



Installation/Modifications Instructions

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T400 MANUAL VALVE BODY FORWARD SHIFT PATTERN Part #403300

PACKING LIST

- | | |
|---|---|
| <input type="checkbox"/> (1) Compu-Flow Manual Valve Body | <input type="checkbox"/> (1) #403252 Gasket |
| <input type="checkbox"/> (1) #403110 Separator Plate | <input type="checkbox"/> (1) #403253 Gasket |
| <input type="checkbox"/> (1) #407010 Modulator Plug with O-Ring | <input type="checkbox"/> (1) 403300-I Instruction Sheet |

Packed by: _____

***** ENGINE BRAKING IN LOW AND SECOND GEAR *****

VALVE BODY INSTALLATION

1. Raise the vehicle and support with jack stands. Make sure that the vehicle is properly supported! Place a drain pan under the transmission.
2. If your vehicle is equipped with a drain plug, remove the plug and allow the fluid to drain. If your unit does not have a drain plug, remove all pan bolts except the two at the front of the transmission. Remove these bolts one at a time, working from back to front. Exercise caution as transmission fluid will splatter erratically during oil pan removal. You might need to reposition the transmission crossmember in order to remove the rear oil pan bolts. If this becomes necessary, support the rear of the transmission to prevent the transmission/engine assembly from moving down and causing damage to the distributor cap and/or engine mounts. As you remove the bolts along the sides of the oil pan, the weight of the fluid will usually cause the oil pan to separate from the transmission case, allowing the fluid to drain from the rear of the oil pan. However, if the pan does not readily separate from the transmission case, insert a screwdriver between the oil pan and the case, and pry gently to begin the draining process. Remove the two front oil pan bolts slowly (about one turn at a time) and fluid will drain at a steady rate from the rear of the oil pan. Drain the oil pan completely and keep it nearby to hold bolts and small parts.
3. Remove the transmission filter. Early model (pre-1968) units have a canister type filter that is located on the driver side of the transmission. Remove this filter by simply pulling straight down. Watch out for oil splatter as there will usually be some residual fluid between the transmission case and the filter. Later model transmissions (1968 and later) use a large flat filter which is retained by a single shoulder bolt near the center of the valve body. Hold the filter as you remove the bolt with a 1/2" socket and remove the filter from the filter intake pipe. Pull straight down to remove the intake pipe from the transmission. There is an o-ring that is used to seal the intake pipe at the case. If the o-ring does not come out with the intake pipe, reach into the case bore and remove the o-ring.
4. If you are not familiar with this transmission, it is a good idea to take a close look at the manner in which the manual valve groove is engaged by the inner selector lever pin. Also note the position of the detent spring, the detent solenoid, and the governor tubes. Take a few minutes to familiarize yourself with these components and you will breeze through the installation.

The intermediate servo assembly is located inside of the transmission case above the valve body. It may fall out when the valve body is removed. Be prepared so that you don't lose any servo parts.

5. 1970 and later model transmissions may have a spark advance switch on the valve body. If your transmission is so equipped, remove the wire and discard it.

6. Remove the valve body attaching bolts. Three bolts require a 7/16" socket and the remaining bolts require a 1/2" socket. Hold the valve body as you remove the last bolt in order to prevent the valve body from falling. Use caution as there will usually be some residual fluid trapped under each component that is removed. Do not allow the manual valve to fall out of the valve body. Use a large screwdriver to gently pry the governor tubes from the case if necessary. Discard governor tubes.
7. Remove the detent solenoid retaining bolts with a 7/16" socket. Hold the separator plate as you remove these bolts. There will be up to seven 1/4" diameter check balls between the plate and the transmission case. You will need two of these check balls for reassembly. Carefully inspect the transmission case for any pieces of the old valve body gasket and use a single edge razor blade to remove any gasket material from this surface. Make sure that the case and valve body surfaces are very clean because dirt or any sticking gasket material will prevent the valve body from properly mating with the transmission case. Either allow the detent solenoid to hang on its wire or disconnect the wire and set the solenoid aside.
8. Use a small amount of grease to retain the valve body gaskets on the ATI separator plate. The larger of the two gaskets should be installed between the separator plate and the transmission case and the smaller of the two gaskets should be installed between the separator plate and the valve body. Place two check balls on the separator plate or in the transmission case. Check ball locations are shown in the diagram (page 3). Use two clean oil pan bolts to hold the separator plate in place as you install the detent solenoid. Hand tighten the solenoid bolts at this time. These bolts will be torqued after the valve body has been installed. Remove the oil pan bolts that were in place to hold the separator plate.
9. Clean your stock manual valve, dip it in clean transmission fluid, and install into your ATI valve body. Install the valve body. Make sure that the groove in the manual valve is engaged with the pin on the inner linkage. Do not use the valve body bolts to draw the valve body onto the transmission case. Start two or more bolts and then hold the valve body flush as you start and hand tighten the remaining bolts. Install the detent roller spring and make sure that the roller is in position on the inner linkage. Now torque all valve body bolts to 10 ft. lbs. or 120 in. lbs. Also torque the solenoid retaining bolts to 10 ft. lbs. or 120 in. lbs. Do not connect the solenoid wire.
10. Install the o-ring on the filter pick up tube. Lubricate the o-ring with transmission fluid and install into the case bore. Move the tube side to side as you hold pressure toward the transmission case and the tube will slide easily into place. Place filter with sealing grommet onto tube. Install filter bolt and torque to 10 ft. lbs. or 120 ft. lbs.
11. Remove any pieces of old pan gasket from the transmission case and oil pan. Clean the oil pan and install using a new pan gasket. Secure all pan bolts evenly and then torque all pan bolts to 150 in. lbs. If you have removed a drain plug, install it now and tighten securely.
12. Always check shifter adjustment after installation. Never adjust shifter linkage or cable in the park position. Always start adjustment/alignment with the shifter and transmission in high gear. After setting cable or linkage in high gear, make sure that your linkage or cable aligns perfectly with the transmission lever in all other gear positions. Proper shifter adjustment is vital and critical to proper operation of the transmission. Do not operate without verifying proper shifter adjustment. Secure your linkage or cable appropriately when finished.
13. **RACE TRACK ONLY:** Remove the vacuum modulator and install the modulator plug. Make sure that the o-ring is in place to prevent leaks. If you want to soften the shifts for street use, hook the vacuum line up to the modulator.

STREET/STRIP: Leave the vacuum modulator in place and remove the vacuum line. Block the vacuum source to prevent vacuum leaks.

14. Lower the vehicle. Keep the rear wheels off of the ground if possible. Pour in four quarts of automatic transmission fluid. ATI recommends using a quality brand of Dexron fluid. Start the engine with the transmission in neutral. Check the fluid level with the dipstick and continue adding fluid until it has reached the "ADD" mark on the dipstick. With the brakes on, select each gear position for several seconds each in order to fill all oil circuits. Select the neutral position again and recheck the fluid level. If the level is at the add mark when the fluid is cold, it will probably reach "FULL" mark after the transmission has reached operating temperature. DO NOT OVERFILL!

Always begin your burnout in second gear and then shift to high gear. Drive the car out of the water under power and lift before the tire hooks. Never allow the tires to hook during burnout as this can cause sprag failure. For your own safety and protection, never operate without an approved transmission shield. Order ATI part #406610.

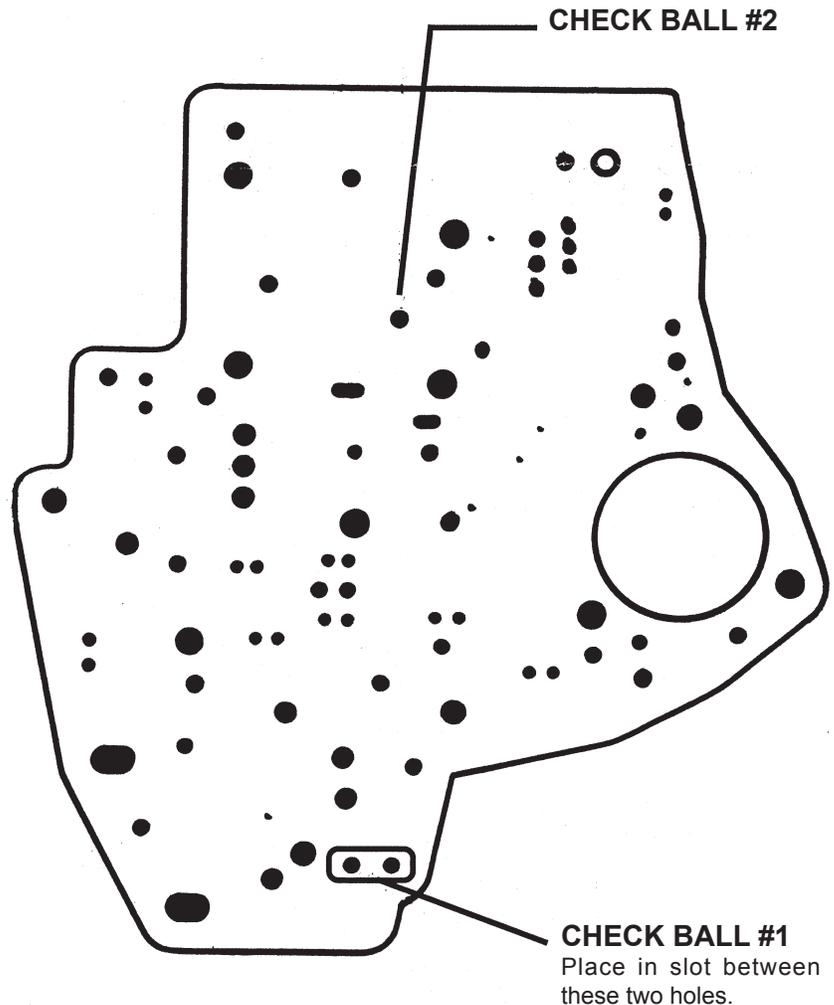
MODIFICATIONS

Use normal assembly procedures for the T400 transmission with the exception of these modifications:

ELECTRIC KICK-DOWN

Disconnect the electric kick-down switch by cutting the wire on the switch. This switch must be reinstalled to ensure proper operation. See step #9.

NOTE! This valve body will fit all GM T400 transmissions manufactured from 1965 until November 23, 1987. GM added an additional factory metering check ball on units built after November 23, 1987. This valve body is not compatible with those transmissions.



PLEASE NOTE!

Never attempt to **NEUTRAL** the transmission during a shutdown. Keep the transmission in high gear while slowing the car.