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TCI[®] 122400

Torqueflite Manual/Automatic Valve Body

This valve body 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.

TOOLS REQUIRED FOR TORQUEFLITE VALVE BODY INSTALLATION

Speed Handle or Ratchet — 3/8" drive	11/16" Wrench
1/2" Socket—3/8" drive	5/16" Allen Wrench
7/16" Socket—3/8" drive	6" Flat Blade Screwdriver
3/8" 12—point Socket — 3/8" drive	Small Flat Blade Screwdriver
3/4" Wrench	Snap Ring Pliers — Needle Tip — Expansion
3/8" Wrench	Torque Wrench 0—250—in. lbs.

DISASSEMBLY

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 stand, wheel ramps, or a hoist will work fine. Make sure vehicle is firmly supported! Try to raise it 1-2 feet so you have plenty of room to work easily. Also, have a small box or pan handy to put bolts in so they won't be lost, and a drain pan to catch oil.

STEP 1. Drain oil pan. Some model Torqueflites have drain plugs. If yours has a drain plug, remove it and allow the fluid to drain, then install drain plug back into pan. If you do not have a drain plug you should consider installing a TCI drain plug kit, no. 27002, at this time. To drain oil remove each pan bolt one at a time, working toward the front of the transmission. Remove the last two bolts slowly and the pan will tilt down to allow the last of the fluid to drain. If the pan sticks to the old gasket, pry it down slightly with a screwdriver before removing the last two bolts to break the seal. After the last bolt is removed the pan can be lowered and set aside.

STEP 2. The valve body will now be exposed. (See Fig. 1.) It is held in place by ten, 1/4-20 bolts. Before the valve body can be removed, you must disconnect shift and throttle linkage. (See Fig. 2.) Throttle linkage is located on the left (driver) side of the case, just above the valve body. The lever is attached to the throttle shaft and held in place with a pinch bolt. Use a 7/16" wrench or socket and loosen the bolt but do not remove it. Use screwdriver to pry the lever up and off the shaft. You may have either of two styles of shift linkage:

A. Shift cable: '62-'65 Torqueflites are shifted by a cable, which enters the case on the left side and engages an adapter link on the valve body. Remove the clip or nut that holds the cable adapter to the manual lever of the valve body. This will disconnect the cable from the valve body. (See Fig. 3.)

B. Shift lever: '66 and later Torqueflites are shifted by a rod and lever similar to the throttle pressure lever only larger. Place transmission shift lever in low gear. Loosen the pinch bolt and pry the lever off.

STEP 3. Now remove the valve body by removing the 10 bolts with a 7/16" wrench or socket. There is a spring between the valve body and the case so remove the last bolt slowly. This will also reduce the amount of oil splatter as the valve body is removed. *For '62-'65 units:* Pull valve body straight down, disconnect cable adapter from valve body. *For '66 and later:* Pull valve the body down and forward to disengage park rod from back of case. It may be necessary to rotate driveshaft slightly to remove rod. There will be a spring (1-2 accumulator spring) between the valve body and case (see Fig. 4), remove it also. Place valve body and spring in oil pan and set them on work bench. Discard 1-2 accumulator spring.

STEP 4. Front band and servo. (See Fig. 5.) Loosen the band adjusting screw located on the front driver's side of the case just above the cooler line fitting. Back the adjusting screw out until you can remove the band apply linkage. This will allow the band apply lever to rotate down and gain access to the front servo. Inspect the servo face to determine which type you have.

Type 1:

A-904 — 6-cyl., 273 and some 318 Chrysler, 6-cyl.
American Motors — '72 and later. A-998 — 304 V-B
American Motors — '72 and later.

Servo cover on above is 2" in diameter — Push up on cover and remove snap ring with a screwdriver. (See Fig. 6.) Remove cover carefully. There will be a small amount of oil behind the cover, remove cover slowly to prevent being splattered. If your transmission has two servo return springs (an inner and an outer), remove the outer spring and reassemble the servo. If your transmission has only one servo return spring, install it as removed. Install cover carefully to prevent damage to sealing ring. Install snap ring as

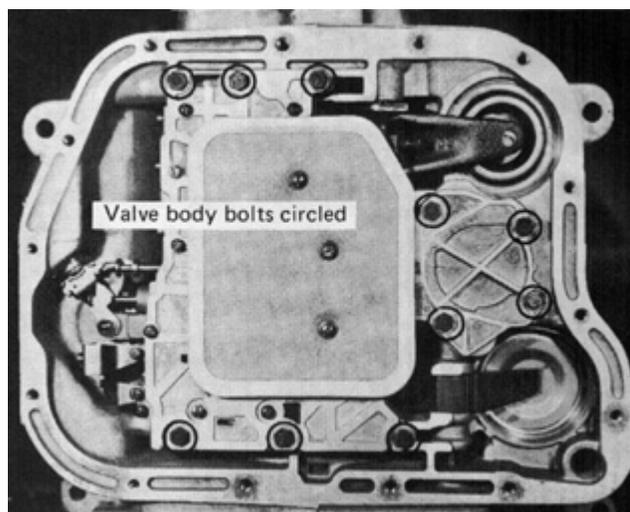
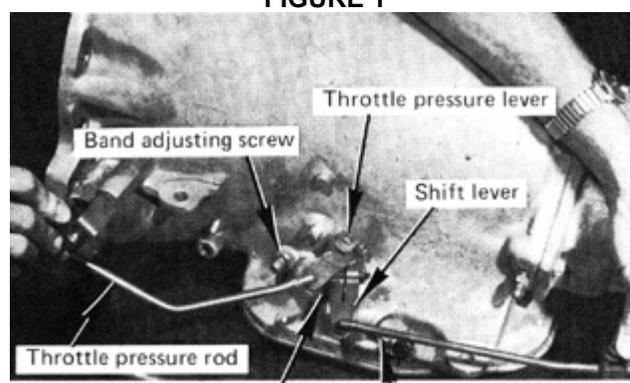


FIGURE 1



Remove these levers in order to remove valve body

Shift linkage rod. Note: Floor shift style shown. Column shift lever comes from front of transmission.

FIGURE 2

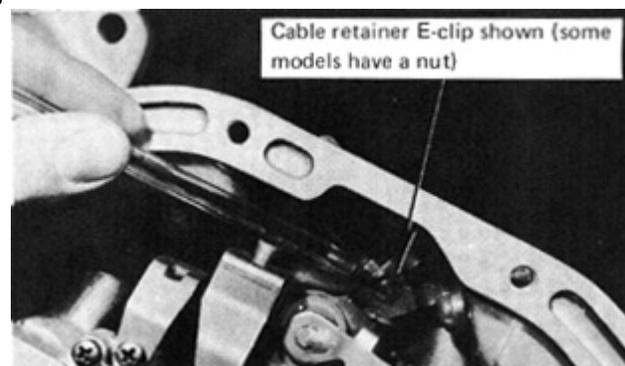


FIGURE 3

removed, making sure snap ring is fully seated in groove.

Type 2:

A-727 — 318 and larger Chrysler V-B's 360 and 401 American Motors V-B's.

Servo cover is 2-3/4" in diameter: — Inspect band apply rod in center of cover. If you have a '71 and later vehicle and the apply rod is 5/8" in diameter, do not disassemble your servo. Proceed to step 5.

If your servo cover has a 5/16" apply rod, push up on the servo cover and remove the snap ring. (See Fig. 6). Remove the servo cover slowly to prevent oil splatter and remove the servo return springs. Install long servo spring supplied with the TCI kit. Carefully install servo cover to prevent damage to seal ring. Install snap ring making sure it is fully seated into its groove.

STEP 5. Install band apply linkage as removed. Run band adjusting screw down to engage anchor and adjust as follows: Tighten band adjusting screw to 72-inch lbs. (snug). Then back off adjusting screw 2 full turns. Hold band adjusting screw and tighten 3/4" jam nut securely.

STEP 6. A-727 only. For A-904 or A-998 proceed directly to Step 9. Rear Band and Servo: Loosen rear band adjusting screw and back it out all the way. Use a long thin screwdriver off band adjusting screw fully to push in on the rear band. (See Fig. 7.) This will allow the band apply strut to drop out of place for removal. After the strut has been removed, the band apply lever can rotate down to gain access to the rear servo. (See Fig. 8.) Remove the rear servo retainer snap ring with a screwdriver. Hold the retainer in place with your other hand so the spring does not jump out and cause lost parts or injury. Remove the retainer, servo return spring and servo piston. Discard servo return spring. Remove the piston slowly to avoid splattering oil. Inspect your servo to determine which model you have:

See Fig. 9. '62 '66— Aluminum Piston assembly with an aluminum inner piston. Depress inner piston, pry spring clip out with a screwdriver and remove small inner spring. Reinstall inner piston as removed and install spring clip back into its groove. Discard small inner spring.

See Fig. 10. '67 and later — Flat aluminum piston with a large external spring visible.

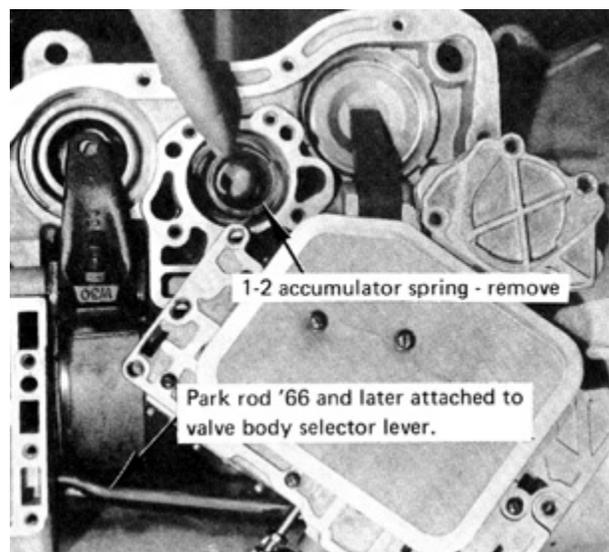


FIGURE 4

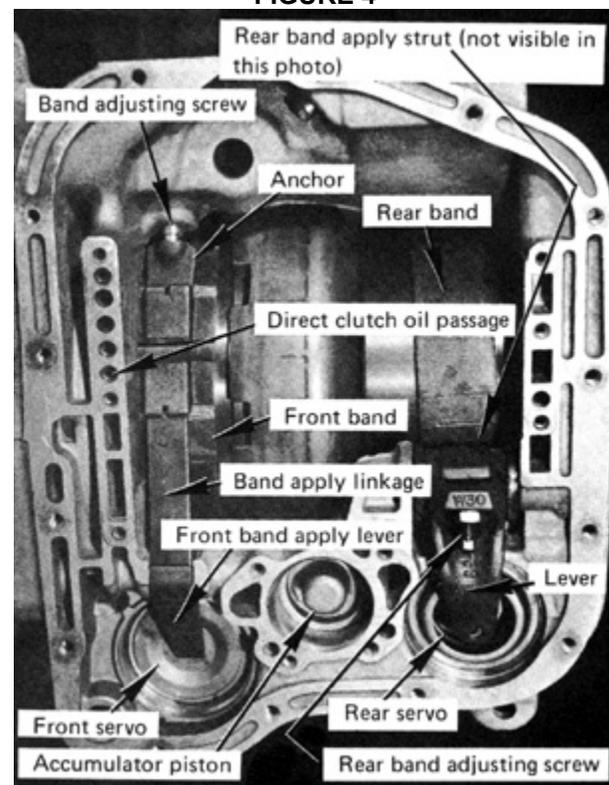


FIGURE 5

Place piston assembly in a vise and compress spring slightly so snap ring can be removed with a pair of snap ring pliers. (See Fig. 11.) Discard old snap ring.

Remove servo from vise carefully and separate halves.

Assemble servo and place in vise to compress spring. Install new snap ring in groove on end of shaft. Do not spread snap ring any more than is necessary.

STEP 7. Install rear servo piston back into case as removed, being careful not to nick the rubber lip seal. Install special rear servo spring supplied with the TCI kit. Install servo spring retainer and snap ring. Make sure snap ring is fully seated into its groove.

STEP 8. Rotate band apply lever up and hold in position. Insert rear band apply strut into place. This is the reverse of the method used to remove the strut originally. (See Fig. 7.)

STEP 9. Rear band adjustment:

A-727 — all — Tighten band adjusting screw to 72-inch lbs. and back off 2-1/2 turns. Tighten jam nut securely.

A-904 — with single wrap band (one solid strap band visible) tighten band adjusting screw to 72-inch lbs. and back off 3-1/4 turns. Tighten jam nut securely.

A-904 and 998 with Double wrap band (three solid strap bands visible) — Tighten band adjusting screw to 72-inch lbs. and back off 4 turns. Tighten jam nut securely.

STEP 10. Accumulator Piston: The accumulator piston is located in the case between the front and rear servos. (See Fig. 5.) Remove the piston by pulling straight down. There will be a small amount of oil behind the piston, so be careful you don't get splattered. If there is a spring behind the accumulator piston, remove and discard it.

Install furnished cupped orifice plug into direct clutch oil passage in front of case. (See Fig. 5.) Tap plug in place with a punch until it is below the case surface.

You have now made all the modifications necessary to the case and transmission.

REASSEMBLY

STEP 11. Guide the valve body up into the transmission. '66 and later models: Insert the park rod into the hole in the

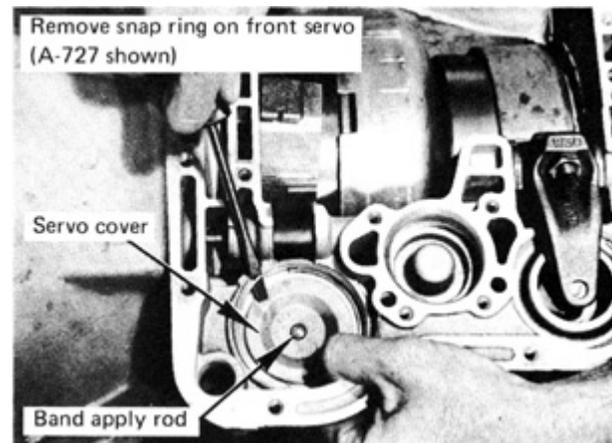


FIGURE 6

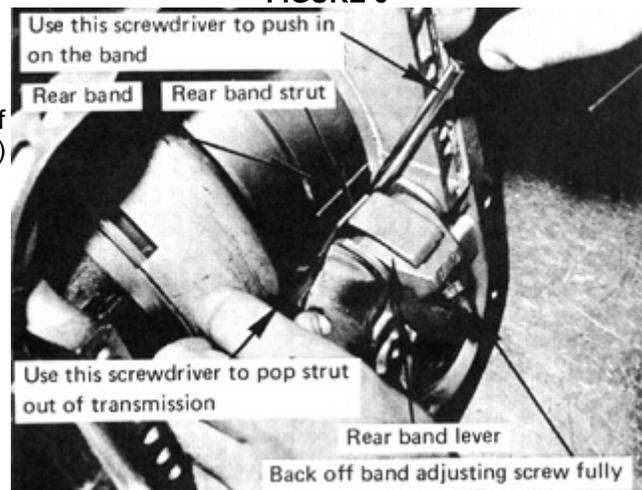


FIGURE 7

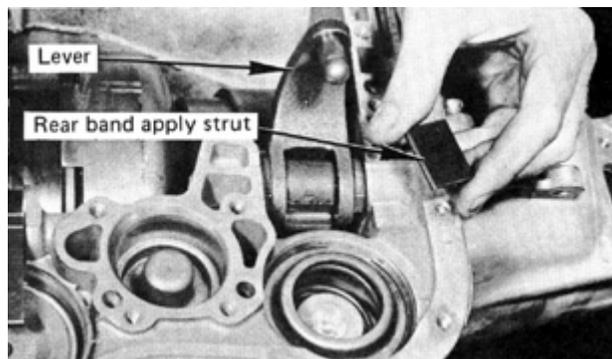
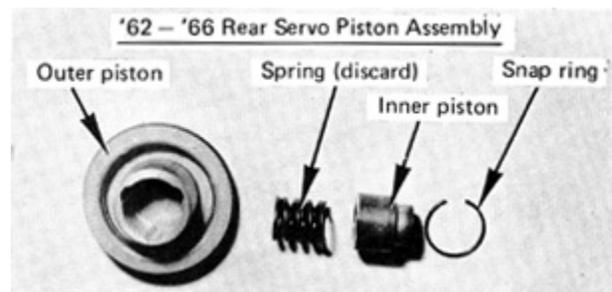


FIGURE 8



rear of the case and rotate drive shaft until the rod engages the pawl. (See Fig. 13.) Align valve body with case and install valve body against case. (Be careful not to damage neutral safety switch. A small screwdriver can be used to retract the switch out of the way during installation.)

Install ten valve body-attaching bolts and tighten finger tight. Valve body should sit flat against the case with only hand pressure. Any obstructions that are holding it away from the case must be corrected now. Tighten bolts to 100-inch lbs.

A. '62-'65 — Attach cable adapter to manual lever and install E-clip or nut. Make sure throttle pressure shaft seal is in place on top of case and install throttle pressure lever. Tighten pinch bolt. Check shifter adjustment by placing shifter in all gear positions and check position of the manual lever.

B. '62-'65 cable shifter adjustment — Place shifter into Reverse (push-button) or Park (console-column), remove adjusting wheel lock bolt and rotate wheel counter clockwise to end of threads. Push in on cable to load manual lever slightly and rotate adjustment wheel clockwise until it just touches the case. Line up nearest lock bolt hole in case. Now turn wheel clockwise 5 adjustment holes. Install lock bolt and tighten to 100-inch lbs.

C. '66 and later — Install shift lever over manual lever shaft and tighten pinch bolt. Install throttle pressure lever over throttle pressure shaft and tighten pinch bolt securely.

D. '66 and later shifter adjustment — Place shifter in park position. Loosen the pinch bolt on the shifter rod (which is located on the end of the rod away from the transmission) and let the rod seek its own position. Tighten the pinch bolt and check the feel of the shifter. The detent position should be close enough to the gate stops in neutral and drive so that the shift selector lever will not remain out of detent position when placed against gate and released.

FIGURE 9

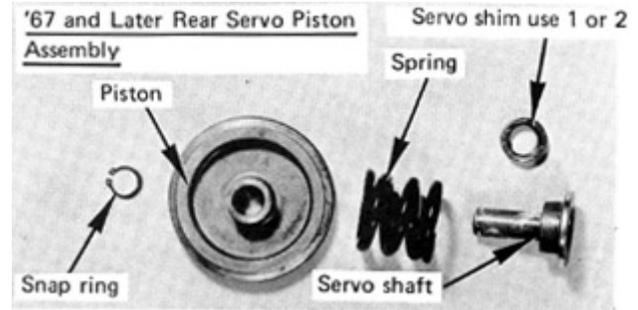


FIGURE 10

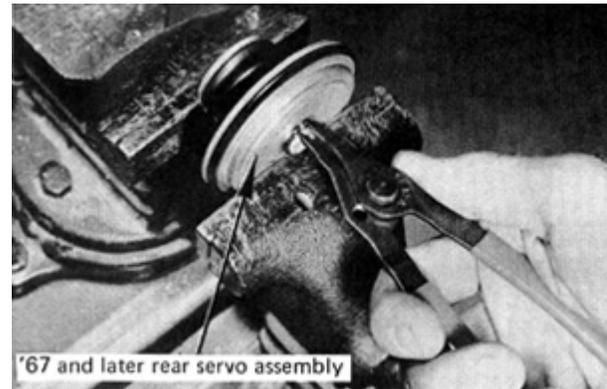


FIGURE 11

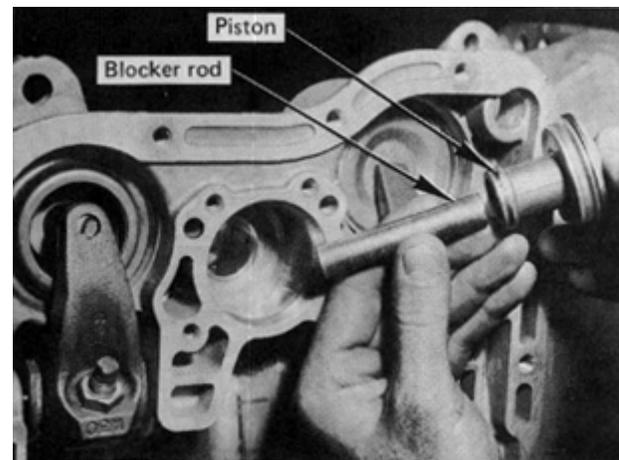


FIGURE 12

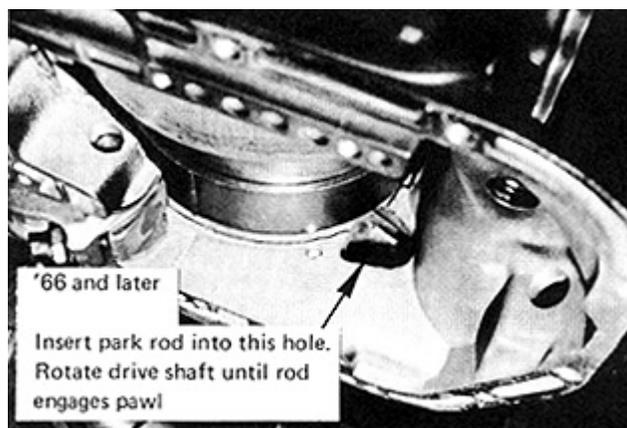


FIGURE 13

STEP 29. Clean oil pan and install in place with new gasket supplied with kit. (904 gasket not supplied). Install 14 pan bolts and tighten to 150-inch lbs. Check your drain plug if you have one and make sure it is tight!

STEP 30. Throttle Pressure Adjustment: Make sure carburetor is off fast idle cam so throttle is in normal idle position. (Hot idle position). Have someone push the throttle lever on the transmission all the way forward. Adjust the throttle pressure rod so there is no back lash between the operating stud on the carburetor and the back of the slot on the throttle pressure linkage. Lower the vehicle but keep the rear wheels off the ground if possible. Pour four quarts of TCI Racing Transmission Fluid into the transmission. Start the engine and allow it to idle in neutral. Check the fluid level and fill to the "add" mark. Shift the transmission through all gear positions. If the rear wheels are off the ground, allow the transmission to shift through all three gears several times. Check the oil level and make sure it is at least at the "add" mark. Drive the vehicle for one or two miles to thoroughly warm the fluid. Minor adjustments in shift points can be made at this time. Shortening the rod will lower shift points, lengthening the rod will raise shift points. Note: All vehicles must have throttle pressure linkage regardless of intended use. Running this transmission without throttle pressure linkage will damage it.

Check fluid level with engine running and shifter in neutral and make sure the level is between the "add" and "full" marks. Do not overfill! This will cause foaming and overheating.

TORQUEFLITE TROUBLE SHOOTING GUIDE

Malfunction	Probable Cause
Slips	<ul style="list-style-type: none"> • Low fluid level
Overheating, foaming oil at dipstick or breather	<ul style="list-style-type: none"> • High fluid level • Clogged or blocked cooler
Erratic shifting	<ul style="list-style-type: none"> • Throttle pressure link sloppy, loose or misadjusted Shifter misadjusted • Low fluid level • High fluid level

	<ul style="list-style-type: none"> • Valve body bolts or end plate screws loose
Early shifts	<ul style="list-style-type: none"> • Throttle pressure linkage misadjusted
Late shifts	<ul style="list-style-type: none"> • Throttle pressure linkage misadjusted
Leaks	<ul style="list-style-type: none"> • Clean transmission first and observe, check pan gasket and bolt torque
Will not up shift	<ul style="list-style-type: none"> • Throttle pressure linkage too high • Shift valves burred and sticking, loose bolts
Soft shifts under power	<ul style="list-style-type: none"> • Throttle pressure linkage too low • Low fluid level • High fluid level causing foaming • Pressure regulator
Engine revs on 2—3 shift	<ul style="list-style-type: none"> • Check band adjustment • Remove cupped orifice plug

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