



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® 376000

### Installation Instructions for Turbo 700R4 1982-1986 • Turbo 700R4 1987-1992

#### TCI® 376000 Kit Contains:

- | Qty. | Description   |
|------|---|
| (2)  | Separator Plates  |
| (2)  | Gaskets: (1) Valve Body (marked VB or V)<br>(1) Case Gasket (marked C)  |
| (1)  | Transmission Pan Gasket   |
| (2)  | Accumulator Spacers: Black (Thin)<br>Silver (Thick)   |
| (4)  | Springs: (1) Orange 1-2 Accumulator Spring<br>(1) Purple Pressure Regulator Spring<br>(1) Black Converter Clutch Spring<br>(1) Green Line Bias Valve Spring |
| (1)  | Blocker Rod   |
| (1)  | Filter Seal Ring  |
| (1)  | Pressure Regulator Retaining Ring   |
| (2)  | Allenhead Plugs   |

#### Year Model Identification:

Before you start with modification to valve body you must know year model of your transmission. If you are unsure of year, you can identify easily. On right hand side of transmission pan rail you will see a serial number. The first digit of that number will give you the year the transmission was in production. This number may also be located on the right side transmission to engine mounting flange.

**NOTE:** If you have not removed the transmission from the vehicle when removing the valve body, some of the internal parts will fall out. It may be easier for you to remove the transmission from the vehicle to install this kit.

This kit will allow you to modify your 700R4 transmission for your particular driving requirements.

**STREET PLUS:** This type of modification is what TCI uses when building a Street Fighter transmission. The shift feel is very positive and sharp.

**HEAVY DUTY:** This type of modification is used for towing, campers, motor homes, police, taxi and other vehicles that put a lot of stress on the transmission. This shift is firm but not harsh.

**STREET:** This type of modification is a step above the stock transmission performance and shift feel.

**NOTE:** This kit is not intended for installation in a transmission in poor general condition. It will not correct a malfunctioning or slipping transmission.

**STEP 1.** Drain oil pan. You will need a pan to catch fluid. Remove transmission oil pan bolts. When removing bolts, remove so pan will

not drop completely off but will be held into place so that one side will allow the fluid to be drained. After the fluid is drained, remove the rest of the bolts and pour out the remaining fluid. Remove gasket and discard. If gasket material sticks to transmission pan or case, remove all material completely. Turbo 700R4 transmission do not have a drain plug. You may want to install a TCI 805800 universal drain plug kit into your pan now that you have the pan off.

**STEP 2.** Carefully remove the oil filter by pulling it straight down. Remove the pickup tube O-ring from the pump if it does not come out with the filter. Discard O-ring. Inspect the oil filter. Replace the filter if it is dirty or has not been changed in over 25,000 miles. TCI® part number is 378500.

**STEP 3.** There are at least ten (10) different wiring arrangements that are found in the 700R4 transmission valve body. Different engine sizes and emission standards dictate what wiring was needed for a particular application. Before you remove any wires or switches, take time to draw your own diagram of the location of your valve body wiring, terminal locations and connections. Most of them will be color-coded and can be easily drawn and located. **(See Photo 1.)** Carefully disconnect the wire connectors from the switches. Remove the wires from the clips and unplug the wiring harness from the connector near the detent roller spring. Pry connector tab away from the plug and pull the plug down. Do not pull on the wires. **(See Photo 2.)**

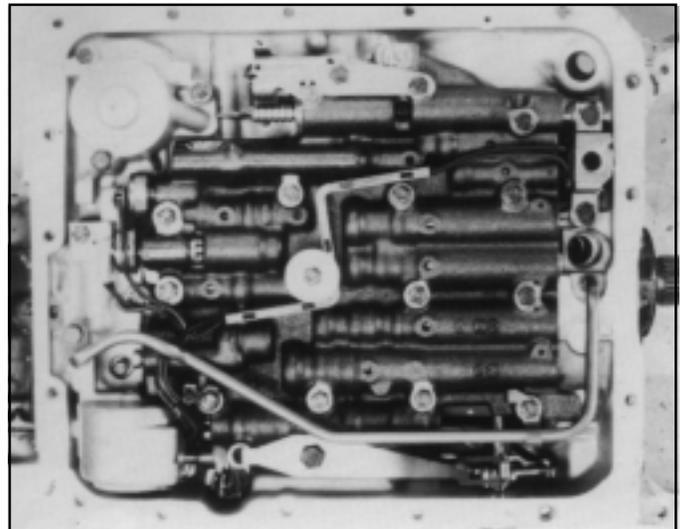


Photo 1 Photo Shows 700R4 with wire in place.  
Draw your own diagram of wiring, terminal and connection locations.

**STEP 4.** Remove the 1-2 accumulator by removing the three bolts holding the piston housing. Keep these bolts separated from the valve body bolts. Remove the 1-2 accumulator assembly. This assembly has

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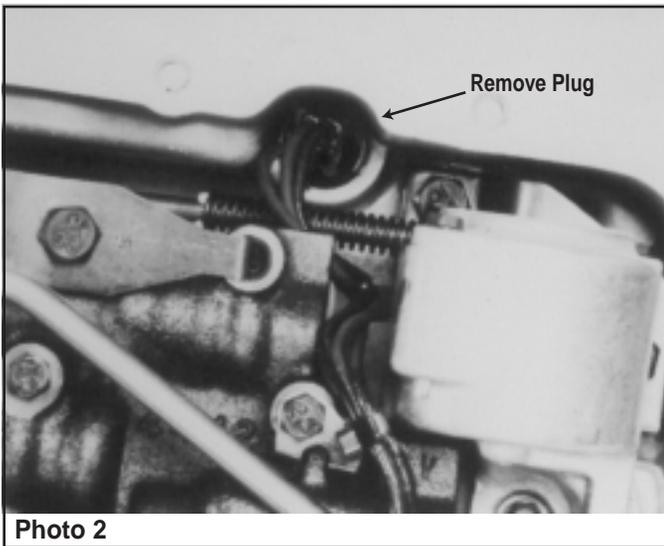


Photo 2

three parts: the accumulator piston housing, accumulator piston, and accumulator spring. **(See Photo 3.)** Some earlier models will also have a thick support plate between the accumulator housing and the separator plate. If your transmission has this plate, remove it carefully. Be sure not to damage the gasket. This gasket must be reused.

**NOTE:** Located under the separator plate is a 3-4 assembly. It will be removed after the valve body has been removed. **(See Step 6.)**

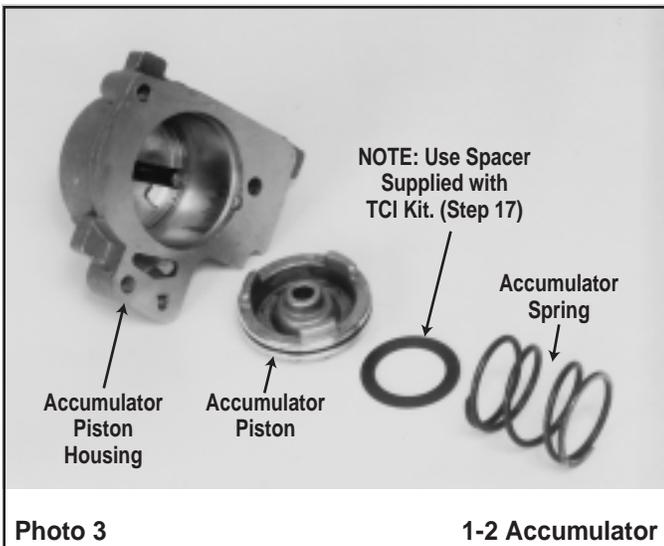


Photo 3

1-2 Accumulator

**STEP 5.** Remove the auxiliary valve body. Most 700R4 transmissions now have this auxiliary valve body **(See Photo 4A.)** Some 700R4 transmissions do not have this auxiliary valve body but came with a small support plate. If you have this type of 700R4 transmission, remove the four bolts holding the small support plate to the case at the rear of the valve body. Remove the two valve body bolts holding the throttle pressure mechanism. Disengage the wire cable linkage while removing the mechanism. Remove the bolt holding the detent roller spring assembly. **(See Photo 5.)**

**STEP 6.** Remove the remaining valve body bolts except for one near the center of the valve body. Holding the valve body securely, remove the last bolt and lower the valve body, separator plate and gaskets. Remove the 3-4 accumulator spring, 3-4 accumulator piston and 3-4 accumulator piston pin. **(See Photo 6.)** Some of the accumulator assembly parts will drop out of the valve body as it is lowered. There are several check balls above the separator plate and in the valve body. Be careful not to lose them. Before removing any check

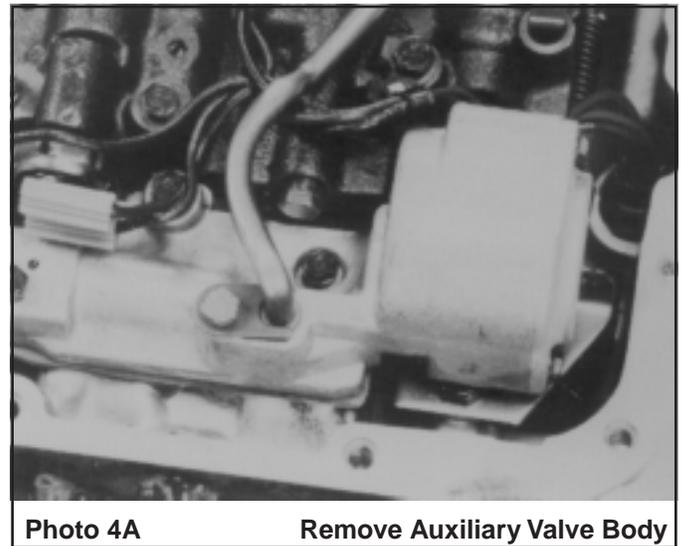


Photo 4A

Remove Auxiliary Valve Body

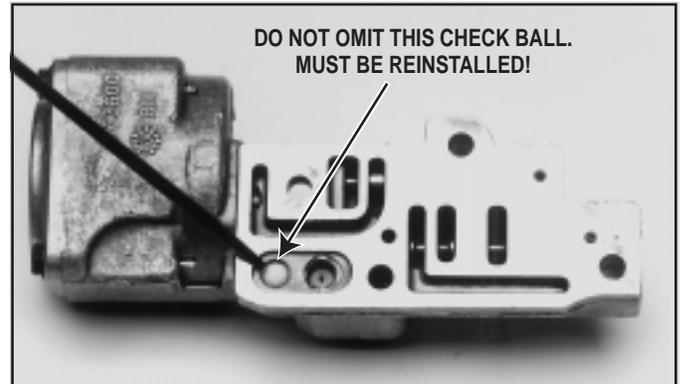


Photo 4B

Auxiliary Valve Body

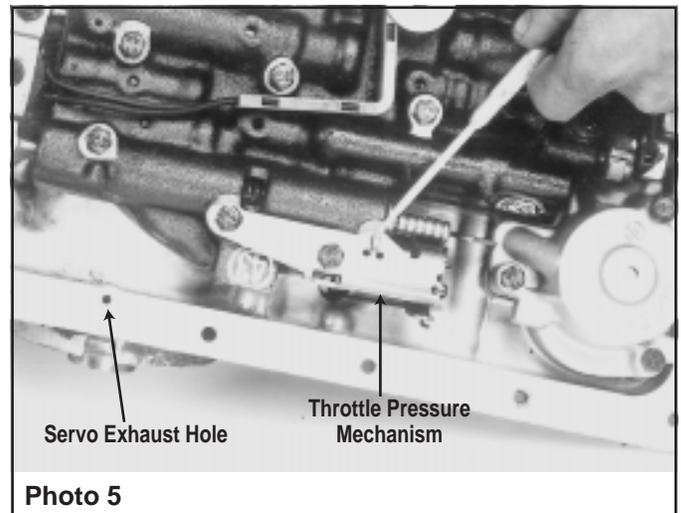


Photo 5

balls from the valve body, verify location of the check balls. **(See Photo 7.)**

## VALVE BODY MODIFICATIONS

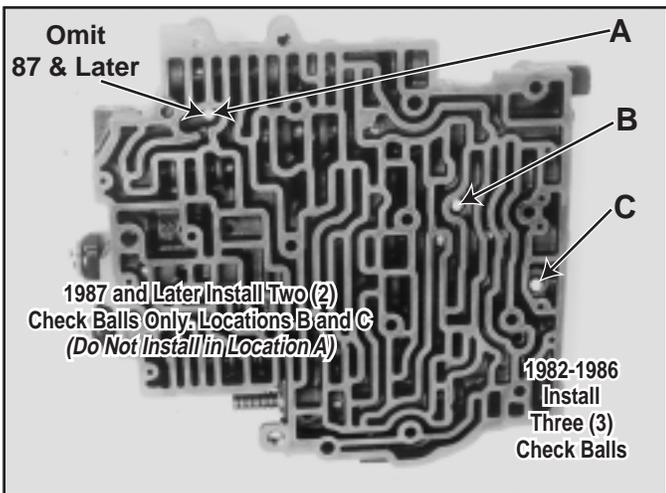
**STEP 7.** M.T.V. Up Valve: **(See Photo 8.)** Remove the roll pin holding the M.T.V. Up Valve assembly. Remove aluminum plug, valve and spring. Discard spring. Reinstall the valve, aluminum plug and roll pin. The roll pin must fit flush with the casting.

**STEP 8.** Converter Clutch Valve: **(See Photo 8.)**

**DIESEL APPLICATION:** *DO NOT MODIFY.* Skip to **Step 11.**



**Photo 6** 3-4 Accumulator Assembly

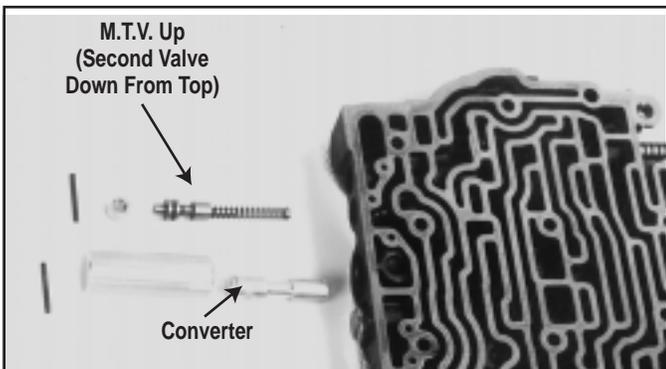


**Photo 7** Valve Body Check Ball Locations

**NOTE:** Some 1984-1/2 and later models do not use this valve assembly. They will have aluminum plugs installed in this position. No modifications are necessary.

**NOTE:** Do not install black spring on converter clutch throttle valve in 1987 and later models.

Locate the converter clutch valve on the valve body. You can actually see the valve assembly in the bore. If you do not see a spring, no modifications are necessary. If you can see a spring then you must do the following modification. Use a small punch to push the roll pin out. Carefully remove the converter clutch throttle valve and sleeve assembly. Do not remove the converter clutch valve from the bore. Remove the throttle valve and spring from the sleeve. Replace the stock spring with the Black spring supplied. **PRE-86 MODELS ONLY:** Install the throttle valve and new spring into the sleeve. Install sleeve assembly into valve body. Replace roll pin. Tap it into place. Make sure the roll pin is completely inside. It should be flush with the casting.



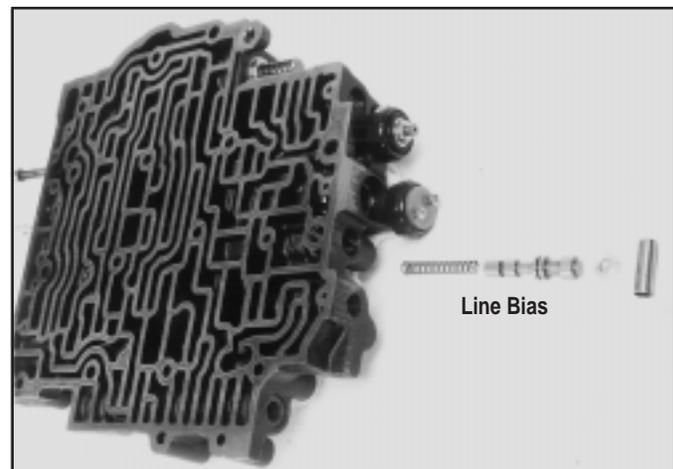
**Photo 8**

**STEP 9.** Line Bias Valve: (See Photo 9.)

**STREET:** No modification necessary. Go to **Step 10.**

**HEAVY DUTY:** Remove the large roll pin holding the line bias valve assembly. Be careful not to damage this pin. Remove the aluminum plug, valve and spring. Replace the stock spring with the Green spring supplied. Install new spring, valve and aluminum plug into the valve body. Reinstall roll pin being sure it fits completely into the bore. The roll pin should be flush with the casting.

**STREET PLUS:** Remove the large roll pin holding in the line bias valve assembly. Be careful not to damage this pin. Remove the aluminum plug, valve and spring. Replace the spring with the blocker rod supplied. Install blocker rod, valve and aluminum plug into the valve body. Install roll pin. Be sure it fits flush with the casting.



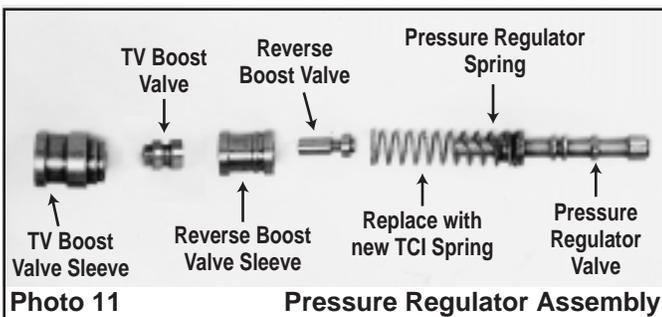
**Photo 9**



**Photo 10** Pressure Regulator

**PRESSURE REGULATOR MODIFICATIONS (See Photo 10.)**

**STEP 10.** All Applications: Remove the pressure regulator assembly from the transmission pump. Push down on the TV boost valve sleeve while removing the retaining ring. Be careful as there is heavy spring tension behind it. Slowly lower the sleeve to relieve spring tension. Remove the TV boost valve sleeve and valve, the reverse boost sleeve and valve, and the pressure regulator spring. The pressure regulator valve may also drop out. If it does not, do not remove. Replace the pressure regulator spring with the Purple spring supplied. Reinstall the pressure regulator assembly with the new spring as shown. (See Photo 11.) Install the new retaining ring supplied with this kit.



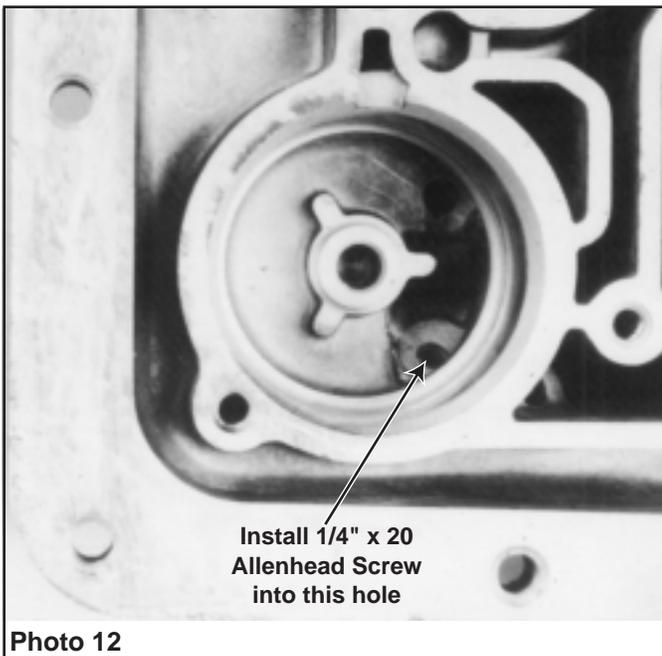
**NOTE:** The boost valves and reverse boost sleeve can easily be installed incorrectly. Incorrect assembly will cause the transmission to function improperly. **BE SURE** these parts are installed in the correct order, facing the right direction. The TV Boost Valve and sleeve may be replaced with a .500" diameter TCI 374301 to further increase pressure.

**STEP 11. 3-4 ACCUMULATOR ASSEMBLY: (See Photo 3)**

**STREET:** Install the thin spacer supplied (black) into the accumulator piston with some grease to hold in place. Install the 3-4 piston pin into the case. Install the accumulator piston/spacer assembly into the case. Install the stock spring against the spacer.

**HEAVY DUTY:** Install the thick spacer supplied (silver) into the accumulator piston with some grease to hold it into place. Install the 3-4 piston pin into the case. Install the accumulator piston/spacer assembly into the case. Install the stock spring against the spacer.

**STREET PLUS:** Install the allenhead into the hole located in the case of the transmission in the 3-4 accumulator piston bore. **(See Photo 12.)** Using 1/4" x 20 allenhead screw self tapping plug into the accumulator housing located in case.



**EXTRA FIRM SHIFT:** Discard all accumulator parts (piston and spring).

**FIRM SHIFT:** Do not install allenhead into 3-4 accumulator. Follow Heavy Duty instructions.

**STEP 12. All Applications:** Put the new gaskets in position on the separator plate by using a little grease to hold them on the plate. The gasket with the "C" goes on the separator plate that fits to the case. The gasket with the "V or VB" goes on the separator plate that fits next to the valve body.

**STEP 13. SEPARATOR PLATE: All Applications:** Enclosed in your TCI kit you will find a separator plate for the early model and late model 700R4 valve body. You may have to modify the TCI separator plate to fit your valve body. When the 700R4 transmission was put into production, a variety of separator plates and valve bodies were produced. Match your OE separator plate with one of the plates supplied with this kit. You will see that some additional holes are located on your old plate. You must drill the missing holes into the new TCI separator plate. The gaskets supplied will need no modifications.

**LATE MODEL:** The late model separator plate marked 700R4 may require one to three holes drilled. Match the plate and look carefully at your old plate and mark the holes that are missing on the new TCI plate. **(See Illustration 3.)** We have indicated the area where the additional holes should be located. It is very important that you match the diameter of each hole with the proper drill bit size. Please note that if your OE plate has a square/rectangle hole, you will need to mark and measure the length and width of the square/rectangle hole. Whichever dimension is largest, use that size drill bit. All new holes must be drilled in the stock location and be drilled to the exact diameter of the OE opening.

**EARLY MODEL:** The early model TCI separator plate 701R4 will also require drilling of additional holes. Please note that if your OE plate has a square/rectangle hole, you will need to mark and measure the length and width of the square/rectangle hole. Whichever dimension is largest use that size drill bit.

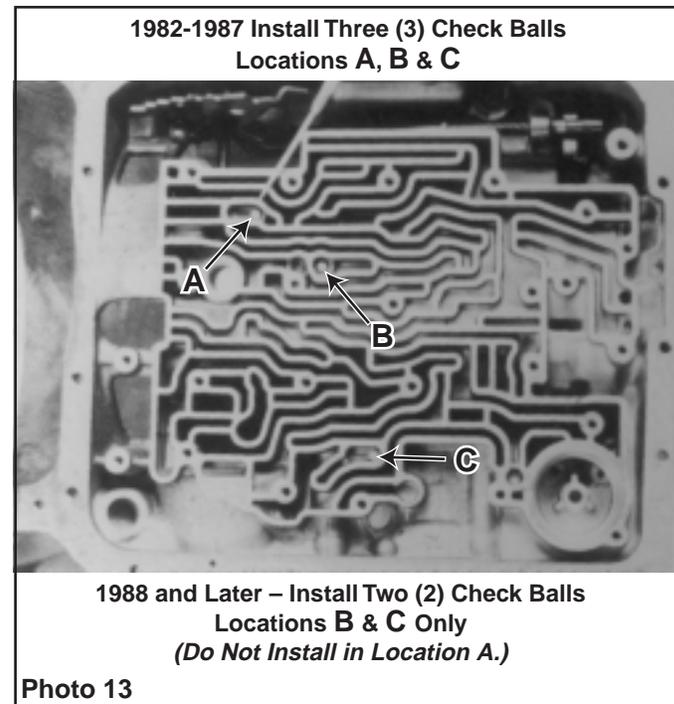
Remember, mark each hole on the new TCI separator plate. Next, size the original hole on your old separator plate and drill the new hole to the proper diameter. After all holes have been drilled, deburr holes and clean separator plate thoroughly. You are now ready to complete assembly of the valve body.

**STEP 14. All Applications: CHECK BALL LOCATIONS**

**VALVE BODY:** Install check balls in the valve body in the case as shown **(See Photo 7.)**

**CASE: 1982-1987** Install three (3) check balls in the case as shown **(See Photo 13.)** Use grease to hold check balls in place.

**1988 AND LATER** Install two (2) check balls in the case as shown. **(See Photo 13.)** Use grease to hold check balls in place.



**STEP 15.** Place the separator plate with gaskets against the transmission case. Install the small support plate (1982-1986) or auxiliary valve body (1987 and later) and four OEM bolts loosely. For models with an auxiliary valve body you must reinstall the large check ball in the proper location. **(See Photo 4B.)** Insert two valve body bolts into the two alignment holes in the separator plate. Tighten the support plate bolts. Remove two valve body bolts from the alignment holes.

**STEP 16. INSTALL VALVE BODY:** Be sure to engage manual valve with linkage properly. Do not force the valve or bend the linkage during assembly. Install one valve body bolt to hold the valve body into place. Do not tighten bolt.

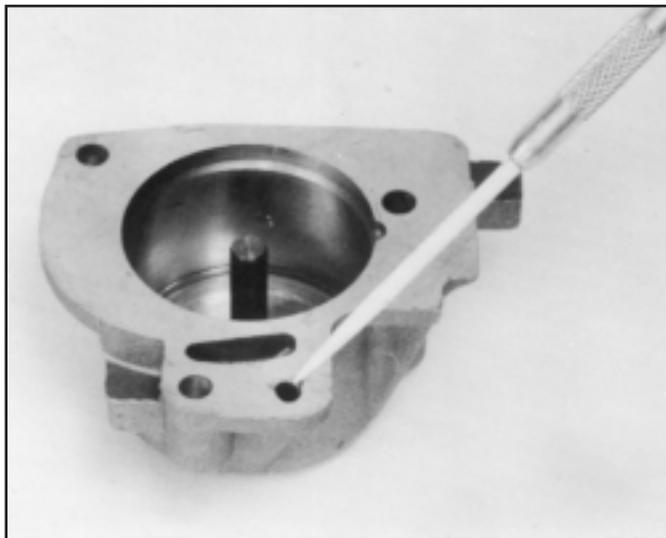
**STEP 17.** Install the throttle pressure mechanism. Attach the cable linkage to the large lever. Holding the large lever down and small lever up, slip the mechanism over the roll pin on the valve body and install two bolts. **(See Photo 5.)**

**STEP 18. 1-2 ACCUMULATOR ASSEMBLY:**

**STREET:** Install the accumulator piston into the housing. Install the large orange spring supplied with this kit.

**HEAVY DUTY:** Install the thin spacer (black) into the accumulator piston. Install the piston into the housing. Install the large orange spring supplied with this kit.

**EXTRA FIRM SHIFT:** Install 1/4" x 20 allenhead screw into apply hole. **(See Photo 14.)** If hole needs to be drilled, use a #7 drill bit. Clean and deburr before installing into transmission. Discard piston and spring.



**Photo 14** 1-2 Accumulator Housing

**FIRM SHIFT:** If shift point is too firm remove allenhead screw and reinstall thin spacer and accumulator piston.

Now you are ready to reinstall accumulator housing assembly. Install using the housing bolts that were kept separated. Tighten the bolts to 8 foot pounds. **NOTE:** If your transmission came with an accumulator separator plate, reinstall.

**STEP 19.** Install all the remaining valve body bolts, the detent roller spring and wire clips. Refer to your wiring diagram. Insert the plug end of the wiring harness into the connector in the case. Install the wire connector onto their proper switches. Tighten the valve body bolts, throttle pressure mechanism bolts and small support plate bolts to 8 foot pounds. Tighten detent roller spring bolt to 10 foot pounds. *Do Not Over Tighten.*

**STEP 20.** Install the Filter Seal Ring supplied onto the filler tube. Lubricate the seal with transmission fluid and install the filter into the

pump. TCI recommends using a new filter. A late model filter will retrofit in *MOST* cases. Check by installing filter and without using a pan gasket, install pan. If pan does not fit flush with pan rails use early filter and two O-rings. TCI offers a deep aluminum pan **(TCI 378000)** for this transmission.

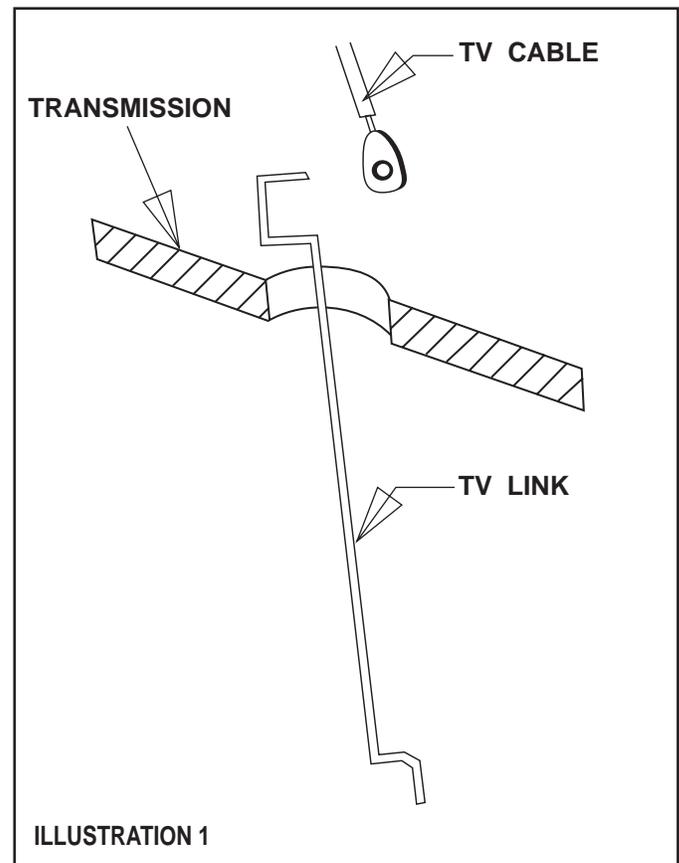
**STEP 21.** Clean all old gasket material from oil pan and the case. Wash pan in solvent and install with new pan gasket supplied. Do not use any gasket sealer. Make sure the servo exhaust hole is not plugged or stopped up. **(See Photo 5.)** When clean gasket material, some can accidentally get into this opening. Install pan bolt and tighten to 10 foot pounds.

**STEP 22. Throttle Cable Adjustment:** Hold gas pedal to the floor and check to be sure the throttle is fully open to wide open throttle position.

**ADJUSTMENT OF THE THROTTLE VALVE CABLE IN A GASOLINE ENGINE.**

**STEP 23.** Adjustment is made with engine not running.

**STEP 24.** Disconnect the Throttle Valve Cable at the Carburetor so the cable can be moved. Remove the plastic plug from the Throttle Valve opening in the transmission, you should be able to see a hook in the opening. With needle nose pliers pull the TV link hook out about half an inch. Next, take the end of the TV cable and hook the TV Linkage hook into the hole at the end of the cable. Now pull the cable at the other end, making sure that the Linkage hook and Cable hook fits under the Throttle Cable housing. Now push the end of the cable housing into the Throttle Valve Cable opening and install the cable. **(See Illustration 1.)**



**ILLUSTRATION 1**

**STEP 25.** Now reconnect the TV Cable to the carburetor or injection lever.

**STEP 26.** Locate the readjust tab. **(See Illustration 2.)** Depress tab and move slider through the fitting away for the lever assembly. When the slider stops against the fitting, release the readjust tab.

**STEP 27.** By hand, open the throttle lever to full or wide open throttle stop position. This will automatically adjust cable. Release the throttle lever and check the cable to see that it is not binding or sticking. **REMEMBER, DO NOT USE ACCELERATOR PEDAL TO ROTATE THE THROTTLE LEVER. YOU MUST ROTATE BY HAND AT THE CARBURETOR. Failure to re-adjust the T.V. Cable will result in improper shifts and/or transmission failure!**

**STEP 28.** Pour five (5) quarts of automatic transmission fluid into the transmission. Start engine and check transmission fluid level. Add additional fluid until fluid reaches full level. *Do Not Overfill Transmission.*

**STEP 29.** Now with the adjustment complete, road test. With moderate acceleration your transmission should shift:

- 1st to 2nd ..... 15 - 20 MPH
- 2nd to 3rd ..... 25 - 30 MPH
- 3rd to 4th ..... 40 - 45 MPH

If the throttle Valve Cable is not adjusted properly, the transmission will shift into 1st, 2nd, and 3rd within seconds of acceleration. **DO NOT CONTINUE TO DRIVE VEHICLE IF THIS HAPPENS.** Readjust cable. If you continue to have problems, please contact TCI's tech department for assistance.

