



151 INDUSTRIAL DRIVE  
ASHLAND, MISSISSIPPI 38603  
<http://www.tciauto.com>

TELEPHONE: 662-224-8972  
FAX LINE: 662-224-8255  
E-MAIL: [tech@tciauto.com](mailto:tech@tciauto.com)

## TCI® 744500 Circle Track Valve Body Installation Instructions

### TCI® 744500 KIT CONTAINS:

Valve Body  
Orifice Cup Plug  
Modulator Plug

### REVERSE SHIFT PATTERN:

Park-Reverse-Neutral-Low-High

### INSTALLATION:

**Step 1** Remove and discard the modulator valve & vacuum modulator. Install the TCI® modulator plug.

**Step 2** Remove transmission oil pan and gasket.

**Step 3** Remove the detent guide plate bolts and the detent roller spring.

**Step 4** Remove the valve body making sure to disengage the servo tube from the case.

**Step 5** Remove front pump. The supplied orifice cup plug is to be installed into the case passage specified in **Figure 1**. Due to machining variances on the cases, the cup plug may need to be resized prior to installing. If the cup plug does not fit snugly in the specified passage, it can be expanded.

**Figure 2** demonstrates how you can use the OEM band strut and adjusting rod as tools to easily expand the plug diameter by placing the plug in the band strut hole. Be careful to not damage the threads on the adjusting rod. Tap the plug into the passage until the plug is flush to slightly below the pump-mounting surface. Reinstall the pump and tighten bolts to 15 foot-pounds.

**Step 6** Install original manual valve in your TCI® valve body. Reverse removal procedure to install valve body being sure that the groove in the manual is indexed with the pin in the selector range cam. Reinstall the detent guide plate. Tighten bolts to 10 foot-pounds. Install filter and gasket.

**Step 7** Disconnect the drive shaft from output shaft & the speedometer cable fitting from the tailhousing.

**Step 8** Unbolt the tailhousing from crossmember and transmission case and remove.

**Step 9** Remove and discard the governor assembly and speedometer gear.

**Step 10 1962-1966:** Remove rear pump housing and discard the pump gears and drive pins. Reassemble pump housing leaving the wear plate in place. Replace O-ring and install tailhousing. **1966-1973:** Replace O-ring and install tailhousing.

**Step 11** Low Band Adjustment: Loosen jam nut. Torque band adjusting screw to 72 inch-pounds and back off four (4) turns counter-clockwise. Retighten jam nut.

**Step 12** After transmission and pump drive are properly installed, fill transmission with three (3) quarts of Dexron, TCI's RTF Transmission Fluid (Part#950600) or STF synthetic fluid (Part#950655).

**Step 13** With the rear wheels off the ground, start engine in neutral and check fluid level using dipstick. Add fluid until the level is between the "add" and "full" marks. **DO NOT OVERFILL.** Turn engine off and check for any transmission leaks.

**NOTE:** When performing a line pressure check at the servo cover port, the 744500 valve body will NOT show high gear pressure due to the unique routing of the fluid circuits in the valve body.

### RECOMMENDED REBUILD PROCEDURES:

**Step 1** Install a TCI® steel high gear clutch hub (TCI® 748300) and five (5) clutches. Set clearance between .080" - .100".

**Step 2** Install three (3) clutches in reverse and set clearance between .060" - .090".

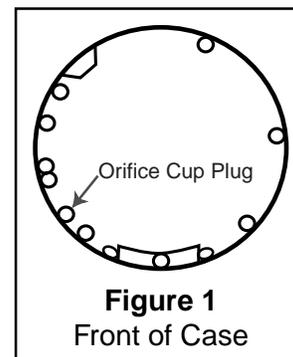
**Step 3** Planetary: 1.82 Ratio, Loctite® all planetary screws and tighten to 30-36 inch-pounds.

**Step 4** Check the front pump for wear in gear pocket and the sealing ring lands. If you see an excessive amount of wear then discard and replace as needed. (Call TCI® for new parts)

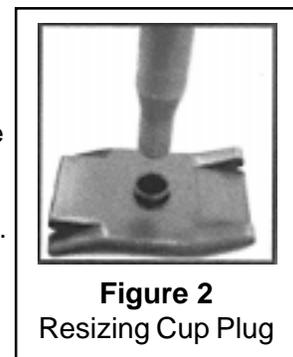
**Step 5** Thoroughly inspect case for cracks and stripped threads. Be sure dowel holes are not damaged. Reassemble transmission and adjust endplay to .010" - .025".

### OPERATION:

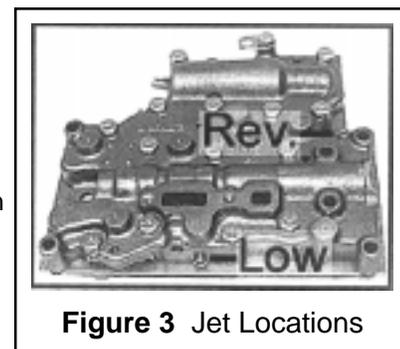
The best drivability is achieved by setting your engine idle speed below 1400 rpm. The 744500 valve body is equipped with standard carburetor jets to orifice the fluid in low and reverse. See **Figure 3**. The low gear jet supplied from TCI has a .118 orifice size (#96) and the reverse jet has a .104 orifice (#90). Installation of larger jets can help drivability if the car is trying to stall when stopped in gear, however, excess bleed off can lead to premature wear of the band and reverse clutches, so it's advisable to get your idle speed as low as possible first. If you do change jets, check your mainline pressure @ 2000 rpm to be sure that you have at least 70 psi in low and reverse.



**Figure 1**  
Front of Case



**Figure 2**  
Resizing Cup Plug



**Figure 3** Jet Locations