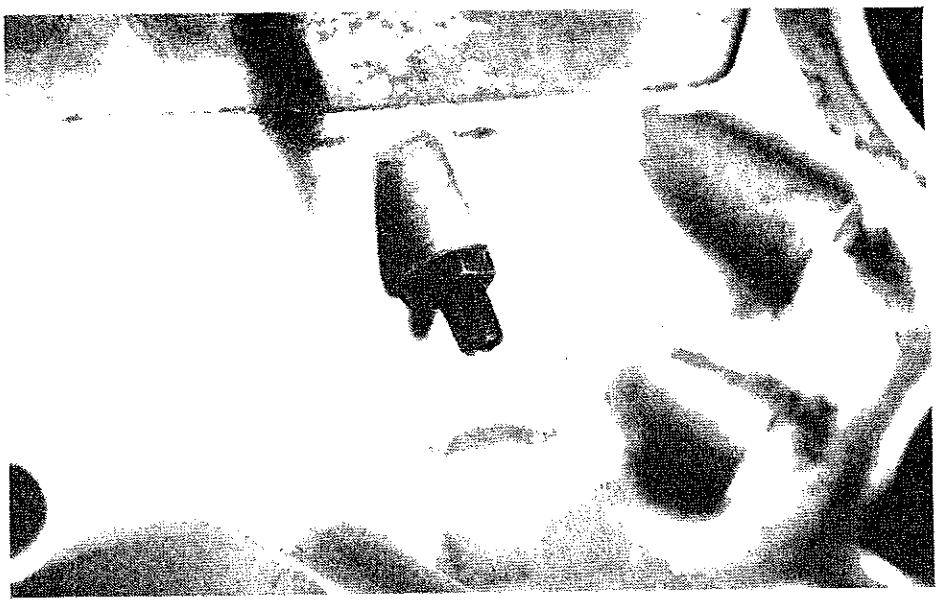
Installation Instructions

Transpak

for

TurboHydro 350C 1980-'86



NOTICE: PLEASE READ BEFORE DISASSEMBLY

This transpak will only function when installed on a TH-350C transmission. It will not work on a TH-250C, which may look similiar. A TH-250C is most easily identified by the intermediate band adjustment screw and locknut on the right side of the transmission, as shown here. If your transmission has this, it is a TH-250C. You should return this kit to your B&M dealer.

TH-350C INTRODUCTION

Congratulations! You have just purchased the most complete and versatile Recalibration™ Kit available. We feel that the installation instructions on the following pages are as complete and as clear as possible. Installation of your Recalibration™ Kit can be handled by anyone with a minimum of mechanical experience. It is important to closely follow the instructions. Read each step and if you don't understand go back and read it again.

NOTE: This kit is not a cure-all for ailing transmissions. If your transmission is slipping or in poor general shape, the installation of a RecalibrationTM Kit may worsen the condition. However, on a good operating transmission in average condition this kit will provide the kind of transmission shift feel you're looking for.

Before beginning, check the parts list on Page 8 of these instructions to make sure you have all the necessary parts. Also check the tool list on Page 7. A minimum of tools are required.

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 area or bench is necessary. We suggest a clean work bench top from which oil can easily be cleaned or a large piece of cardboard.

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This kit contains all parts necessary to obtain two levels of performance depending on use.

1. **Heavy Duty:** Towing, campers, motorhomes, police, taxi, 4x4 and off-road.
2. **Street:** Dual purpose performance vehicles. Street and strip high-performance vehicles.

Automatic transmissions operate at temperatures 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 should be off the ground for ease of installation. 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. Have a box or pan handy to put small parts in so they won't be lost. Also have a drain pan to catch oil in.

DISASSEMBLY

Step 1. Turbo 350C transmissions do not have drain plugs. You may want to install a B&M Pan Drain Plug Kit #80250 at this time. Drain the oil by removing the back oil pan bolts and work towards the front slowly. (Note: Some vehicles will require removal of the crossmember to remove the pan. Make sure you support the back of the transmission so you don't damage the distributor.) Do not remove the front two pan bolts yet. If the pan sticks to the gasket, insert a screwdriver between the pan and case and pry the pan down slightly to break it loose.

Now remove the two front bolts slowly. This will lower the pan to allow the rest of the fluid to drain. Lower the pan and set it aside. Put the pan bolts in your tray.

Step 2. Remove the two screws or bolts retaining the oil filter. Remove and discard the oil filter and oil filter gasket. Set screws aside.

Step 3. Observe the location of the following: ***(See Fig. 1 and 1A)*** Manual linkage, detent roller and spring, S-link, main valve body, auxiliary valve body, lockup solenoid, pressure switch (this location may differ on some models), support plate, detent control valve link and lever ***(See Fig. 2)***

Step 4. Remove wire(s) from pressure switch. Upon reassembly wire(s) should be replaced in the original positions, so note which wire connects with which terminal. Remove the two lockup solenoid retaining bolts. Remove lockup solenoid and gasket from auxiliary valve body. Discard gasket. The lockup solenoid wires connected to the plastic transmission plug need not be disconnected. Remove lever ***(See Fig. 2).*** Set parts in tray. Remove main valve body attaching bolts and wire holders. Let lockup solenoid hang free.

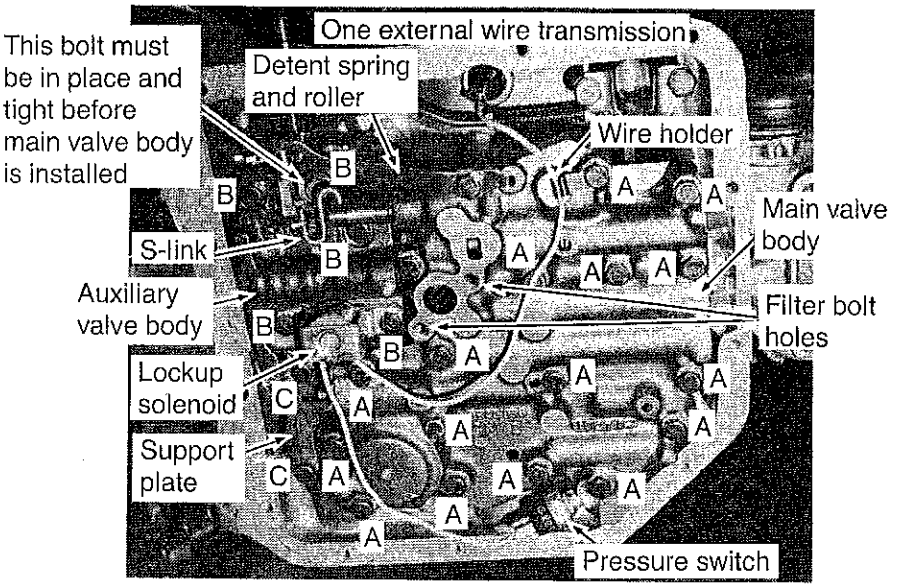

FIGURE 1

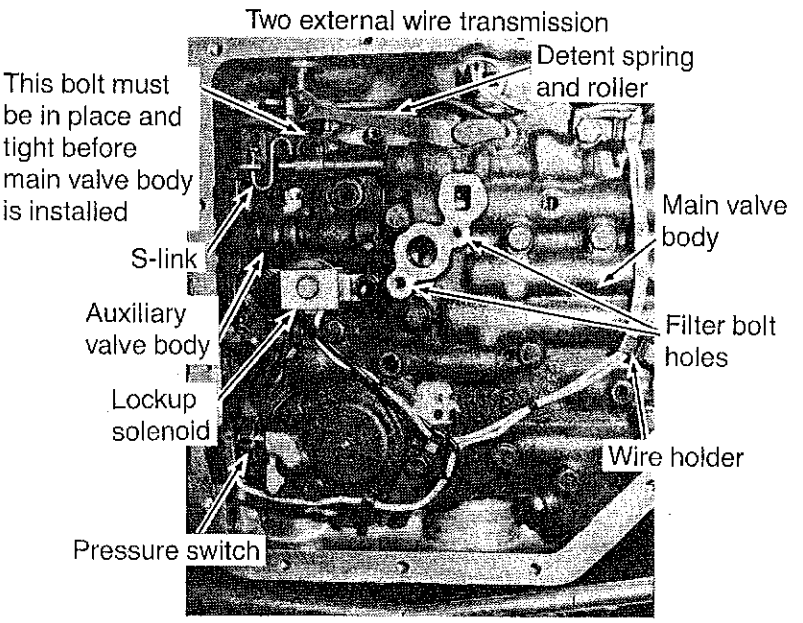

FIGURE 1A

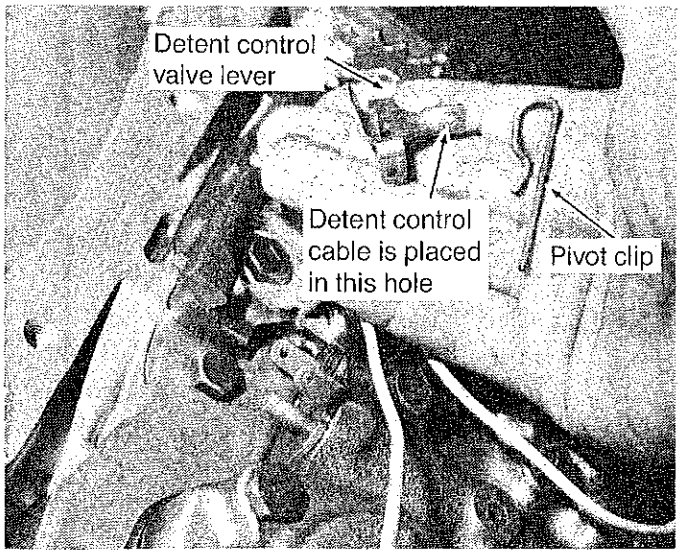

FIGURE 2

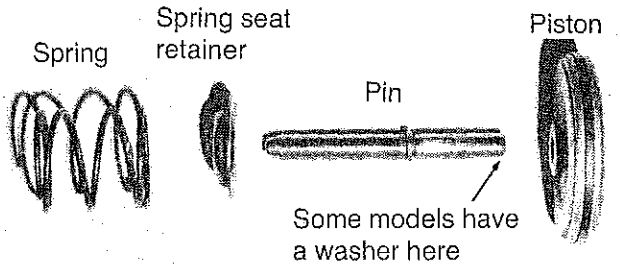

FIGURE 3

Remove main valve body by pulling straight down and disengaging manual valve and link from lever. Do not let manual valve fall out of valve body and become damaged. Remove auxiliary valve body attaching bolts and auxiliary valve body. Remove support plate attaching bolts and support plate. Set all parts in your tray. Remove separator plate, gaskets and five check balls. Leave drain pan positioned as there is still oil between separator plate and case. If front servo assembly falls out install it back in position with grease to retain it. Order of assembly is: spring, spring seat, pin, washer, and piston. ***(See Fig. 3)***

Step 5. Valve Body *(See Fig. 4):*

Place the main valve body on your bench with the channel side up. Be careful not to damage the pressure switch. Remove the roll pin holding the 2-3 shift control valve sleeve in place. Remove the sleeve carefully. This may require a little prying with a small screwdriver. Try not to raise any burrs during removal. Next remove the 2-3 shift valve spring. Discard this spring and replace it with the white spring supplied with the kit. Note: The small tapered end goes in first. Install the 2-3 shift control sleeve assembly as removed. Align sleeve and install retaining roll pin.

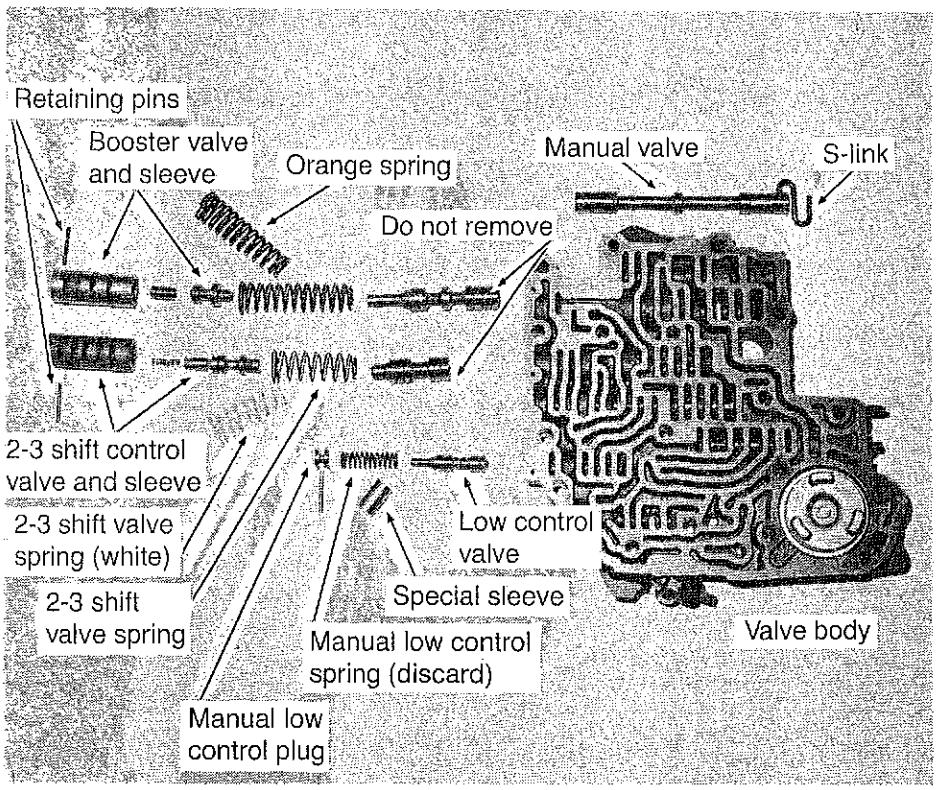

FIGURE 4

Step 6. Remove the roll pin holding the boost valve sleeve in place. Remove the sleeve carefully. Again, this may require a little prying with a small screwdriver. Remove the pressure regulator spring and discard it. Replace it with the orange spring supplied with the kit. Note: The small tapered end goes in first. Replace sleeve assembly and roll pin.

Step 7. Remove the roll pin that holds the manual low control plug in place. Remove the plug and the manual low control spring. Discard the spring and install the special sleeve supplied in its place. Install the plug and pin as removed. (Note: If the sleeve is too long to allow the plug to install properly, grind a small amount off the end of the sleeve.)

Step 8. 2-3 Accumulator:

Heavy Duty: No modification is necessary for this application.

Street & Strip: Carefully clamp the valve body in a vise or C-clamp to compress the accumulator spring. ***(See Fig. 5)*** Compress the piston just enough to remove the E-clip. Remove the valve body from the vise and remove the piston and spring. Discard the spring and install the accumulator spring supplied in kit. On some cars the stock 2-3 accumulator spring is stiffer than the supplied spring. If so, replace stock spring. Install piston and E-clip as removed. Be careful not to damage sealing ring during installation.

Step 9. Scrape off any excess gasket material that may be stuck to the casting surface of the valve bodies or case. Wash valve bodies in solvent to remove dirt or residue. Be careful not to lose the roll pins that hold the sleeves in place. Dirt or excess gasket material may cause leaks or malfunction.

Step 10. Clamp the small support plate in a vise and run a file across the surface that will contact the separator plate. The support plate must be flat. If your plate is excessively warped, it should be replaced (Chevrolet part #8641051). If a vise is not available, the plate may be lapped flat on a sheet of 600 grit wet/dry sandpaper laid over a piece of window glass.

Step 11. Separator Plate Modification:

Heavy Duty: Use supplied 3/16" drill bit and drill a hole in the B&M separator plate ***as shown in Figure 6.*** Use your stock plate as a drill guide. Deburr the hole with a file or sandpaper after drilling.

Street: No modifications to separator plate are necessary.

Transmissions that have the torque converter lockup apply switch in the position shown in ***Figure 1A*** require that three extra holes be drilled in the B&M separator plate.

These holes are shown in ***Figure 6.*** Use your stock plate as a guide; without these holes on this model transmission, no converter clutch apply will result.

Step 12. Install the lower valve body gasket ***(identified in Fig. 7)*** in position on the valve body side of the B&M separator plate. Install the upper valve body gasket in position on the transmission case side of the separator plate. Use a small amount of grease to retain the gaskets on the plate.

Check ball positions:

Heavy Duty: Place check balls in positions 1, 2, and 3.

Street: Place check balls in positions 1 and 2.

Use a small amount of grease to hold the check balls in place. **IMPORTANT:** Some of the TH350C transmissions use a 5/16" dia. check ball in position 1. If this location is machined, a 5/16" check ball (GM part #8641930) must be used there. If the location is "as cast," a ¼" dia. check ball must be used. Improper converter clutch operation will result if wrong check ball is used ***(See Fig. 8).***

Step 13. Position the separator plate and gasket assembly on the transmission case. Use a pan bolt in one of the center bolt holes to hold the assembly in place. Install

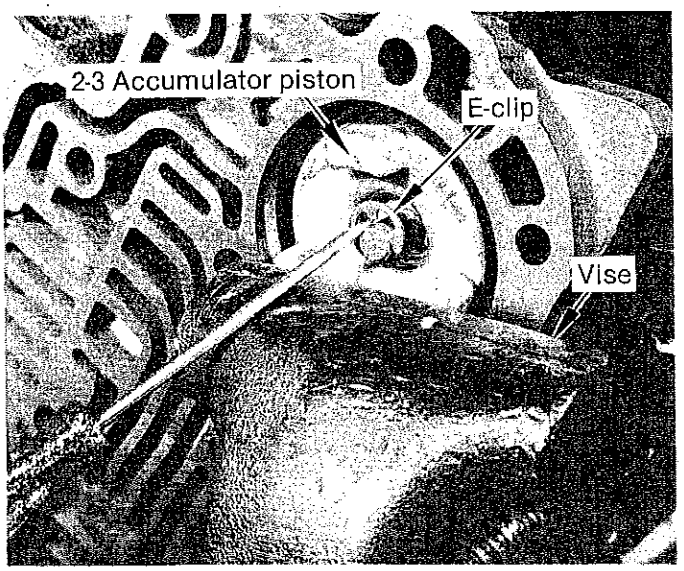

FIGURE 5

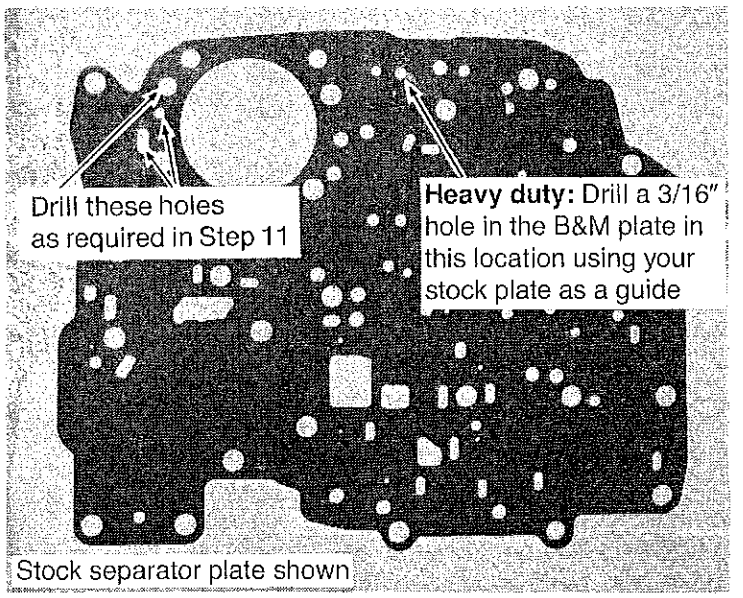

FIGURE 6

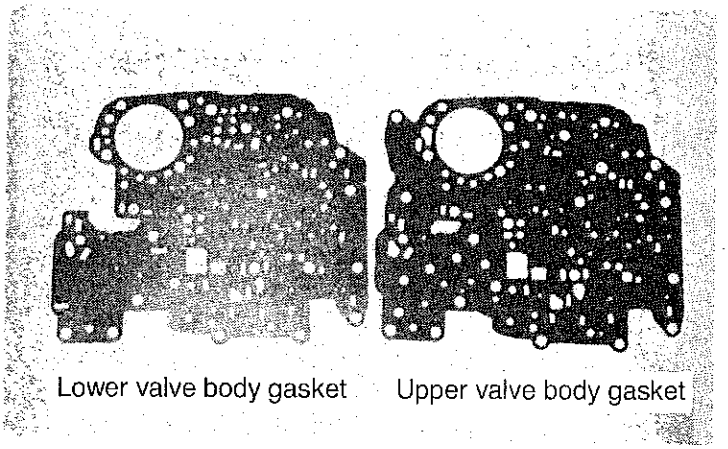

FIGURE 7

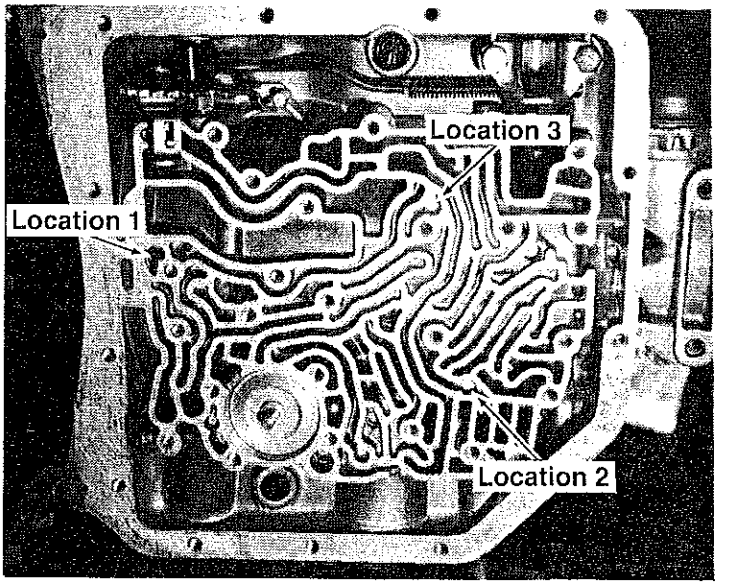

FIGURE 8

the small support plate finger tight. Install the auxiliary valve body finger tight. Remove pan bolt from center of separator plate. Tighten the auxiliary valve body and small support plate bolts to 100 in.-lbs. Guide main valve body into position. Engage the manual valve on the S-link while installing the main valve body. S-link can only be installed one way. Install valve body bolts finger tight. Make sure the small wire holders are positioned properly on the main valve body bolts. Install detent roller spring so it engages range selector inner lever. ***(See Fig. 9)*** Tighten valve body bolts to 100 in.-lbs. Make sure range selector inner lever operates freely at this point, with positive indexing in each gear. Reinstall detent control valve lever and pivot clip. Be sure cable is properly engaged.

Step 14. Install the lockup solenoid onto the auxiliary valve body using new gasket supplied in kit. Tighten bolts to 100 in.-lbs. Install supplied new oil filter and gasket. Tighten bolts or screws securely. Make sure the lockup solenoid switch wire(s) are properly secured to the pressure switch.

Step 15. Clean pan in solvent. Scrape any excess gasket material from the pan and case. Excess gasket material not removed may cause leaks. Install pan with new gasket supplied in kit. When installing pan be certain not to accidentally catch the lockup solenoid wires between the pan and the case.

Step 16. Heavy Duty Only: Use an awl or small screwdriver to dislodge the accumulator snap ring located on the right side of the transmission case. ***(See Fig. 10)*** Pry the snap ring out with a screwdriver. There is some spring loading underneath so exercise care. Remove the accumulator cover, O-ring, and accumulator spring. Discard O-ring and spring. Install new O-ring supplied with the kit in position on the accumlator cover. Lubricate the O-ring with automatic transmission fluid and install cover and O-ring into case. Install snap ring making sure it is fully seated in its groove.

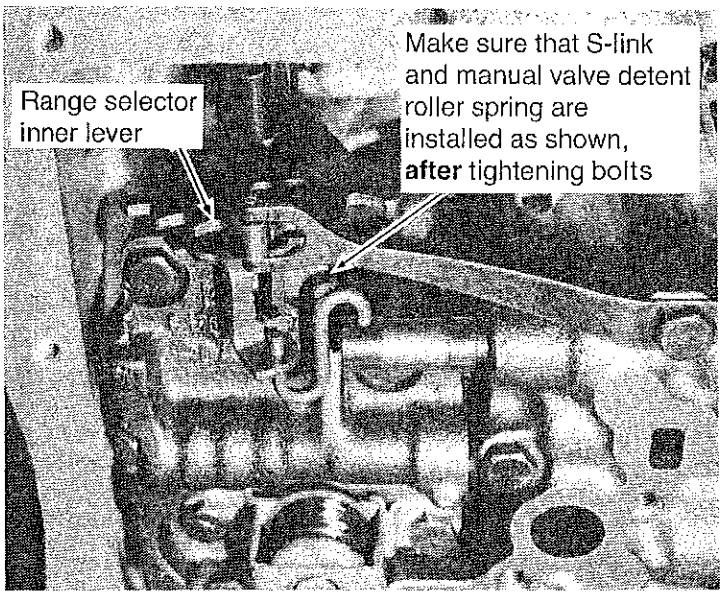

FIGURE 9

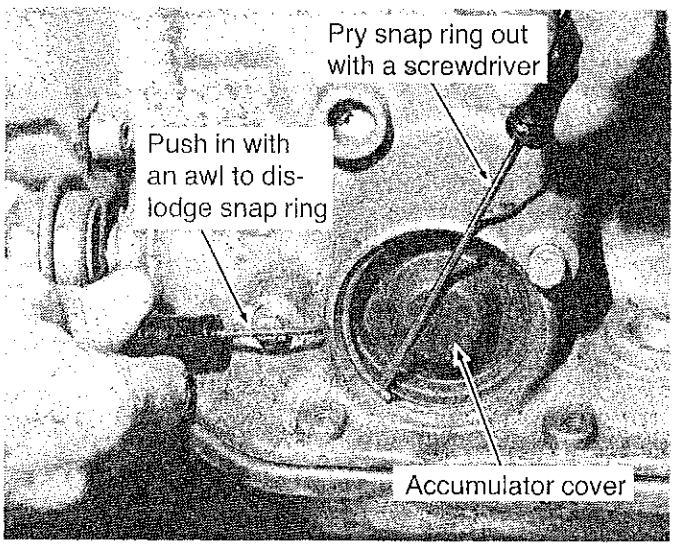

FIGURE 10

Part throttle shift points can be lowered 5-6 mph by installing the gold spring in back of the modulator valve. Remove modulator and valve. ***(See Fig. 11)*** Insert spring over end of valve and install valve and modulator as removed. Reconnect vacuum line.

Step 17. Check shifter adjustment. Place selector lever in each gear position making sure detents in transmission correspond exactly with selector lever detents. Adjustment can be made by loosening pinch bolt on rod or cable.

Step 18. Detent cable: Depress accelerator pedal fully and check that throttle is opening fully. Adjust if necessary. Adjust detent cable so that full throttle coincides with maximum cable position.

Step 19. Lower vehicle. Keep the rear wheels off the ground if possible. Add four quarts of B&M Trick Shift or type "F" ATF. Trick Shift is superior in lubrication, heat capacity, and friction material performance. If Trick Shift is not available we suggest using type "F" fluid. Place transmission in neutral, start engine, and fill to the Add marks. Place selector lever in all gear positions. If the wheels are off the ground, allow the transmission to shift through all gears. Check fluid level and make sure it is between **Add** and **Full.**

Step 20. Lower vehicle and drive for 1-2 miles to warm fluid. Check fluid level again. **Do not overfill.** This can cause foaming and overheating.

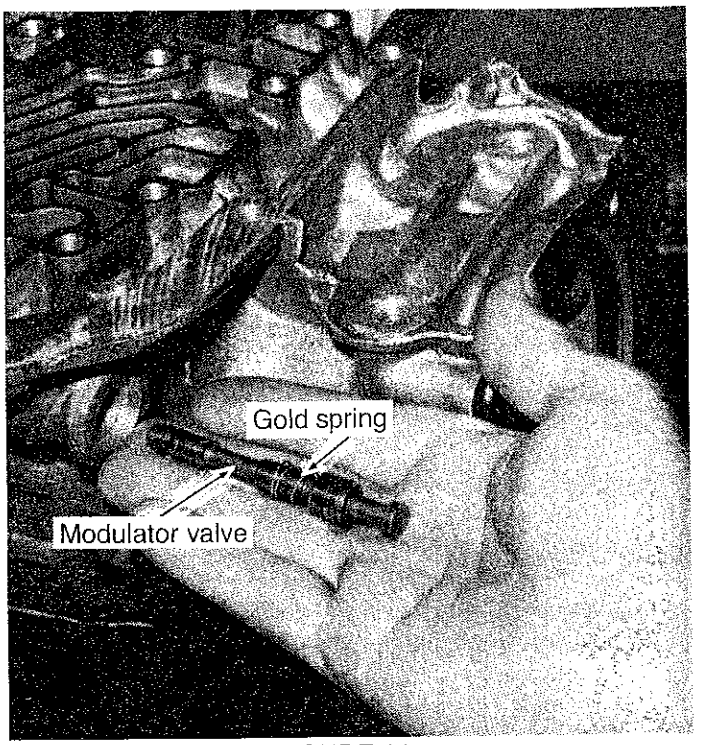

FIGURE 11

TROUBLE SHOOTING GUIDE
TURBO HYDRO 350C

Malfunction	Probable Cause
Slips	Low fluid level
	Pressure regulator valve assembly improperly installed
	Valve body bolts loose
Overheating or foaming at dipstick tube or breather	High fluid level
	Cooler plugged
	Cooler insufficient
Late hard shifts	Vacuum line cracked or leaking
Will not shift	Valve body bolts loose
	2-3 shift valve burred or sticking
	Kickdown cable misadjusted

Malfunction	Probable Cause
Erratic shifting	Shifter misadjusted
	Kickdown cable misadjusted
	Low fluid level
	High fluid level
	Vacuum line cracked or leaking
	Valve body bolts loose
	#1 check ball in wrong location
	Separator plate gaskets reversed
Pump buzz or whine	Low fluid level
Converter does not apply and release properly	Solenoid wires improperly installed or disconnected
	Lockup solenoid not tightened properly
	Wrong or no check ball in position 1 (See Fig. 8)

TOOLS REQUIRED FOR TURBO HYDRO 350C TRANSPAK INSTALLATION

1 Speed Handle or Ratchet

1 ½" Socket

1 Large Blade Screwdriver

1 Small Blade Screwdriver

1 Torque Wrench 0-50 ft.-lbs. or

1 Torque Wrench 0-250 in.-lbs.

1 File

1 Vise or C-clamp

TURBO HYDRO 350C TRANSPAK
PARTS LIST

Inspect the contents of your Transpak kit carefully. If you are missing any of the parts shown below, do not proceed. Contact your B&M dealer.