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# TCI® 350000 Trans-Scat®

## Installation Instructions For TURBO HYDRAMATIC 350

This kit will allow you to reprogram your transmission to meet your driving needs and requirements. TCI®'s **Trans-Scat®** gives you that Hi-performance street/strip feeling. It provides firm positive shifts for full performance street use. Automatic shift features are retained in drive position. Our kit also works well with heavy-duty vehicle applications. It will improve the transmission life of campers, motor homes, police, taxi and vehicles used for towing.

By carefully following these instructions anyone with a minimum of mechanical experience can install this **Trans-Scat®** kit.

Before beginning the installation of your **Trans-Scat®** kit check the parts lists and tool list to be certain that you have all necessary items.

NOTE: This **Trans-Scat®** kit was not intended for installation in transmissions that are in poor general condition. It will not correct the condition of malfunctioning or slippage in transmissions.

### TCI®'s TRANS-SCAT® KIT

#### **Contains:**

- 1 Pan Gasket
- 1 Filter
- 1 Filter Gasket
- 1 Oil Transfer Plate (This plate does not require the use of a gasket on either side.)
- 4 Springs:
  - 1 Red (2 3/4") Pressure Regulator Spring
  - 1 White (2 3/8") 2-3 Shift Spring
  - 1 Silver (1 1/4") Manual Low Control Spring
  - 1 Gold (1/2") Modulator Spring
- 1 Steel Separator Plate
- 1 Case Gasket (Install Case Side)
- 1 Valve Body Gasket (Install Valve Body Side)

#### **Tools Required for Installation:**

- 1 Speed Handle or Ratchet — 3/8" drive
- 1 1/2" Socket — 3/8" drive
- 1 Large Blade Screwdriver
- 1 Small Blade Screwdriver
- 1 Torque Wrench 0-250-in. lbs.
- 1 Vise
- 1 File

### TRANS-SCAT® KIT

#### INTRODUCTION

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.

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 use a drain pan to catch the transmission fluid.

## DISASSEMBLY

**STEP 1.** Some Turbo 350 transmissions do not have drain plugs. You may want to install a TCI® Drain Plug Kit No. 805800 before you reinstall your transmission pan. 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. Allow the fluid to drain. 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.** Use a screwdriver to remove two screws and remove the oil filter and filter gasket. Put them in the oil pan. (**See Fig. 1**)

**STEP 3.** Observe the location of the following: (**See Fig. 1**) Manual linkage, detent spring and roller, S-link or offset link, detent control valve link and lever, and support plate.

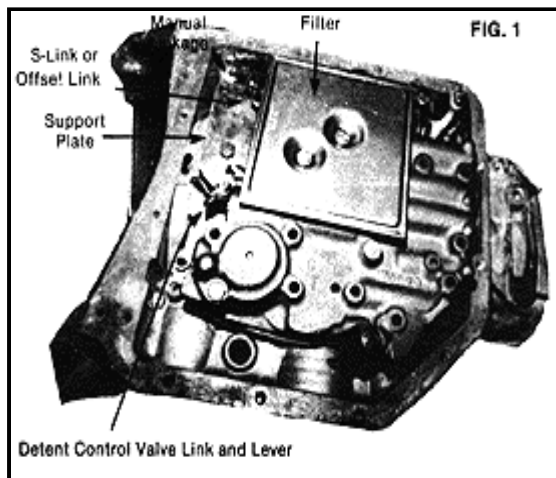


Figure 1

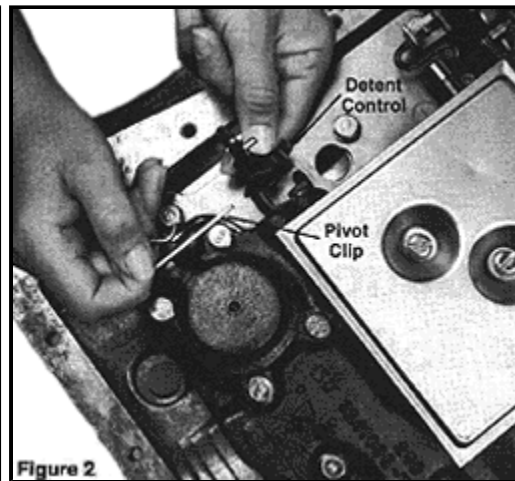


Figure 2

**STEP 4.** Remove pivot clip holding detent control valve lever in place. (**See Fig. 2**) Remove lever also and set them in the tray. Remove 18 valve body attaching bolts. (**See Fig. 3**) Remove valve body by pulling straight down and disengaging manual valve and link from manual lever. (Do not let manual valve fall out of valve body.) Put the valve body in the oil pan.

**STEP 5.** Remove support plate bolts and Support plate. (**See Fig. 1**) Remove separator plate, gaskets and four plastic check balls. Check balls to make sure they are between the plate and the case.

**STEP 6.** Vacuum Modulator: No modification is necessary for this application.

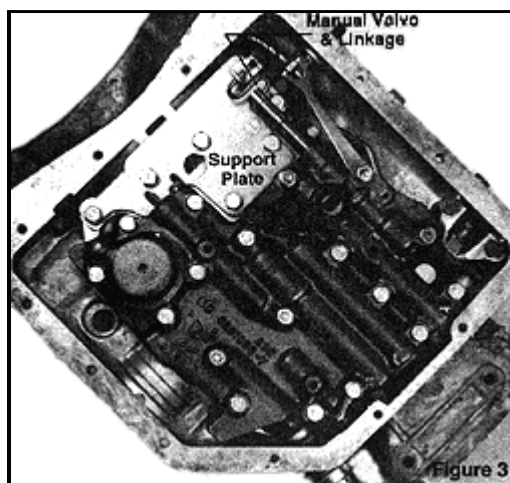


Figure 3

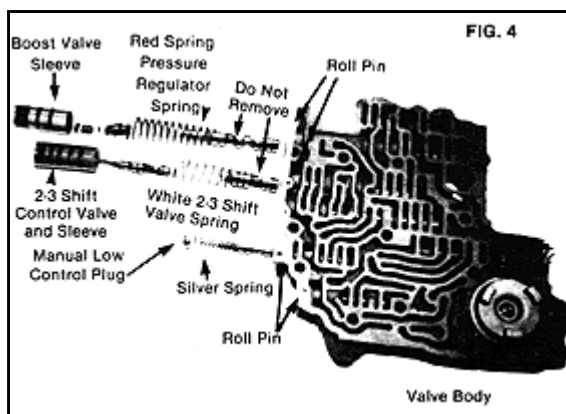


Figure 4

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. 8)** Insert spring on end of valve and install valve and modulator as removed. Reconnect vacuum line.

Adjustable modulator should be used with this valve body kit. You can purchase this from TCI® or any GM dealer. Part Number MOD3852.

**STEP 7. Valve Body:** Place the valve body on the bench with the channel side up. Remove the roll pin holding the 2-3-shift control valve sleeve in place. **(See Fig. 4)** 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.

**STEP 8.** 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 red spring supplied with the kit. Note: This small tapered end goes in first. Replace sleeve assembly and roll pin. **(See Fig. 4)**

**STEP 9.** 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 silver spring supplied in its place. Install the plug and pin as removed. **(See Fig. 4)**

**STEP 10. 2-3 Accumulator:** No modification is necessary for this application. **(See Fig. 6)**

**STEP 11.** Scrape off any excess gasket material that may be stuck to the casting surface. This is very important as stray gaskets can cause leaks. Wash valve body in solvent or gasoline to remove residue. Be careful not to lose the roll pins that hold sleeves in place.

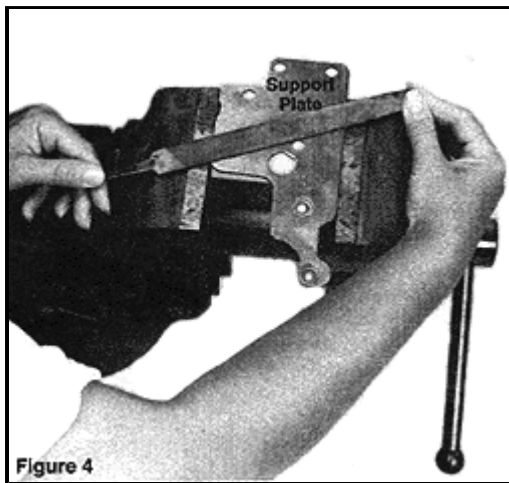


Figure 5

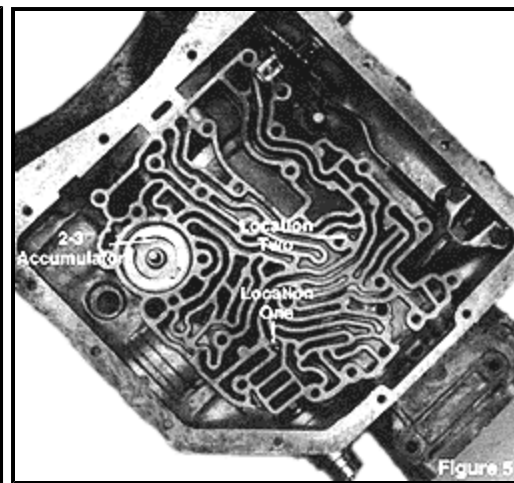


Figure 6

**STEP 12.** Clamp the support plate in a vise and run a file across the surface that will contact the separator plate. (See Fig. 5) You want the support plate to be flat. If your stiffener plate is bent or excessively warped, it should be replaced. (Chevrolet Part #6261195.)

**STEP 13.** Scrape off any excess gasket material that may be stuck to the case surface. This is very important as stray gasket can cause leaks.

**STEP 14.** Lay separator plate-to-case gasket (the large one) in position on the separator plate.

Check Ball positioning: Two 1/4" check balls. One in location 1 and one in location 2 (See Fig. 6).

**STEP 15.** Install special oil transfer plate and stock support plate (See Fig. 7) (Note: Slot in transfer plate lines up with two holes in the separator plate and creates a new oil circuit.) Install support plate bolts finger tight. Remove center pan bolt. Make sure plate does not drop far enough to lose check balls.

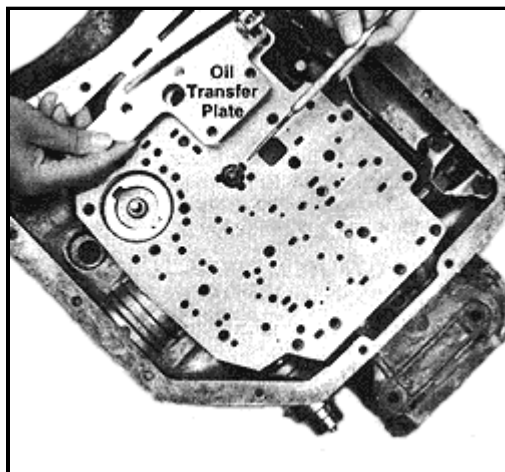


Figure 7

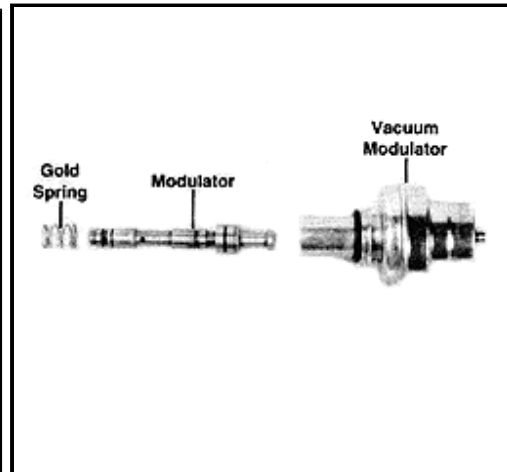


Figure 8

**STEP 16.** Lay valve body gasket (the small one) on the valve body. Guide valve body into position. Engage manual valve linkage in selector lever. S-links can only install one way. Off-set linkage must be installed with the link in the forward position (See Fig. 4) Install valve body bolts finger tight. Install detent roller spring so it engages selector lever. Tighten valve body bolts to 13-ft.lbs. Tighten stiffener plate bolts to 13-ft.lbs. Make sure

shifter operates freely at this point.

**STEP 17.** Install new oil filter and gasket supplied. Tighten screws securely.

**STEP 18.** Clean pan in solvent and scrape any excess gasket material off the pan and case surface. Install pan with new gasket. Install pan bolts and tighten 13-ft.lbs. Tighten drain, if so equipped. (Remember TCI® 8058 drain pan kit for easy fluid changes.)

**STEP 19.** Check shifter adjustment. Place selector lever in each gear position making sure detents in transmission correspond exactly with selector lever detents. Adjustments can be made by loosening pinch bolt on rod or cable.

**STEP 20.** 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 21.** Lower vehicle. Keep the rear wheels off the ground if possible. Add 4 quarts of type "F" ATF or use TCI®'s RTF Part #950600. Specially formulated to *Reduce Friction, Increase Performance, and Reduce Heat*. 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 22.** Lower vehicle and drive for 1-2 miles to warm fluid. Check level again. **Do not overfill.** This can cause foaming and overheating.

## TROUBLE SHOOTING GUIDE TURBO HYDRAMATIC 350

### Malfunction & Probable Cause

#### **Slips**

Low Fluid Level  
Pressure Regulator Valve Assembly  
Improperly Installed  
Valve Body Bolts Loose  
Support Plate Bolts Loose

#### **No Reverse or High**

Support Plate Missing or Loose

#### **Late Hard Shifts**

Vacuum Line Cracked or Leaking  
Modulator Plug Installed in a Heavy  
Duty or Street Unit

#### **Will Not Shift**

Valve Body Bolts Loose  
2-3 Shift Valve Burred or Sticking  
Kickdown Cable Misadjusted

#### **Overheating**

High Fluid Level

#### **Foaming at Dipstick Tube or Breather**

Cooler Plugged  
Cooler Insufficient

#### **Erratic Shifting**

Shifter Misadjusted  
Kickdown Cable Misadjusted  
Low Fluid Level  
High Fluid Level  
Vacuum Line Cracked or  
Leaking  
Valve Body Bolts Loose  
Support Plate Bolts Loose  
Low Fluid Level

#### **Pump Buzz or Whine**

Low Fluid Level  
Loose Valve Body Support  
Plate Bolts

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