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TCI® 744300

The TCI® 744300 does not require complete disassembly of your Powerglide transmission. For severe duty use however, we highly recommend building your transmission according to the guidelines provided.

TCI® 744300 Kit Contains:

Valve Body
Return Spring
TV Lever Assembly
Shift Lever
Modulator Plug

Bolt-In Instructions

Step 1 Remove and discard the modulator valve and 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 your TV lever assembly and replace it with the modified TV lever.

Step 6 Drill a 1/8" hole in your transmission bellhousing flange as shown in **Illustration One**. Install the TCI® return spring between the case and TV lever as shown in **Illustration Two**.

Step 7 Install original manual valve in your TCI® valve body. Reverse removal procedure to install valve body being sure that the groove in the manual valve is indexed with the pin in the selector range cam. Tighten bolts to 10 foot/pounds.

Step 8 Disconnect the driveshaft from output shaft and the speedometer cable fitting from the tailhousing.

Step 9 Unbolt the tailhousing from crossmember and transmission case and remove.

Step 10 Remove and discard the governor assembly and speedometer gear.

Step 11 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 12 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 13 A simple clutch style pedal may be used to control the line pressure in the transmission. The TV lever on the transmission only needs about one (1) inch of travel so set the pedal up so as not to over extend the return spring.

Important: Verify that the lever returns to the point where the plunger is fully engaged in the valve body. Full line pressure should be checked with a gauge 200 psi gauge. Pressure should read 140-160 psi or clutch damage may result.

Recommended Rebuild Procedures

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

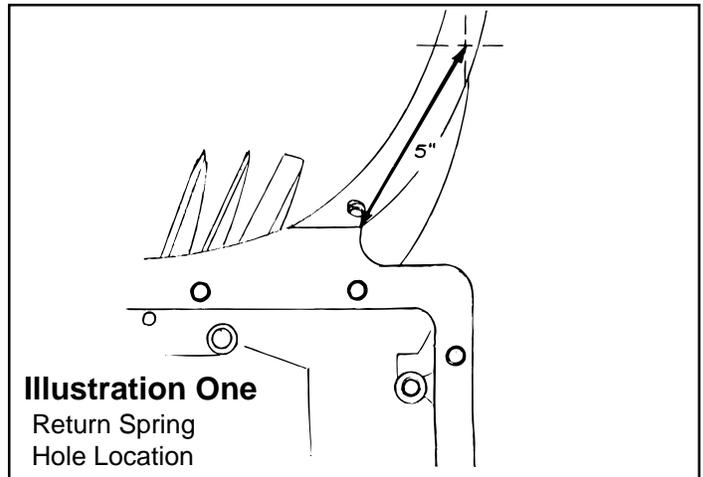


Illustration One
Return Spring
Hole Location

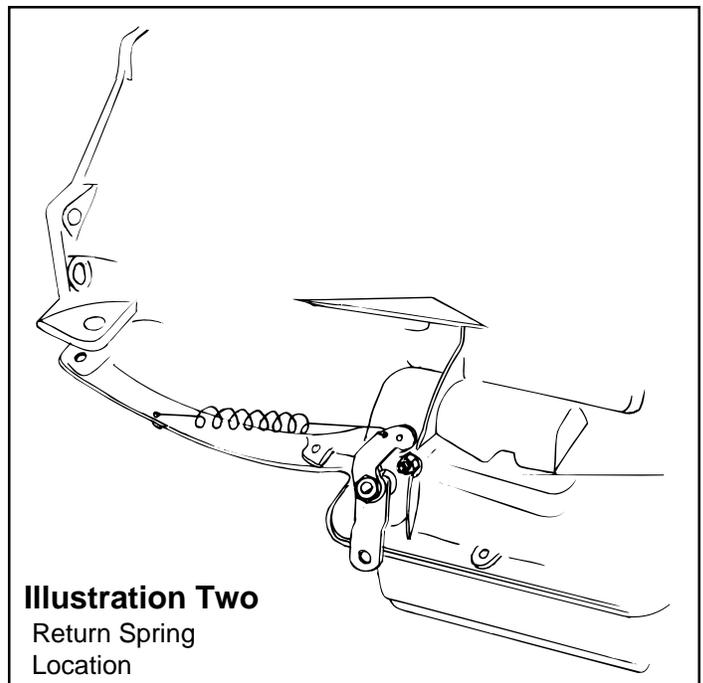


Illustration Two
Return Spring
Location

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 gear for wear on crest and 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".

Installation Guidelines for TCI®'s Internally Valved Circlematic Transmissions

It is highly recommended for the most trouble-free installation and operation of your new Circlematic that you purchase TCI® 744400 Circle Track Pedal Assembly.

If you would like to fabricate your own pressure control actuation system then the following should be used as a guideline:

The pressure control lever works a plunger in the valve body. The return spring holds the lever and plunger in the "applied" position. That is to say that in this position line pressure will apply whatever range the shifter has selected. "Releasing" the line pressure acts much like a clutch in a manual transmission set up whereby the engine torque is no longer transmitted through the transmission.

To release line pressure, the pressure lever needs to move back at least 25 degrees from the applied position. This translates to 0.85 inches of linear travel as measured from the pressure lever attaching hole. The pressure lever activates the valve body plunger at a 2.9:1 ratio.

This means that when the pressure lever is moved 0.85 inches that the valve body plunger will move out about 0.30 inches causing line pressure to release.

In order for the transition from released to applied to be smooth it is recommended that an additional reduction be added that is at least 5:1. As an example, if a pedal assembly

with a 5:1 ratio is used, then the total ratio of the system would be: 5 (pedal) x 2.9 (lever) = 14.5:1 (total ratio)

Now, in order to move the valve body plunger 0.30 inches, the pedal pad would have to travel 4.35 inches. A 5.5:1 ratio pedal would travel 4.8 inches. This motion reduction will enable the transmission pressure to rise at a more controlled rate for a smoother take off from a stop.

Important: After your control system is installed and adjusted it is highly recommended that a transmission main line pressure check be performed to further verify correct operation.

Place the vehicle on jackstands so that the rear wheels are free to turn. Next, attach a 0-200 psi gauge (TCI® 801100 or equivalent) to the 1/8" pipe fitting on the servo cover located on the passenger side of the transmission. With the transmission in a forward gear and the engine at about 1500 rpm the line pressure should equal 140-160 psi in the "applied" position. When the control lever is moved to the "released" position using your control system, line pressure should drop all the way to 0 psi. If either of these two conditions are not met then you may experience drivability problems and/or premature transmission failure.

Please be sure everything is adjusted properly before attempting to drive the vehicle.

