusting plate into place in retaining cage so Allen head adjusting end extends through hole in retaining cage. Adjusting plate is a close fit when properly installed inside the retaining cage. Engage pressure regulator spring with adjusting plate and engage converter valve spring with retaining prong in cage. Hold cage against valve body, align screw holes and install three short screws finger tight. (See Fig. 30)

**STEP 15.** Tighten fourteen screws attaching transfer plate to casting on the bottom of the valve body to 35-in. lbs. Tighten all end plate screws to 35-in. lbs. Adjust pressure regulator spring retainer cage from side to side until the distance from the manual valve to the adjusting screw is 1-7/8". Use the gauge supplied to check this measurement. (See Fig. 42) Tighten three short retaining screws to 35-in. lbs. At this point all screws should be tight. '62-'65: Install new seal on reverse blocker valve. Install reverse blocker valve spring and valve with seal up. (See Fig. 31) Rotate valve to engage separator plate properly. Install end plate and two short screws. Tighten to 35-in. lbs.

**STEP 16.** Throttle Pressure Adjustment: (See Fig. 42) Place valve body on bench and hold it on end so the throttle pressure assembly points up. Insert the 1/8" drill between the kickdown valve and the throttle pressure cam and adjust the throttle stop screw until it just touches the cam. Tighten jam nut securely. (Note: Large cage models have no jam nut.)

**STEP 17.** Pressure Regulator Adjustment — Use the gage to adjust the distance from the casting face to the inside edge of the pressure regulator spring adjusting

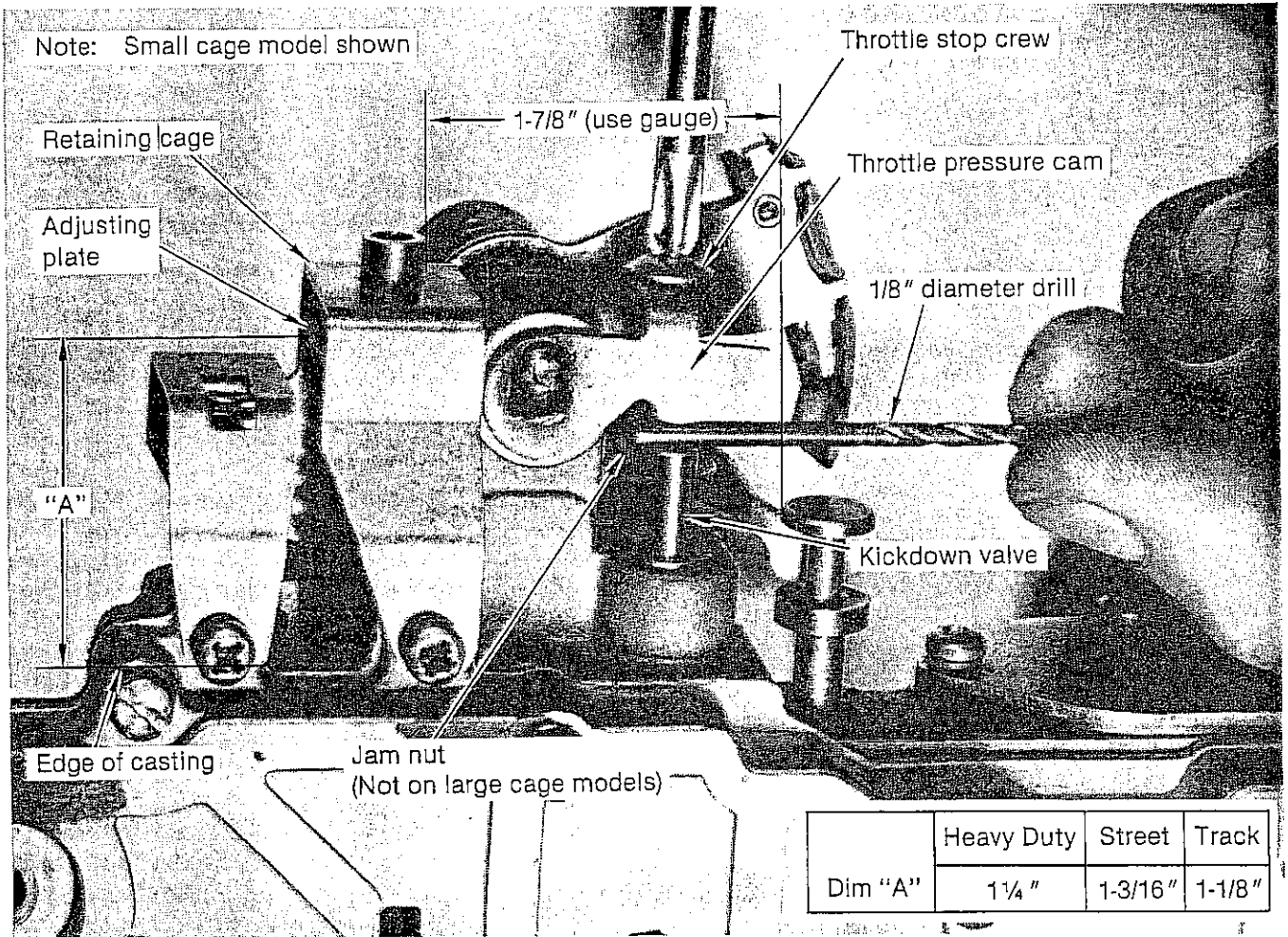


FIGURE 42



plate. (See Fig. 42) Use a 3/16" Allen wrench to adjust the plate to dimension shown.

Heavy Duty — 1 1/4"  
Street — 1-3/16"  
Track — 1-1/8"

Use the three long screws to attach the new filter supplied with the kit. Tighten screws to 25 in-lbs. Set the valve body aside where it won't get dirty.

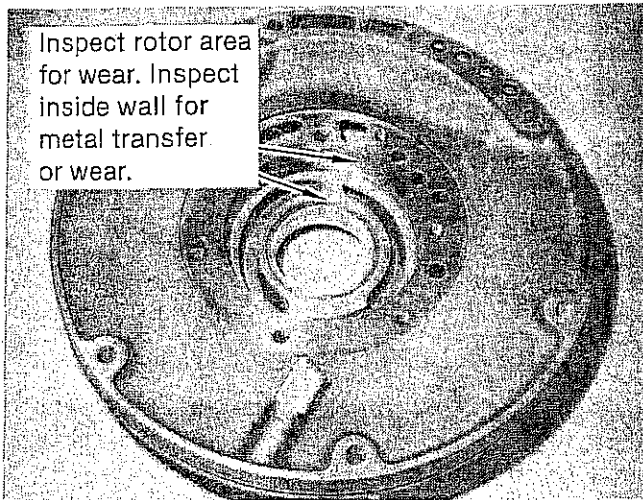


FIGURE 43

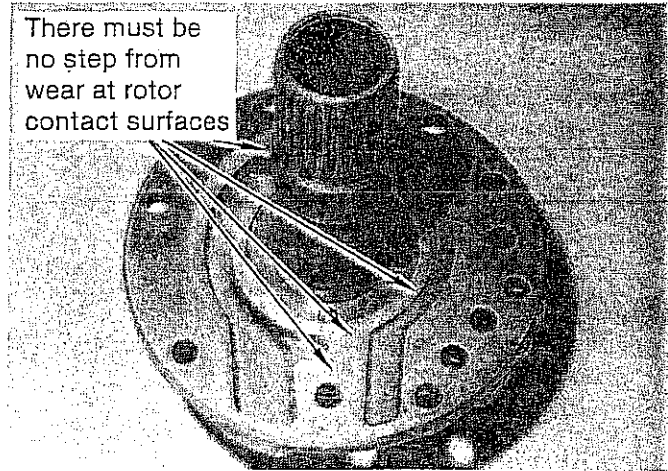


FIGURE 44

## II. Oil Pump

**STEP 1.** Inspect oil pump body for damage. The area where the pump rotors ride should have no excessive wear. (See Fig. 43) Some scratch marks are normal. The rotor race of the reaction shaft support should have no step at any point where the rotors ride. (See Fig. 44) The rotors themselves should have clean faces and the outer edge of the large rotor should show no metal transfer or wear. (See Fig. 45)

**STEP 2.** Inspect the following areas:

**Pump Bushing:** Replace as necessary and stake into place per the original bushing.

**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.

**Reaction Shaft:** Check inside diameter for ring wear or grooving. Inspect bushings; replace as necessary.

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

**STEP 4. TRACK ONLY.** Drill out the hole at the rear of the reaction shaft support to 9/64". (See Fig. 46) Clean the support in solvent to remove any metal chips.

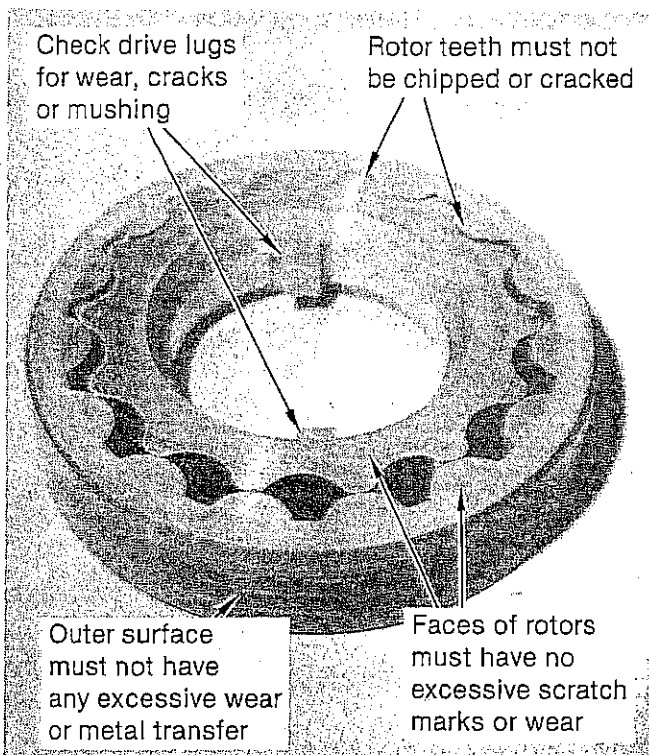


FIGURE 45

shaft support to 9/64". (See Fig. 46) Clean the support in solvent to remove any metal chips.

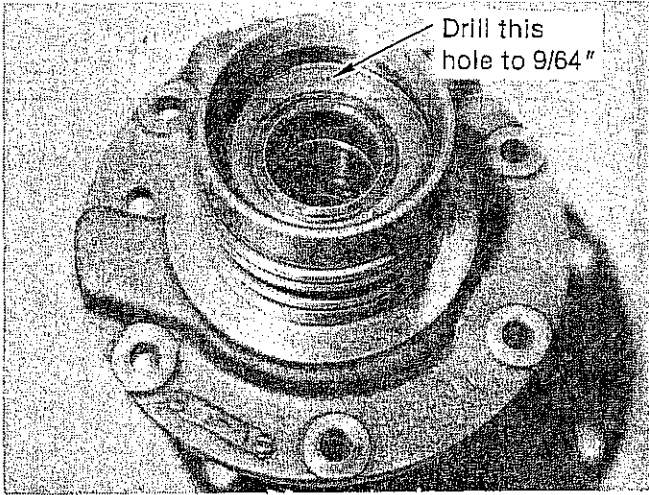


FIGURE 46

**STEP 5.** Lubricate the pump body and rotors with transmission fluid and install the rotors into the pump body. The rotors can be installed either way.

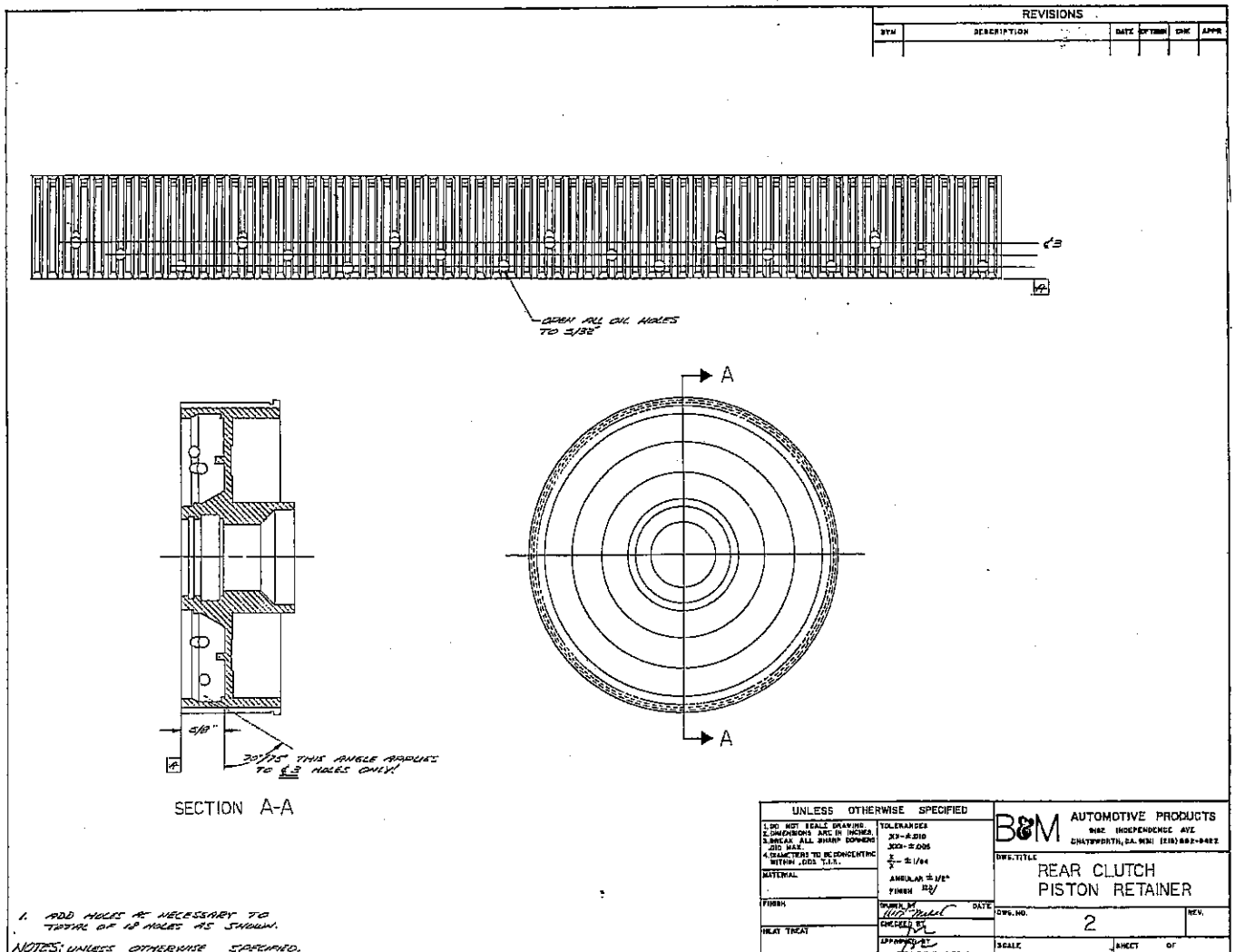
**STEP 6.** Position the reaction shaft support over the

pump body. Align the bolt holes and hold the pump halves together while installing the six bolts. Make sure the metal breather baffle is in place if equipped. (See Fig. 22) Tighten pump bolts to 150-in. 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 interfering with the rotors. The pump will have to be disassembled and the problem corrected. An incorrectly assembled pump will fail immediately!

**III. Rear Clutch (Refer to Fig. 25)**

**STEP 1.** Inspect the seal ring grooves on the input shaft. Install two correct hook-type seal rings from the overhaul kit. The rings must spin freely in the grooves. Remove any burrs with a small file. Inspect the bushing inside the back of the input shaft; replace as necessary. Inspect the splines of the piston retainer for grooves or damage.

**OPTIONAL:** Drill the oil holes in the rear clutch piston retainer as shown in Drawing #2. Clean in solvent to remove any metal chips.



DRAWING 2

**STEP 2.** Install new inner and outer lip seals on the rear clutch piston. Lubricate the lip seals with automatic transmission fluid. Install the piston into the piston retainer. Use a .010 feeler gage to guide the lip seals into position if necessary. Be careful not to cut or nick the lip seals during assembly.

**STEP 3.** Install rear clutch retainer in place over rear clutch piston retainer. Slide retainer on from the front end towards the rear until it stops against lip on the back edge of the piston retainer. Install piston return spring in place. This is a Belleville type spring. Install spacer ring if your model was so equipped. Install retaining snap ring;

Models with no spacer ring: This will be a single .106" thick flat snap ring.

Models with spacer ring: This will be a .030" thick wavy snap ring.

Make sure the snap ring is fully seated in its groove. The retainer should be held tightly in place with a maximum of .015" end play. Excessive clutch retainer play with the snap ring in place indicates a worn piston return spring, which should be replaced.

**STEP 4.** Install rear clutch apply plate with raised portion against the return spring and the flat face towards the rear.

**STEP 5.** Soak B&M friction plates in automatic transmis-

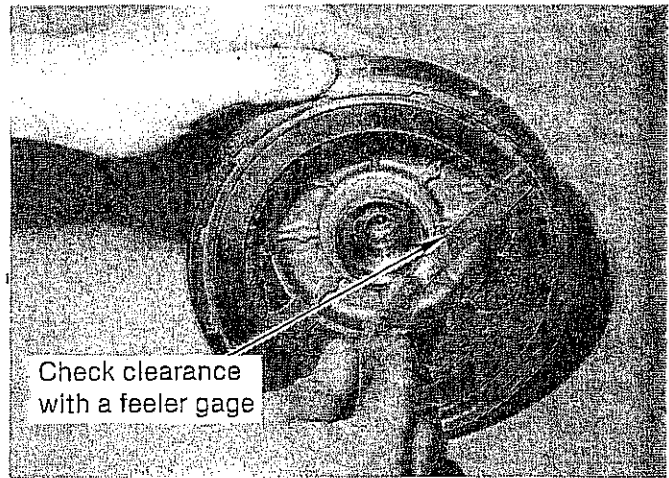
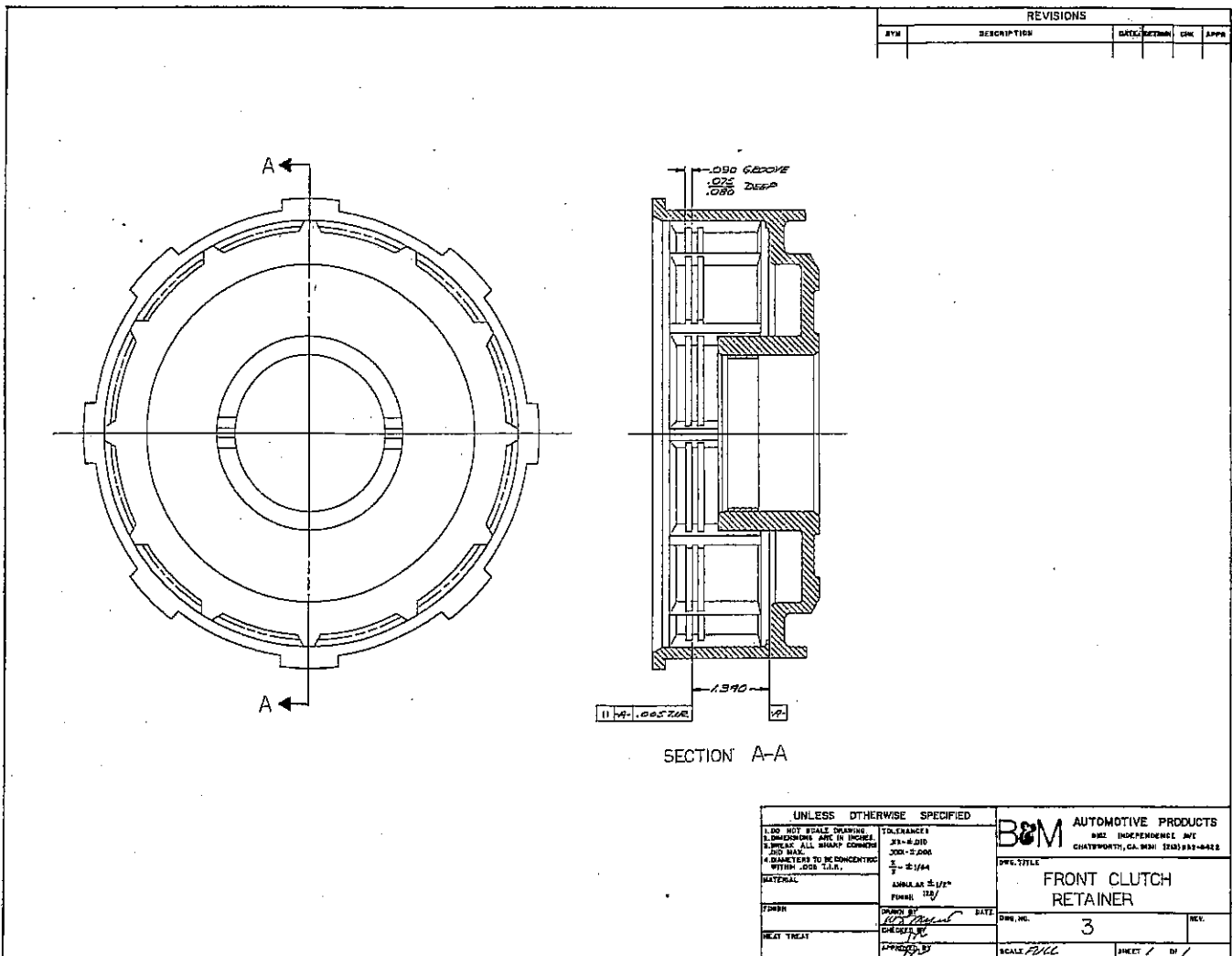


FIGURE 47



DRAWING 3

sion fluid for 15 minutes. Install a friction disc against the apply plate. Alternately install a steel plate and friction plate to equal your original clutch pack. Install 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. (See Fig. 47) Clearance must be .015-.035 inch. Clearance can be adjusted with selective snap rings available from your Chrysler dealer. (.060-.062, .074-.076, .088-.090)

**STEP 7.** Turn the rear clutch assembly over so the input shaft points up. Install phenolic thrust washer into recess on front of rear clutch piston retainer. Use a .061-.063 thick washer at this location. Use grease to hold the washer in place. Set the rear clutch assembly aside.

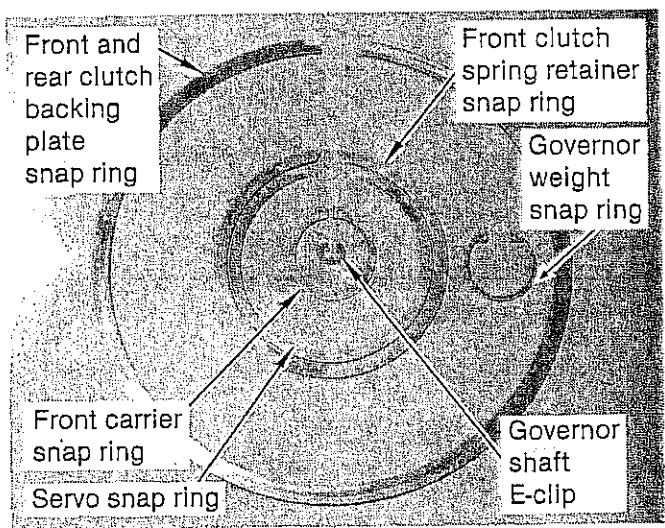
#### IV. Front Clutch (Refer to Fig. 23)

**STEP 1.** Inspect the seal ring bore in the front clutch retainer for wear or grooves. Excessive grooving will require retainer replacement as the wear could fall 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 120 to 180 emery paper.

**OPTIONAL:** Models with only three front clutch plates can be increased to five by machining the front clutch retainer as shown in Drawing #3. Four clutch retainers do not need to be machined.

**STEP 2.** Install new rubber lip seal on the front clutch piston. ('71 and later models use the narrower seals.) Install new rubber lip seal on the front clutch retainer.

**STEP 3.** Lubricate the lip seals lightly with automatic transmission fluid. Install the piston into the clutch retainer. Rock the piston gently into place. Be careful not to fold the seal over during assembly.



SNAP RING CHART

**STEP 4.** Install ten special return springs supplied with the kit into the piston locations. Space the springs

evenly with a space between two springs. 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 groove.

**STEP 5.** Soak the B&M friction plates supplied with the kit in automatic transmission fluid for fifteen minutes. Install alternately three to five steel plates supplied and three to five 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 .060-.080 inch. Clearance can be adjusted with selective snap rings available from your Chrysler dealer. (.060-.062, .074-.076, .088-.090)

**Note:** Units with the wider Hemi clutch retainer can use steel plates as spacers to adjust clearance.

**STEP 7.** Install the front clutch retainer assembly onto the rear clutch assembly. Rotate the retainer to engage the clutches until it stops against the phenolic thrust washer. The retainer should rotate smoothly with a slight resistance. Set the clutch assembly aside.

#### V. Case Preparation and Assembly

**STEP 1.** Inspect servo bores in the transmission case. Deep scratches indicate a need to replace the case. Light scratches and wear can be polished with 320 emery paper.

**STEP 2.** Inspect your rear servo piston to determine which model you have:

**'62-'66 models:** (See Fig. 48) Install inner piston into place inside piston assembly. Install retaining clip. Inner piston is now free to move.

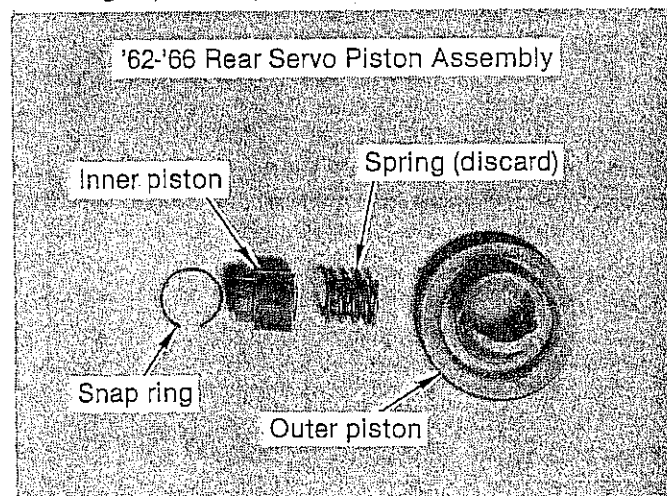


FIGURE 48

'67 and later models: (See Fig. 49) Place servo piston in a vise and compress spring. (See Fig. 50) Remove and discard small snap ring. Remove servo from vise carefully and install shim supplied with kit over servo shaft. Assemble servo in place in vise to compress spring. Install new snap ring supplied with kit on end of shaft. Do not spread snap ring anymore than is necessary. Note: Shim will compress spring

'67 and Later Rear Servo Piston Assembly

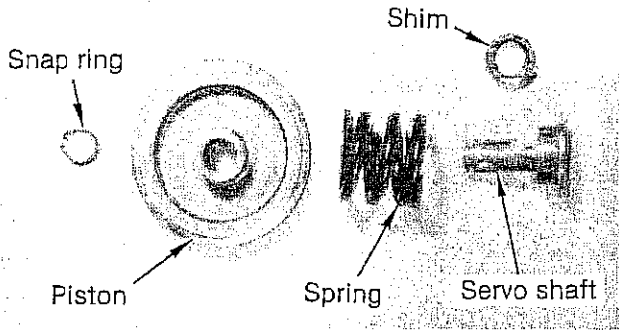


FIGURE 49

curve fits against the case. (See Fig. 51) Partially install shaft into case to engage link. Install reverse band lever with adjusting screw next and engage shaft. Install reverse band short lever so flat face is towards adjusting screw. (See Fig. 52) Coat shaft O-ring lightly with automatic transmission fluid and push it into case the rest of the way.

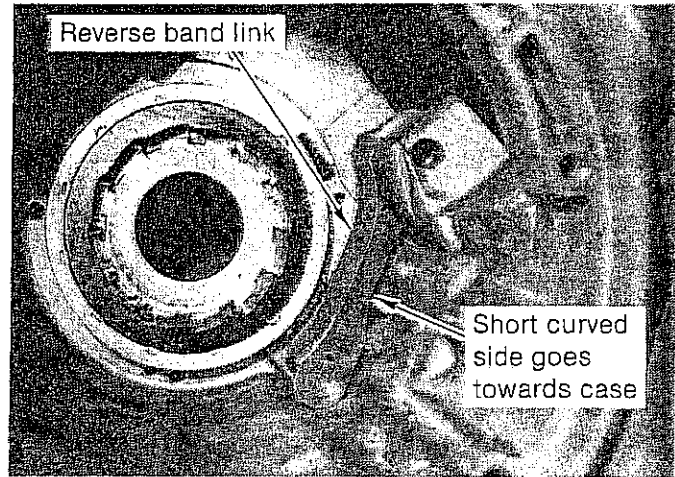


FIGURE 51

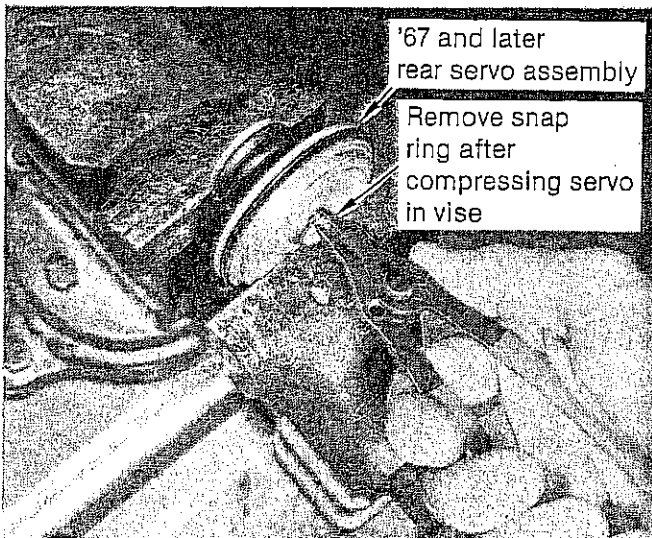


FIGURE 50

STEP 3. Install new rubber lip seal in place on rear servo piston.

'62-'63: Use the narrow seal supplied in the kit.

'64 and later: Use the wide seal supplied in the kit.

Lubricate the lip seal with automatic transmission fluid and install servo piston into case bore. Be careful not to nick or fold lip seal. Install special rear servo spring supplied. Install retainer and snap ring. Make sure snap ring is fully seated in its groove.

STEP 4. Install new O-ring on reverse band lever shaft. Install reverse band link into case. The side with short

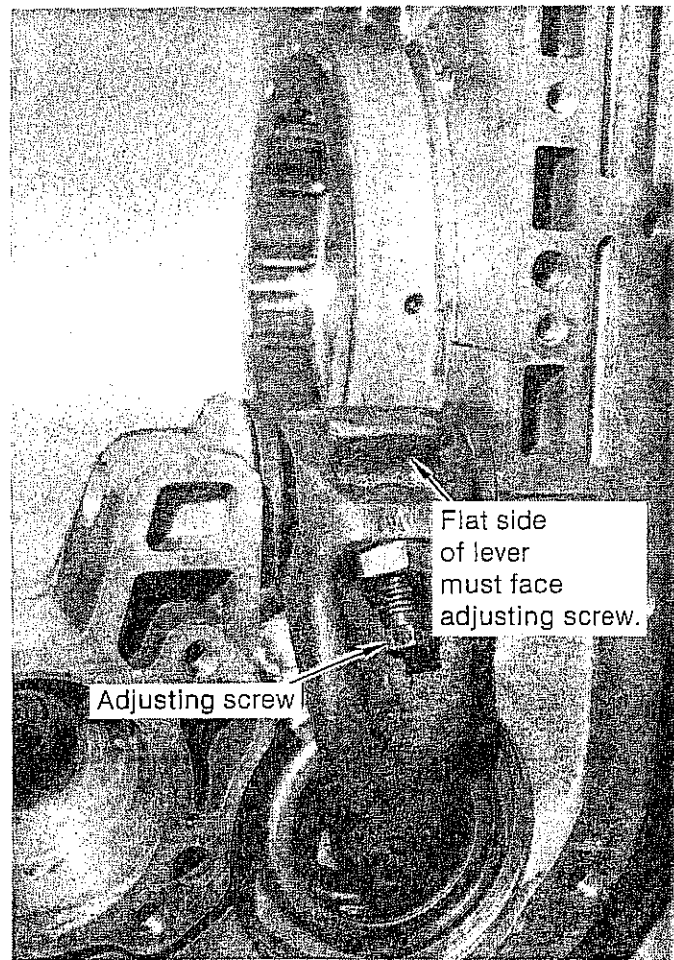
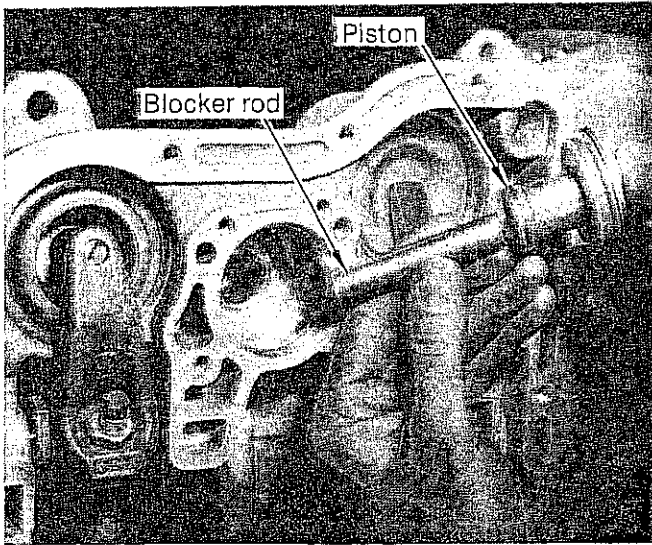


FIGURE 52

STEP 5. Install new seal rings on the accumulator piston.

**Track only:** Install special accumulator blocker rod into piston. (See Fig. 53)

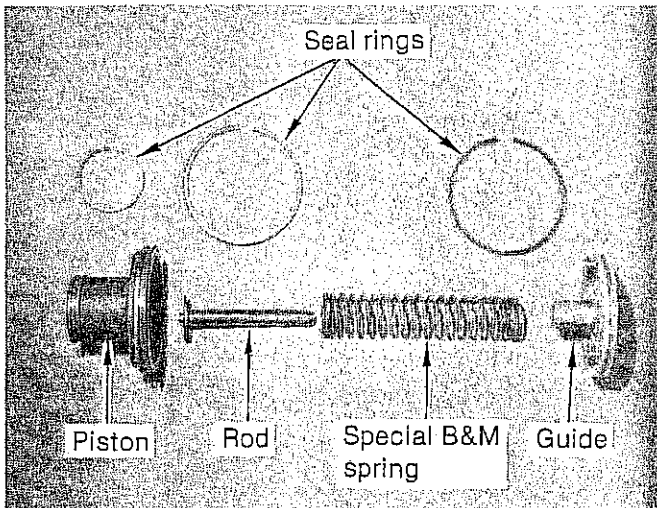
Lubricate seal rings with automatic transmission fluid and install piston into case. Be careful not to damage seal rings. Push in on piston until it stops.



**FIGURE 53**

**STEP 6.** Install kickdown servo assembly.

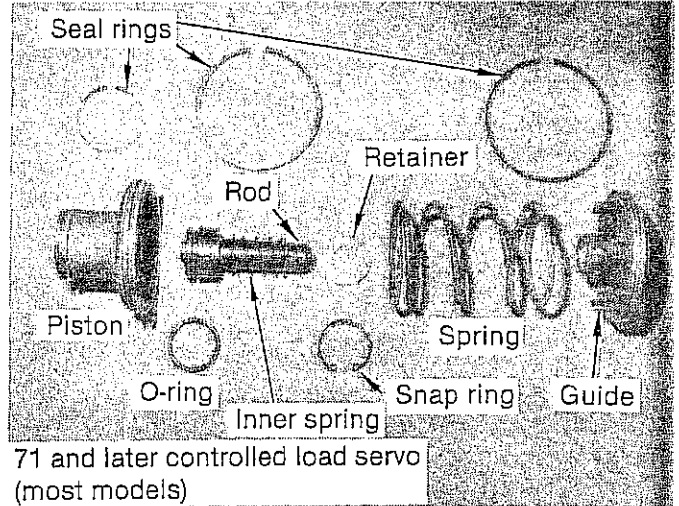
'62-'70: (See Fig. 54) Install new metal seal rings on piston. Rings should rotate freely in grooves. If not, check for burrs or dirt in grooves. Lubricate the seal rings with automatic transmission fluid and install the piston into the case. Be careful not to damage seal rings. Install piston rod.



**FIGURE 54**

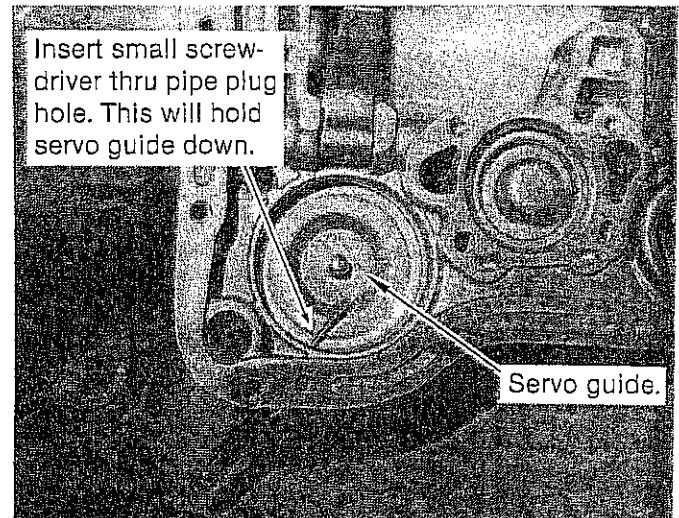
**OPTIONAL:** For maximum kickdown band capacity, B&M recommends models with controlled-load servo install early style servo parts: Kickdown piston Chrysler #2124850, Rod Guide #2124856, Rod #2124853. Follow '62-'70 assembly instructions above.

'71 and later: With controlled-load servo. (See Fig. 55) Install new O-ring on piston rod. Lubricate rod with automatic transmission fluid and install into kickdown piston. Install inner spring, retainer and snap ring. Install new metal seal rings on piston. Rings should rotate freely in grooves. If not check for burrs or dirt in grooves. Lubricate the seal rings with automatic transmission fluid and install the piston into the case. Be careful not to damage seal rings.



**FIGURE 55**

**STEP 7.** Install new metal seal ring on servo rod guide. Ring should rotate freely in groove. If not, check for burrs or dirt in groove. Lubricate seal ring with automatic transmission fluid and install the guide into the case. Push down and insert a screwdriver through the pressure tap hole on the side of the case to hold the guide down. (See Fig. 56)



**FIGURE 56**

**STEP 8.** Install servo snap ring. Make sure it is fully seated in its groove. Remove screwdriver so servo guide seats against snap ring.

**STEP 9.** Inspect front servo lever. (See Fig. 8) All levers have a number stamped on the side. (If your number is visible and it reads 5.0 proceed to Step 11. You will not have to change your lever. If you cannot see a number or it is not 5.0 continue with Step 10.

**STEP 10.** Remove the lever shaft plug inside the bell-housing. (See Fig. 10) Remove shaft and stock lever. Install lever supplied with the kit in position. Install shaft, engaging lever. Push in on shaft until it stops. Install plug securely.

**STEP 11.** Inspect overrunning clutch cam at rear of case. Check for excessive wear from rollers and replace cam if necessary. Make sure set screw is tight. (See Fig. 57) If cam is loose restake cam into case. (See Fig. 58) Inspect inner race, rollers and springs for wear, damage or distortion. Make sure retainer "fingers" are straight and square. (See Fig. 58)

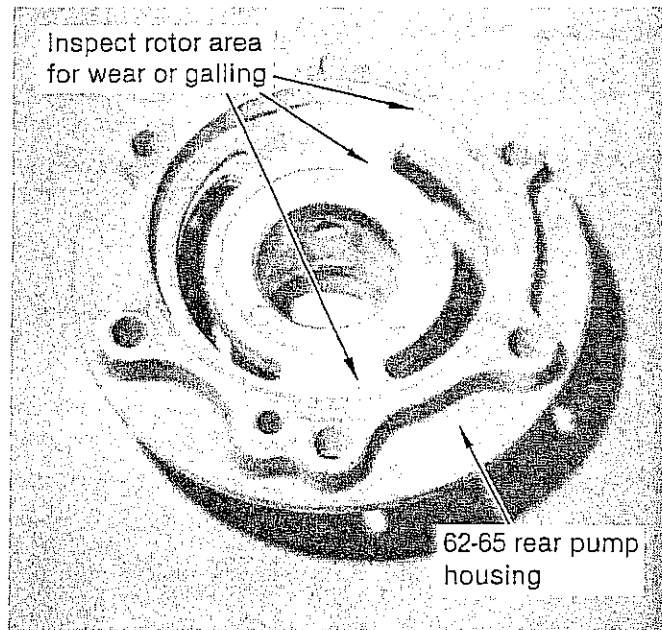


FIGURE 59

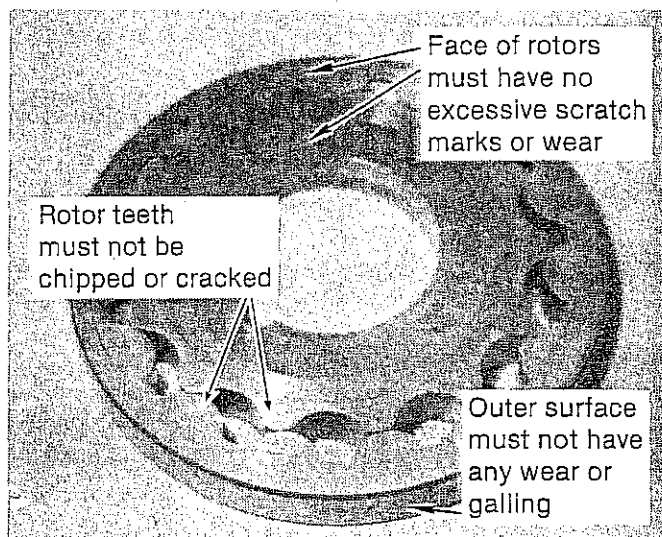


FIGURE 60

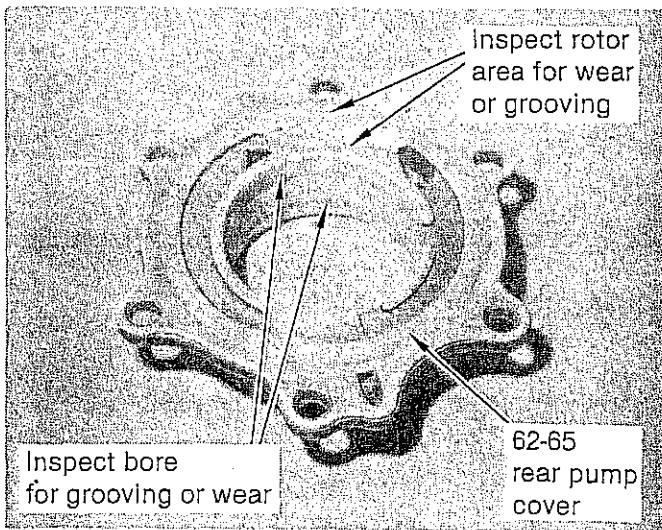


FIGURE 61



FIGURE 57

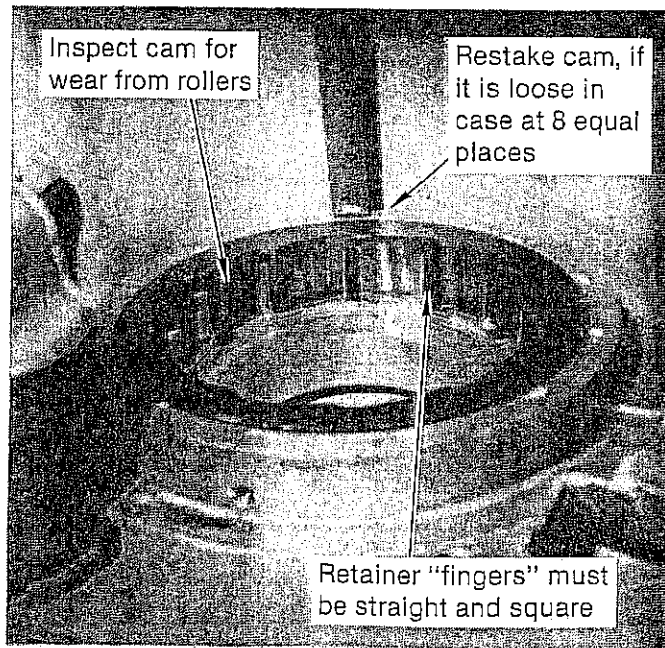


FIGURE 58

**STEP 12.** Turn the case over so the bellhousing is down. Inspect the output shaft support:

'62-'65: Inspect rear pump housing for galling, wear or grooving. (See Fig. 59) Inspect rear pump rotors for wear. (See Fig. 60) The rotors should have clean faces with no excessive grooving or scratches. Inspect the rear pump housing cover for wear or grooving. (See Fig. 61)

'66 and later: Inspect output shaft support for galling, wear or grooving. (See Fig. 62)

Replace any parts that are worn. Excessive wear can cause premature governor seal ring wear, output shaft and/or low-reverse drum seizure.

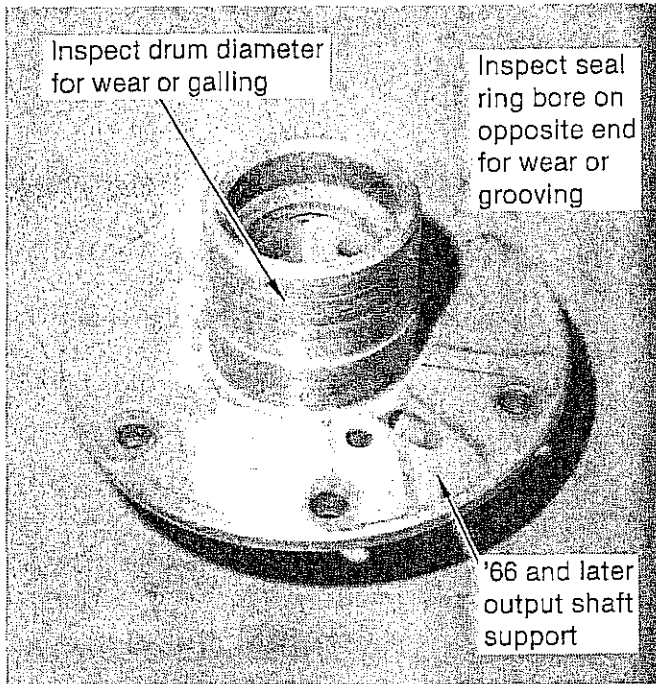


FIGURE 62

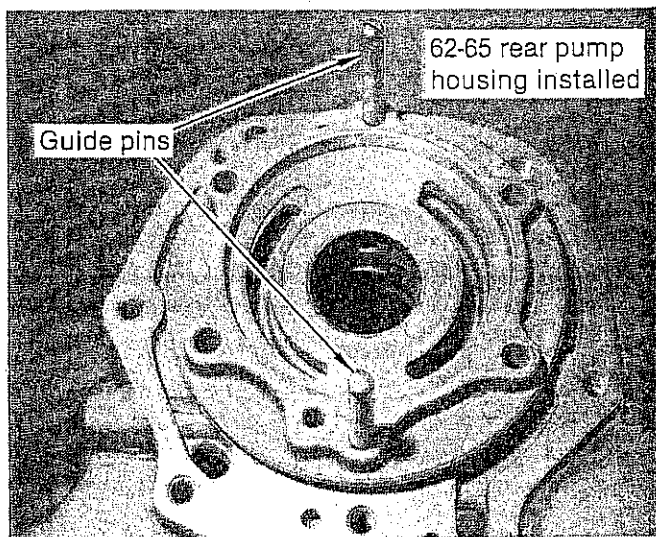


FIGURE 63

**STEP 13.** Place pump housing ('62-'65) or support ('66 and later) in a freezer for 1/2 hour. This will shrink the part and make installation easier. Install two guide pins in upper and lower bolt holes. (Guide pins can be made by cutting the heads off two 5/16-18x2 1/2" bolts.)

'62-'65: Position the rear pump housing over the guide pins and install the housing. (See Fig. 63) Tap lightly with a plastic hammer if necessary to seat the housing against the case. Lubricate the housing and install the rear pump rotors. (They can install either way.) Install rear pump cover and six bolts finger tight. Center the rear pump cover and tighten bolts to 10-in. lbs. Rotors should turn freely in both directions with some resistance from the assembly oil.

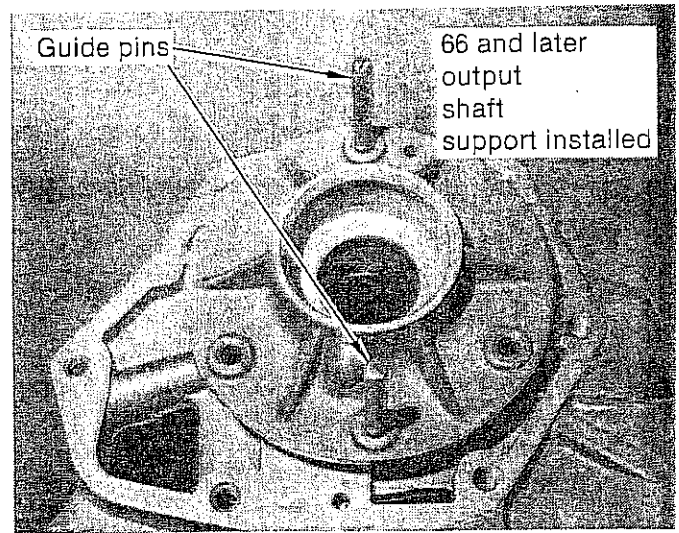


FIGURE 64

'66 and later: Position the output shaft support over the guide pins and install the housing. (See Fig. 64) Tap lightly with a plastic hammer if necessary to seat the housing against the case. Install four bolts and tighten to 140-in. lbs.

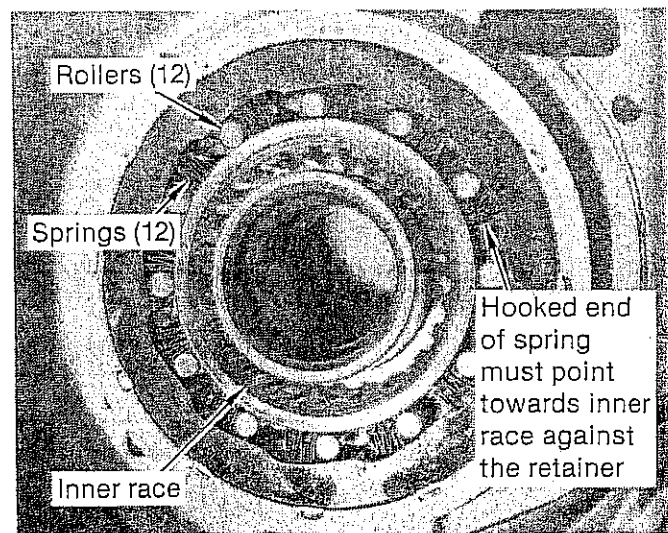


FIGURE 65



**STEP 14.** Position case so bellhousing is up. Install inner race inside cam. Install twelve rollers in position between cam and inner race. The springs should be installed with the hooked end against the retainer and towards the inner race. (See Fig. 65) Turn case over so the bellhousing is down. If you do this carefully, the overrunning clutch won't fall out.

**STEP 15.** Install governor weight assembly into governor housing with the snap ring facing out. If the snap ring does not face out the transmission will shift too soon. Install larger snap ring into governor housing to retain weight assembly. Make sure snap ring is fully seated in its groove. Governor weight should move freely back and forth for proper operation.

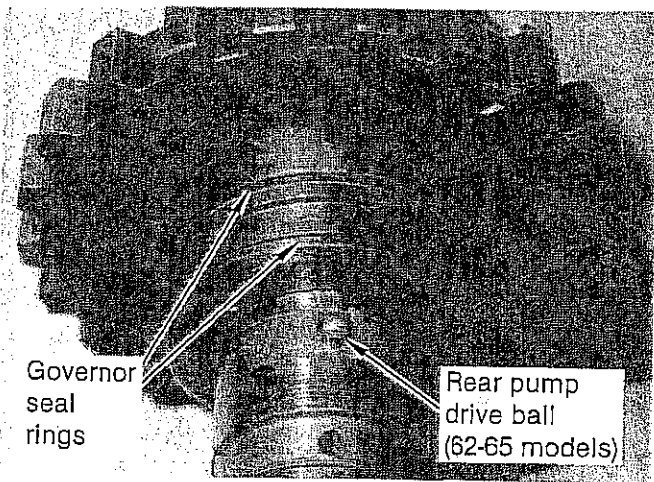
**STEP 16.** Install governor valve into governor housing. Valve must move freely in bore for proper operation. Install governor shaft through valve and weight. Install E-clip on end of governor shaft. If you rotate the shaft, the governor weight and valve should move freely by their own weight. If the weight or valve is sticky, shift points will be erratic.

**STEP 17.** Install governor seal rings in position in grooves of the governor support. Rings must spin freely with no bind. Use a small file, if necessary to remove any burrs that may be causing interference.

**STEP 18.** Lubricate output shaft bushing diameters with automatic transmission fluid. Lubricate governor oil seal rings.

'62-'65: Install 1/4" steel ball in the rear pump drive pocket just in front of the governor support in the output shaft (See Fig. 66) Use grease to retain the ball.

Install the output shaft into the transmission from the rear. Guide the governor seal rings into the housing bore with a screwdriver. On rear pump models make sure the rear pump drive ball properly engages the rear pump inner rotor.



**FIGURE 66**

**STEP 19.** Inspect the extension housing:

'62-'64: Bearing must spin freely. Check for pitting, wear, roughness or excessive play. Replace as necessary.

'65 and later: Bushing; check for excessive wear or grooving from worn slip yoke.

Install new seal in extension housing.

**STEP 20.** Install correct extension housing gasket in position on back of case. Install extension housing in place on transmission.

'65 and later: Spread the output shaft bearing snap ring to clear the output shaft bearing. This will allow the extension housing to seat against the back of the case.

Install six extension housing bolts and tighten to 24-ft. lbs.



**FIGURE 67**

**STEP 21.**

'62-'65: Reach through bearing cover hole in extension housing with a screwdriver and lift up on bearing until snap ring seats. (See Fig. 67) Install bearing cover and gasket. Tighten screws securely.

Output shaft must rotate freely in both directions. '62-'65 models will have some drag from the rear pump. A binding shaft will seize in the housing.

'62-'65: Install park lock cover and gasket. Guide park cable adapter into cover. Align cover and install five bolts. Tighten bolts to 150-in. lbs.

**STEP 22.** Position transmission on its side so pan surface is facing you and extension housing is to the right.

**STEP 23.** Install supplied B&M band into case.

Engage band into anchor and link. Install short strut and compress band to "snap" strut into place. (See Fig. 68) Make sure band is fully engaged in anchor and strut.

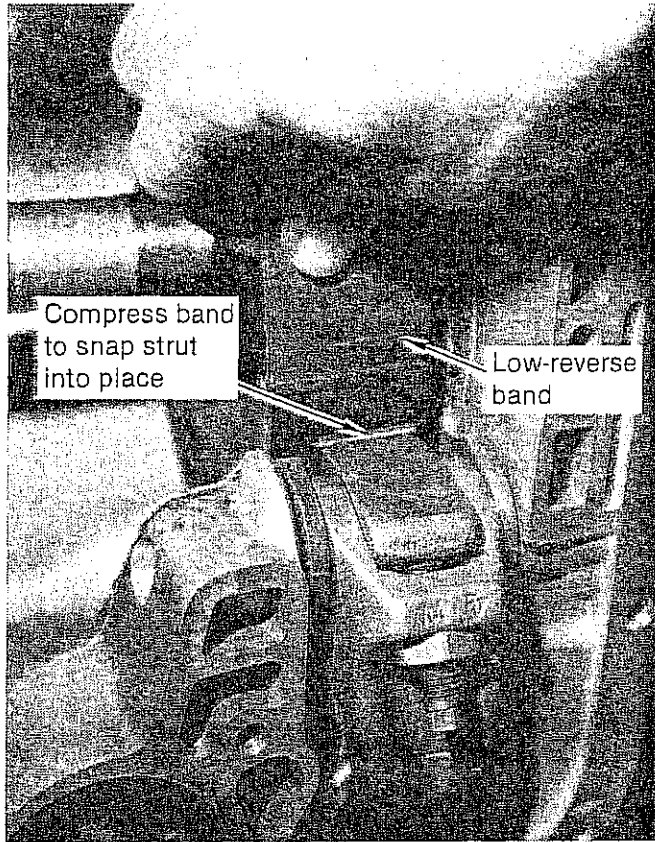


FIGURE 68

STEP 24. Inspect the following:

**Low Reverse Drum;** scoring or grooving from low reverse band, galling on inside diameter from output shaft support.

**Rear Annulus Gear;** wear and pitting of gear teeth.

**Rear Planetary Assembly;** worn or pitted pinion gears, excessive pinion endplay, rough or tilted pinions, rear thrust face for wear.

**Sun Gear/Drive Shell;** gears for wear or pitting, bushings, bent or distorted drive shell.

**Front Planetary Assembly;** worn or pitted pinion gears, excessive pinion endplay, rough or tilted pinions, spline for damage or wear.

**Front Annulus Gear;** wear and pitting of gear teeth.

STEP 25. Lubricate the overrunning clutch rollers and the outside diameter of the output shaft support with automatic transmission fluid. Install the low and reverse drum, rotating it to engage the overrunning

clutch inner race. (See Fig. 69) It may be necessary to loosen the low-reverse band adjusting screw to clear the drum if a new band was installed. The low-reverse drum must rotate in the clockwise direction only. Counterclockwise rotation indicates improper overrunning clutch installation, and the transmission will not work properly in drive.

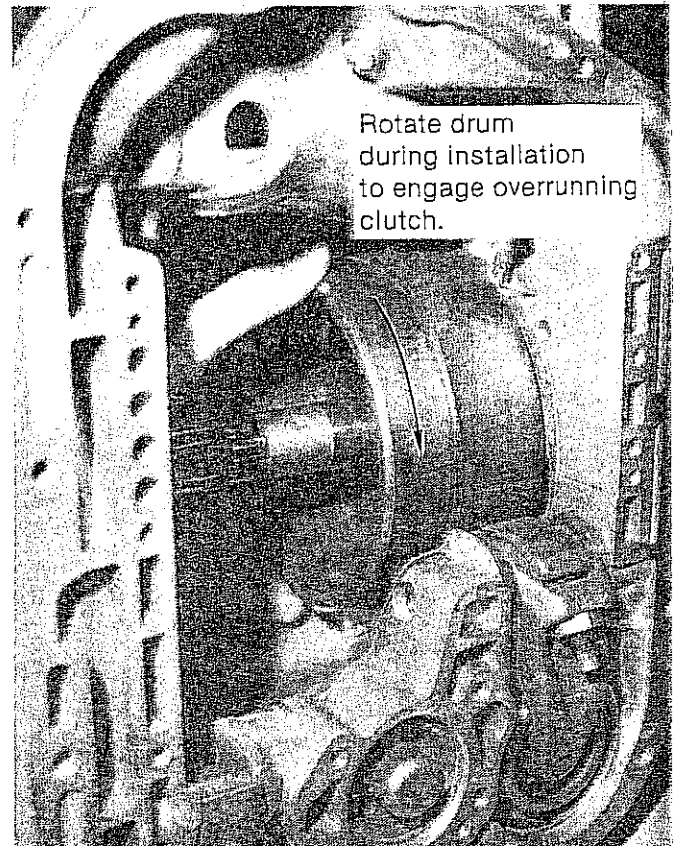


FIGURE 69

STEP 26. Install rear annulus gear. Push or tap the gear in firmly until it bottoms against the output shaft shoulder.

'65 and later: Install flat thrust plate in position against front face of rear annulus gear. (See Fig. 70)

'62-'64: Annulus gears have the thrust surface machined on the annulus gear.

Lubricate the thrust face with automatic transmission fluid.

STEP 27. Install rear planetary assembly. Push carrier in until it engages the low-reverse drum and bottoms against the rear annulus gear. Install three or four tab thrust washer onto front face of planetary. Use grease to retain it if necessary.

STEP 28. Install three tab thrust washer onto front face of drive shell. Use grease, if necessary, to retain the washer. Lubricate the output shaft bushing diameters and install the drive shell/sun gear assembly.

Engage the sun gear in the rear planetary assembly and push in until the drive shell bottoms against the thrust washer.

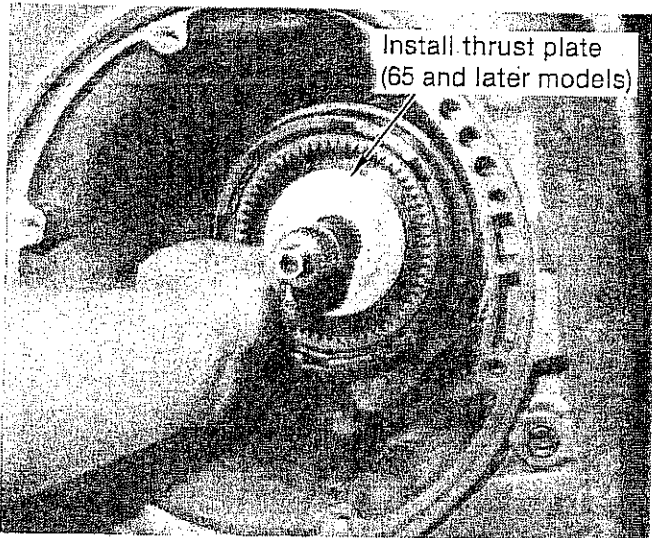


FIGURE 70

**STEP 29.** Install a three or four tab thrust washer in place on the rear face of the front planetary assembly. Lubricate the washer with automatic transmission fluid and install the front annulus gear onto the rear of the carrier. (See Fig. 12)

**STEP 30.** Install the annulus/planetary assembly. (See Fig. 71) Do not let the parts separate as the thrust washer will become dislodged. Push in on the assembly until it bottoms against the drive shell. Install selective snap ring onto output shaft. Measure clearance between snap ring and planetary with a feeler gage. (See Fig. 72) Clearance must be .010-.035 inch. Selective snap rings are available from your Chrysler dealer.

Turn geartrain by the annulus gear. The geartrain should rotate freely with no bind. Check for dirt or worn pinions if you encounter a bind. The overrunning clutch should react when the annulus gear is turned counterclockwise.

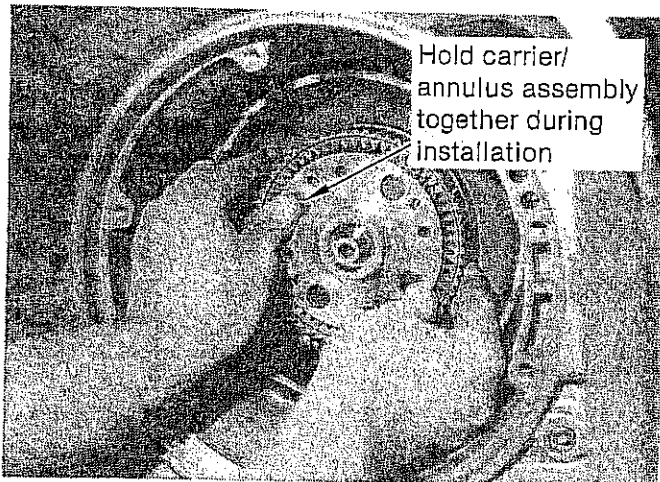


FIGURE 71

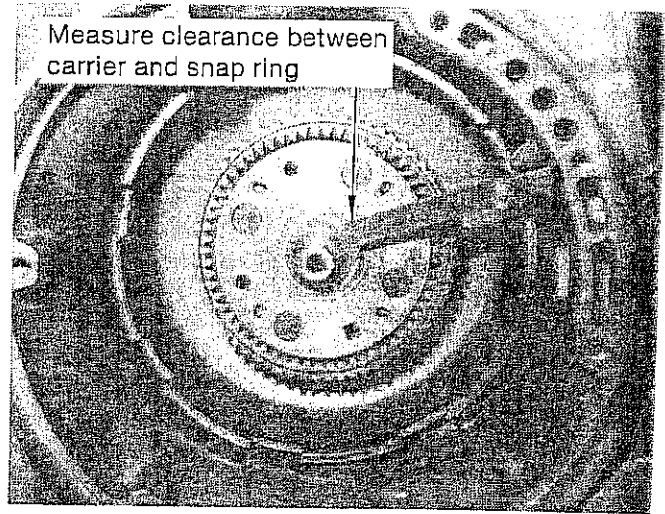


FIGURE 72

**STEP 31.** Install the input-output shaft thrust washer onto the front face of the output shaft. Lubricate with automatic transmission fluid. Install the clutch pack assembly. Hold the assembly by the input shaft and push in with the front clutch retainer.

Rotate the input shaft to engage the rear clutches in the annulus gear. (See Fig. 73) Engage the lugs on the front clutch retainer into the drive shell as the clutch pack installs. When the clutches are fully engaged, the lugs on the front clutch retainer will be below the edge of the drive shell. (See Fig. 8)

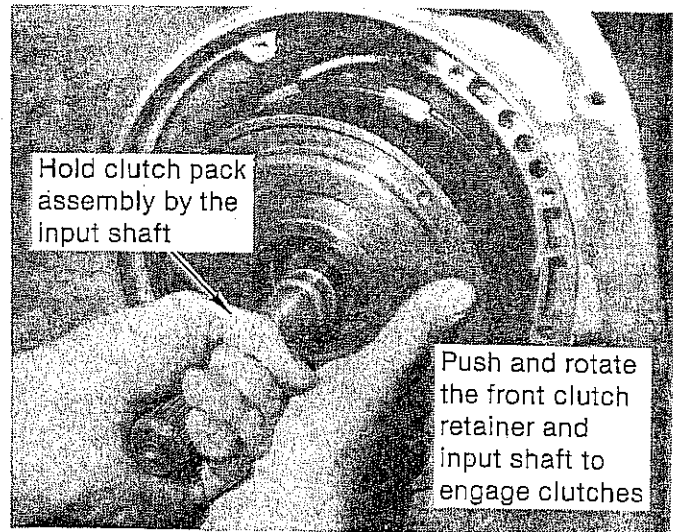


FIGURE 73

**STEP 32.** Install the B&M kickdown band supplied with the kit. If your transmission has the wider Hemi front clutch retainer, a relined Hemi band should be used. You can use a narrow wedge band with a Hemi clutch retainer if you cannot locate a Hemi band.

**STEP 33.** Install the pump gasket in place on the front of the transmission. Install two guide pins in opposite bolt holes. Install selective phenolic thrust washer onto back of oil pump. Use a small amount of grease to hold

the washer in place. Install the pump into the transmission. Align bolt holes and seat the pump against the case. Do not use seal rings or an O-ring on the pump for this step. Install two pump bolts finger tight.

**STEP 39.** Check endplay of input shaft. A dial indicator is the most accurate method. Move input shaft in and out to obtain endplay reading. Endplay should be .033-.080 inch. Selective washers are available from your Chrysler dealer.

**STEP 40.** Remove two bolts and pump assembly from the transmission. Be careful not to dislodge the clutch packs. Install two hook-type seal rings in the ring grooves on the rear of the oil pump. (See Fig. 22) Note: '71 and later pumps with the wide bushing surface take the aluminum coated rings. Rings must spin freely in their grooves. Remove any interference with a small file. Install a new O-ring in position on the outside diameter of the pump. Lubricate seal rings and O-ring with automatic transmission fluid.

**STEP 41.** Check position of gasket. Align pump and install into transmission. Make sure clutch packs have not been dislodged. Exercise care not to damage seal rings on pump or input shaft. Install pump against the case. Install two pump bolts into opposite holes. Tighten the bolts two turns at a time until the pump seats against the gasket.

**STEP 42.** Check to make sure the input shaft is free to turn. If the input shaft does not turn freely a thrust washer or clutch disc is out of position. This condition must be fixed before going any further or damage to the transmission will result.

**STEP 43.** Remove two bolts and install new sealing washers in position on each bolt. Install seven bolts and tighten to 150-in. lbs. Again check for free input shaft movement.

**STEP 44:** Install kickdown band apply strut, anchor and band adjusting screw. (See Fig. 8) Adjust bands:

**Kickdown band:** Tighten external adjusting screw to 72 in-lbs and back off 1½ turns. Hold adjusting screw in this position and tighten lock nut securely.

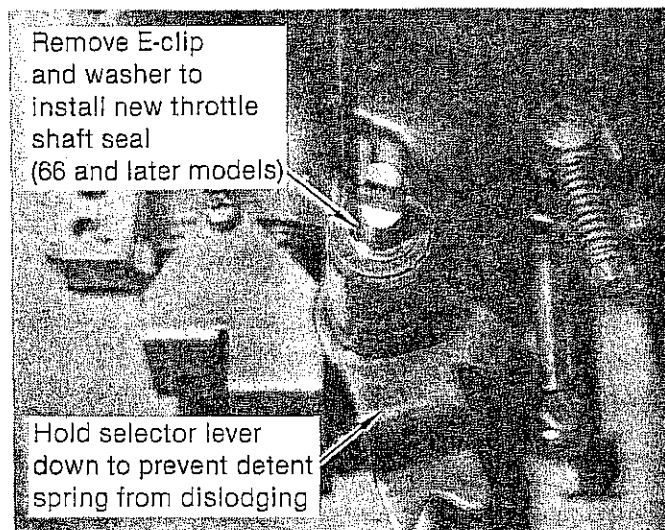
**Low-Reverse band:** Tighten internal adjusting screw to 72 in-lbs and back off 3 turns.

**STEP 45.** Install cupped orifice plug into passage shown in Figure 8. Drive plug down until it is below the surface of the case.

**STEP 46.**

**'66 and later:** Install new manual lever shaft seal in case. Use a socket or suitable tool to drive the seal squarely into the case. Remove the E-clip

holding the seal retaining washer in place on the throttle pressure shaft. (See Fig. 74) Remove the washer and carefully pry the old seal out of the manual lever. Hold the manual lever against the valve body so the detent ball and spring don't fly out. Install new seal from the kit. Install washer and E-clip.



**FIGURE 74**

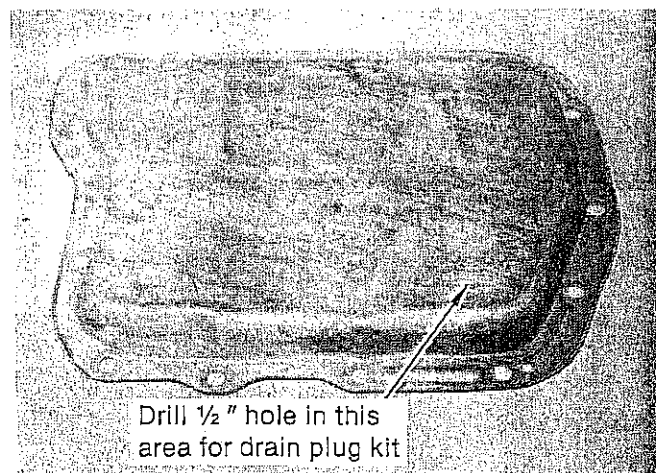
**STEP 47.** Install valve body into transmission.

**'62-'65:** Guide cable adapter into cable hole as valve body is installed.

**'66 and later:** Insert park rod through hole at rear of case. Rotate output shaft until rod engages park pawl.

Valve body must sit flat against the case with no effort. Any interference that is preventing the valve body from contacting the case evenly must be corrected or damage to the valve body will result.

**STEP 48.** Install ten valve body bolts and tighten to 100-in. lbs. Manual lever shaft should operate smoothly with positive indexing in each gear position.



**FIGURE 75**

'62-'65: Install new seal over throttle pressure shaft and seat the seal in its pocket in the case.

**STEP 49.** Drill  $\frac{1}{2}$ " hole in the area shown in Figure 75. Deburr hole and install drain plug kit. Install sleeve and gasket from outside. Install nut on inside and tighten. Hold sleeve with a wrench whenever removing or installing plug.

**STEP 50.** Install pan with new gasket. Install fourteen pan bolts and tighten to 150-in. lbs. Do not overtighten pan bolts as this will cause leaks.

**STEP 51.** Install three  $\frac{1}{8}$ " pipe plugs into case on right side. Install neutral safety switch on left side and tighten 25 to 35-ft-lbs. Install oil cooler fitting and tighten 110-in lbs.

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

### TRANSMISSION INSTALLATION

**STEP 1.** Lubricate the pump bushing with automatic transmission fluid. Install the torque converter, pushing and rotating until the lug face is a minimum  $\frac{1}{2}$ " inside the bellhousing. If converter is not correctly engaged in pump and transmission you will break the drive tangs off the pump rotors and ruin the pump.

**STEP 2.** Install transmission/converter assembly against engine. 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 25 to 35-ft. lbs. Converter must rotate freely 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 bolts and tighten to 270-in. lbs. Note that one converter bolt hole is staggered so that converter only goes on one way. Install dust cover.

**STEP 5.,** Install driveshaft and tighten U-joint bolts securely. Connect speedometer cable. Connect shift linkage.

'62-'64: Place pushbutton shifter in Reverse position.

'64-'65: Place console shifter in Park position.

Thread adjustment wheel towards cable to end of threads. Have a helper hold the shifter in the indicated gear position. Lubricate the cable O-ring with

automatic transmission fluid and insert cable into case. Push in until cable engages adapter on valve body selector lever. Relax tension on the cable and thread adjustment wheel until it stops against the case. Continue turning wheel clockwise until the first hole available lines up with the threaded bolt hole in the case. Turn the wheel clockwise five more holes. Install retaining bolt and washer. Tighten to 75-in. lbs. (See Fig. 76)

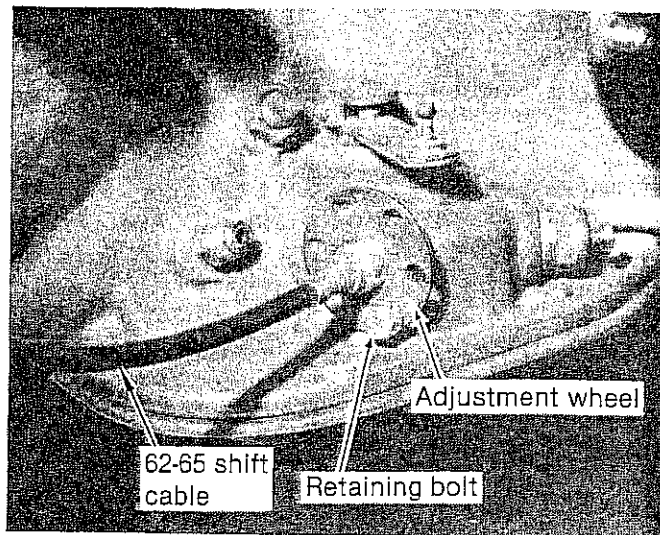


FIGURE 76

'62-'65: Park cable. Place shifter in neutral. Push park lock cable into cable housing until it engages cable adapter and spring clip locks in place. Position cable so groove on cable end lines up with clamp stud. Tighten clamp nut on stud to 10-in. lbs. Install  $\frac{1}{8}$ " pipe plug in cable housing and tighten securely.

'66 and later: Install shift lever over manual lever shaft and tighten pinch bolt. Place shifter in Park position. Loosen the pinch bolt on the shifter rod (which is located on the end of the rod away from the transmission) and let the rod seek its own position. Tighten the pinch bolt and check the feel of the shifter. The detent position should be close enough to the gate stops in Neutral and Drive so that the shift selector lever will not remain out of detent position when placed against gate and release.

**STEP 6.** Install throttle lever over throttle pressure shaft and tighten pinch bolt securely.

**Throttle Pressure Adjustment:** Make sure carburetor is off fast idle cam so throttle is in normal idle position. (Hot idle position) Have someone push the throttle lever on the transmission all the way forward. Adjust the throttle pressure rod so there is no back lash between the operating stud on the carburetor and the back of the slot on the throttle pressure linkage.

The transmission must be run with throttle pressure linkage or slippage and clutch or band failure will result.

**STEP 7.** Install dipstick and tube. Use new O-ring from seal kit. Connect oil cooler lines. Connect neutral safety switch wires.

**STEP 8.** Lower vehicle, but try to keep rear wheel off the ground if possible. Add six (6) 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 Fluid is not available, we suggest type F fluid.

**STEP 9.** 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 selector in neutral and check fluid. Do not overfill. Check for leaks at cooler lines, etc.

**STEP 10.** 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.

Minor adjustments in shift points can be made at this time. Shortening the throttle pressure rod will lower shift points, lengthening the rod will raise shift points. **Note: All vehicles must have throttle pressure linkage regardless of intended use. Running the transmission without throttle pressure linkage will damage it.**

### TROUBLESHOOTING GUIDE

Malfunction	Probable Cause	Malfunction	Probable Cause
1 Slips	Valve body bolts loose	4 No Drive in "D" Range	Low fluid level
	Low fluid level		Shifter misadjusted
	Oil pump bolts loose		Rear clutch not operating properly
	Piston lips seals cut or improperly installed		Manual valve disengaged from manual lever on valve body
	Check balls improperly installed		
2 Slips 1-2 Shift	Throttle pressure linkage improperly adjusted or disconnected	5 No 1-2 Upshift	Governor sticking
	Oil seal ring on pump or input shaft broken		Governor seal rings damaged
	Check #1 first		1-2 Shift valve stuck or assembled improperly
	Kickdown servo seal rings damaged		Kickdown servo damaged
	Kickdown servo bore damaged		Kickdown band linkage disengaged or broken
3 Slips 2-3 Shift	Kickdown band apply strut bent	6 No 2-3 Upshift	Valve body bolts loose 1/4" steel ball installed behind 1-2 shift valve instead of 1-2 shift control valve
	Check #1 first		Check #5 first
	Front clutch piston seals damaged		2-3 Shift valve stuck
	Excessive clutch clearance		Front clutch piston seals damaged
	Front clutch snap ring out of position		Front clutch oil ring on pump damaged

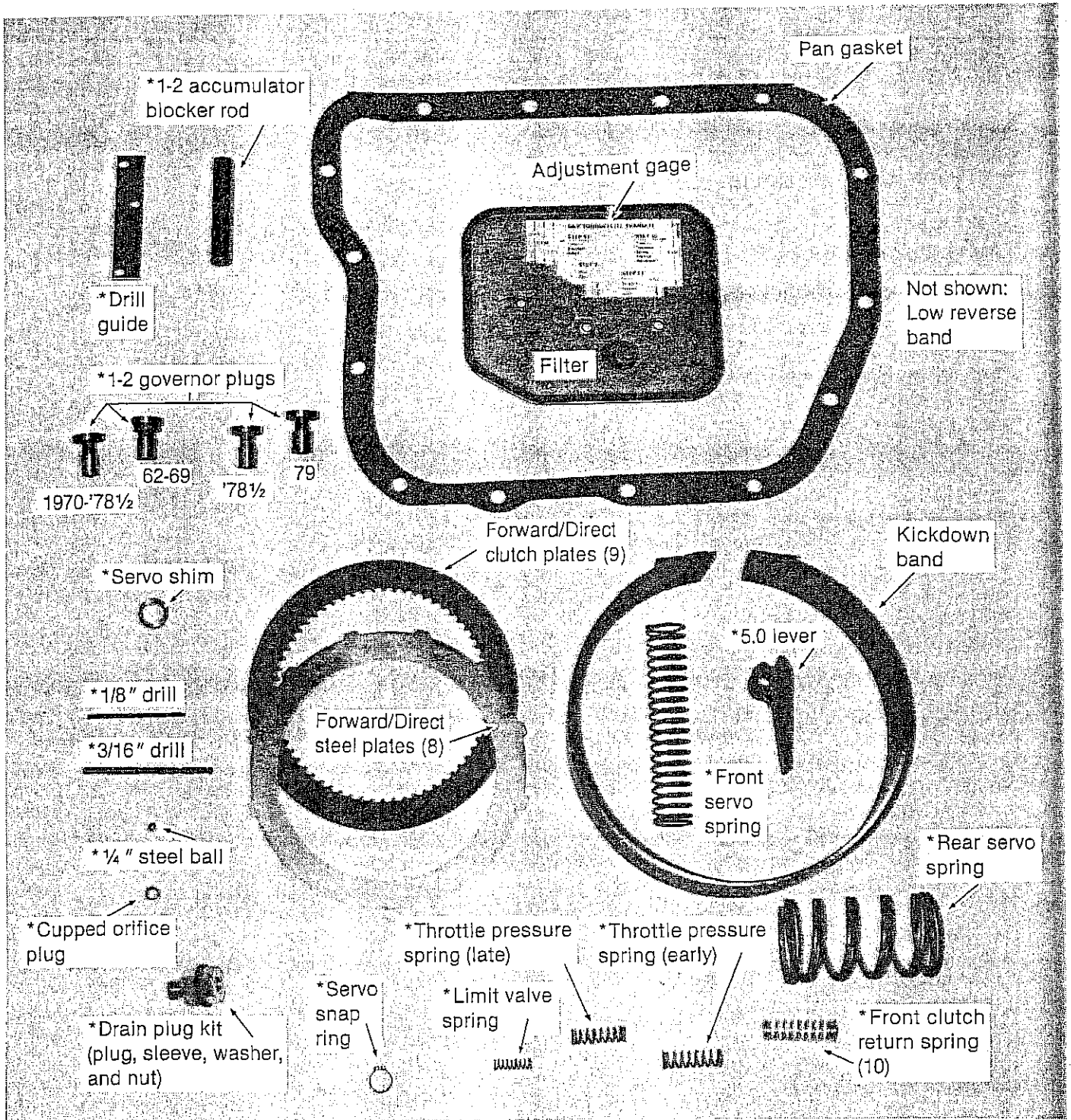
Malfunction	Probable Cause
7 No 3-2 Downshift (No engine braking)	Check #5 first  Will not have second either  Check balls improperly installed in valve body.
8 No 2-1 Downshift (No engine braking)	Rear servo seal damaged or missing  Rear band broken, misadjusted or not engaged in lever assembly  Valve body assembled improperly  The above will also affect reverse
9 No Reverse	Check #8 first  Front clutch inoperative  Shifter misadjusted

Malfunction	Probable Cause
10 Late, Hard Shifts	Throttle pressure linkage improperly adjusted  Kickdown valve stuck  Track modifications being driven on the street  Kickdown detent sleeve installed backwards
11 Pump Buzz or Whine	Low fluid level (oil starvation)  High fluid level (foaming)  Filter defective or restricted  Oil pan crushing filter
12 Overheating, Foaming Oil at Dipstick or Bell-housing (Breather)	Insufficient cooler capacity  High fluid level
13 No Movement	Restricted or plugged cooler lines On 1978, reversed torque converter valve

#### TOOLS AND MATERIALS REQUIRED FOR TORQUEFLITE TRANSKIT INSTRUCTIONS

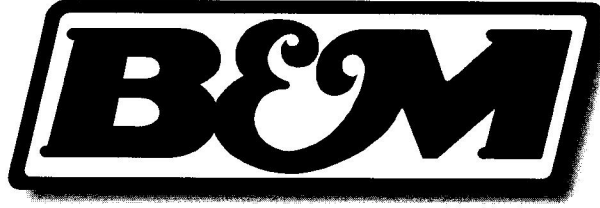
- |   |  |
|---|--|
| (1) Speed Handle or Ratchet                   | (1) Small Hammer                                       |
| (1) 9/16" Socket                              | (1) Torque Wrench, 0 to 200-in lbs.                    |
| (1) 1/2" Socket                               | (1) Torque Wrench, 175-ft. lb capacity ('62-'64 units) |
| (1) 7/16" Socket                              | (1) 1/4" Square Drive                                  |
| (1) 1 1/4" Socket                             | (1) 1/4" Drill Motor                                   |
| (1) 3/8" 12-Point Socket                      | (1) Vise   |
| (1) 3/4" Wrench                               | (1) Small File   |
| (1) 1 1/16" Wrench                            | (1) 3/16" Allen Wrench                                 |
| (1) Crescent Wrench                           | (2) 5" C-clamps or Arbor Press                         |
| (1) Large Blade Screwdriver                   | (1) Feeler Gage  |
| (1) Medium Blade Screwdriver                  | (1) Dial Indicator (optional)                          |
| (1) Small Blade Screwdriver                   | (2) Slide Hammers or Length of Chain                   |
| (1) Phillips Blade Screwdriver                | (12) Quarts of Trick Shift or Type F. ATF              |
| (1) Snap Ring Pliers, Needle Tip, Expansion   | (1) Gallon of Cleaning Solvent                         |
| (1) Snap Ring Pliers, Needle Tip, Compression | Vaseline or White Grease                               |
| (1) Needle Nose Pliers                        | Carburetor Cleaner or "Gunk", if required              |
| (1) Arkansas Stone                            |  |

GASKET AND SEAL KIT (NOT SHOWN)



\* Packed in poly bag





## Instruction Addendum **B&M TransKit**

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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 1 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.

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