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436001 AODE/4R70W Trans-Scat® Kit

This TCI® Trans-Scat kit will service all AODE & 4R70W transmissions from 1992 through 2004. The instructions will vary according to which type you're working with. Complete each step as directed to reach the level of performance desired. If no mention is made in the step as to a level, complete the step for all three levels.

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

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

STREET: This type of modification provides firm, positive shifts and improved holding capacity.

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. The shift is firm but not harsh.

Important: This kit is designed for use in a well working transmission or during a rebuild. If the transmission is slipping or in poor general condition, do not use this kit until the problem is corrected. Dirt and burrs will damage a transmission and cause malfunctions. A clean work area is a must.

Valve Body Modifications

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 has 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. AODE & 4R70W transmissions 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. Remove the filter by pulling straight down. Replace the filter if it is dirty or has not been changed in over 25,000 miles. TCI® part number 438550 is a replacement filter and pan gasket for 1992-1995 transmissions and 438560 is for 1996 & later transmissions.

Step 3. Disconnect the wiring harness from the solenoids. **Caution!** Do not pull on the wires. This may damage wires or connectors resulting in a malfunction. Carefully pry up on the locking tab and disconnect each connector.

Step 4. Remove the twenty-five bolts holding the valve body to the transmission. Remove the EPC solenoid bracket and valve body. Remove the separator plate-to-case gasket. If any gasket material remains, it must be cleaned off completely prior to reassembly.

Step 5. Remove the eleven bolts retaining the reinforcement and separator plates. Remove separator plate and gaskets. Discard gaskets. Remove the check balls, converter drain back valve and solenoid screen being careful not to lose them as they will be reinstalled.

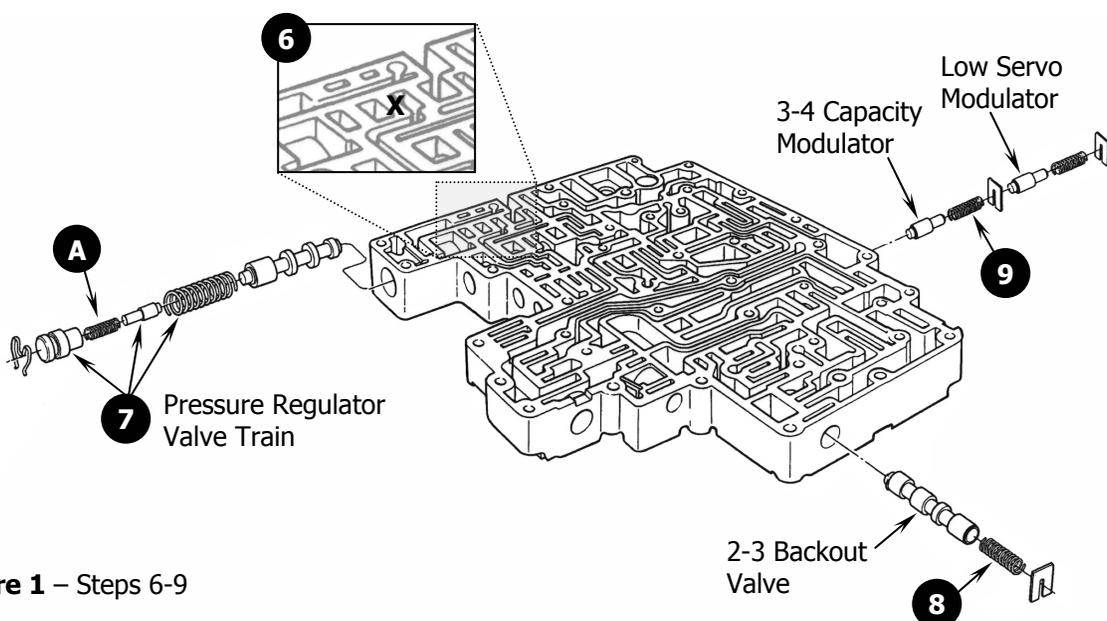


Figure 1 – Steps 6-9

Step 6. See **Figure 1**. Cross drill the valve body at the location marked X to connect the shaded passages using the 1/16" (.062) drill bit supplied. Thoroughly clean the valve body and filter with solvent and blow off with compressed air.

Step 7. Replace the pressure regulator spring with the blue spring supplied. Replace the boost valve and sleeve with the new valve and sleeve supplied. If your valve train has a smaller spring at the location labeled A, remove and discard it from the valve train. Reinstall the pressure regulator valve train.

Step 8. Remove the 2-3 back-out valve from the valve body. Replace the back-out valve spring with the pink spring supplied. If the back-out valve train in your valve body does not have a spring, do not install the pink spring. Reinstall the back-out valve train.

Step 9. Remove the low servo modulator valve and 3-4 capacity modulator valve from the valve body. Replace the spring on the 3-4 capacity modulator valve with the yellow spring supplied. Reinstall both valves back into the valve body as they were removed. Ensure that both retainers are back in their proper locations.

Separator Plate Modifications

Step 10. Drill the separator plate as follows using the drill bits supplied. Be sure to deburr the holes when completed.

All levels:

Hole C. If hole **C** is smaller than 1/8" (.125), drill out to 1/8". If larger than 1/8", leave as is.

Hole D. Drill to 1/8" (.125). If this hole is larger or slotted leave it as is.

Hole E. Drill to 3/32" (.093). If hole **E** is not in the plate, use the gasket as a template and make the 3/32" hole in this location.

Heavy Duty: Drill holes in **A** and **B** to 7/64" (.109).

Street: Drill holes **A** and **B** to 1/8" (.125).

Street Plus: Drill hole **A** to 1/8" (.125). Drill hole **B** to 9/64" (.140).

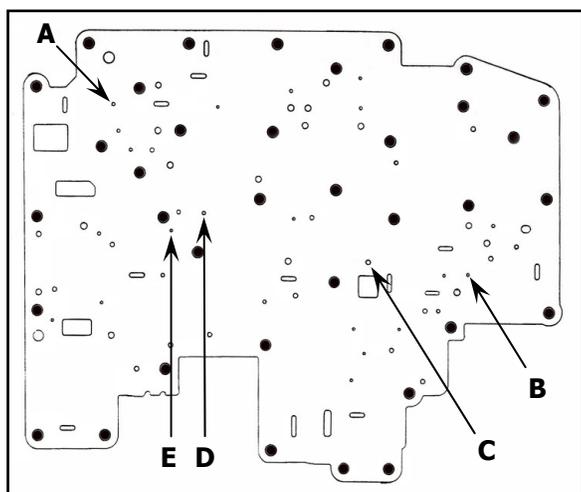


Figure 2 – Step 10

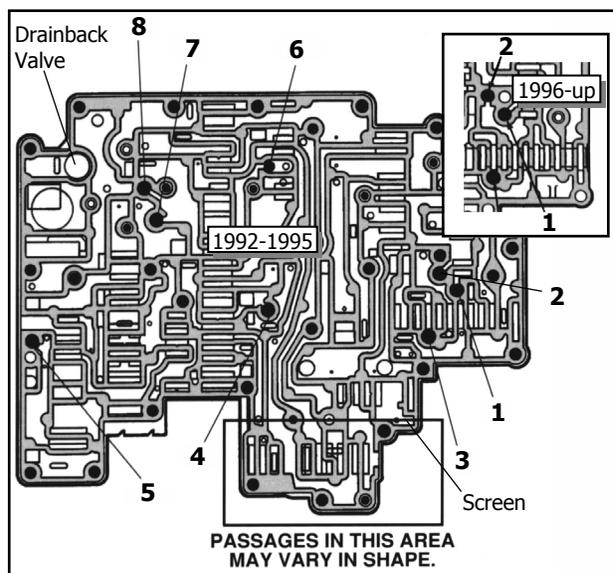


Figure 3 – Step 11

Stiffener Plates

Step 11. Reassemble the valve body insuring that the solenoid screen and drain back valve are in place as shown in **Figure 3**. Reinstall check balls as directed below. Install supplied valve body gasket and torque stiffener plate bolts to 110 inch-pounds. **Note:** Carefully match your plate with the gaskets supplied to be sure you're installing the correct one. Make sure that the gasket is not blocking any holes in the plate.

Heavy Duty & Street: Install all eight balls as shown.

Street Plus: Install seven balls leaving out the ball labeled #8.

Note for all performance levels: If you are working with an earlier transmission (1992-1995), a part upgrade is suggested. The center stiffener plate on the valve body was updated in 1995 to a thicker plate. Under full throttle conditions forward clutch oil may try to exhaust between the valve body and case. The thicker plate offers better support and will help prevent this condition under full throttle. The updated, thicker plate is identified with an ID notch as shown in the illustration. The Ford part number is F4AZ7F282-A. We recommend using this plate on earlier valve bodies.



Step 12. Heavy Duty: Install the white spring supplied inside the original spring on the 2-3 accumulator. Reinstall the original piston and retainer.

Street: Place the two sets of o-rings supplied on the new 2-3 accumulator supplied. Install the piston into the case without any springs. Smear some assembly lube on the o-rings before installing. **Note:** The original stock piston retainer is not reused.

Street Plus: Place the two sets of o-rings supplied on the new 2-3 accumulator supplied. Install the purple spring supplied in the top of the accumulator piston and then place the piston into case. Smear some assembly lube on the o-rings before installing. **Note:** The original stock piston retainer is not reused.

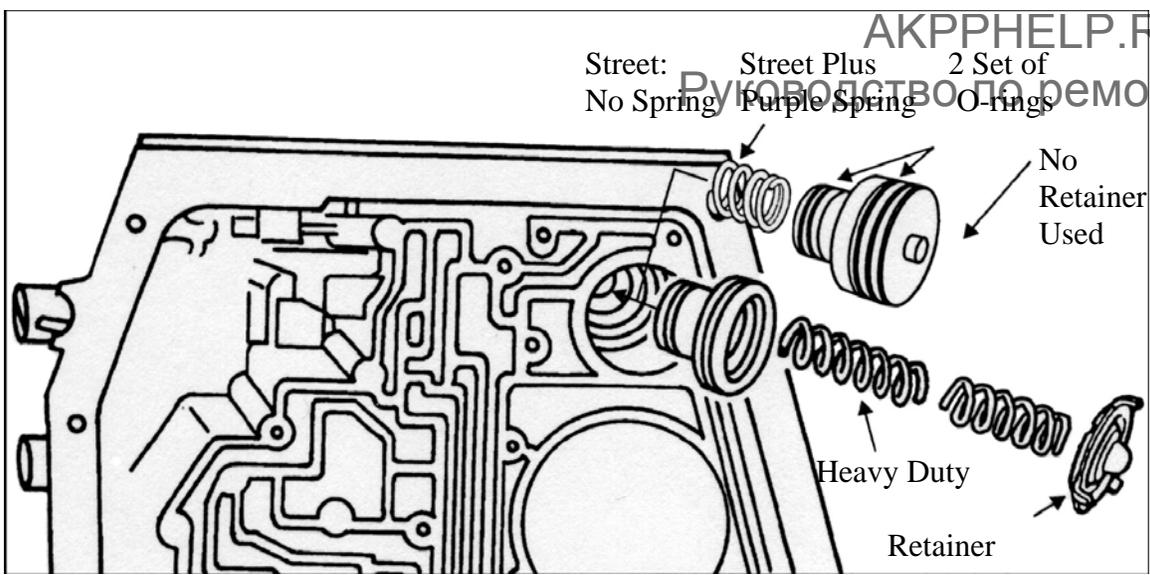


Figure 4 – Step 12

Step 13. Heavy Duty: Remove the 1-2 accumulator piston from the case. Discard all original springs. Install the two red springs supplied into the top of the piston. Reinstall the piston into the case. Install the green spring supplied, retainer and snap ring. **Street & Street Plus:** Remove the 1-2 accumulator piston from the case. Discard all original springs. Install the two red springs supplied into the top of the piston. Reinstall the piston into the case. Install the black spring supplied, retainer and snap ring.

Street & Street Plus: Remove the 1-2 accumulator piston from the case. Discard all original springs. Install the two red springs supplied into the top of the piston. Reinstall the piston into the case. Install the black spring supplied, retainer and snap ring.

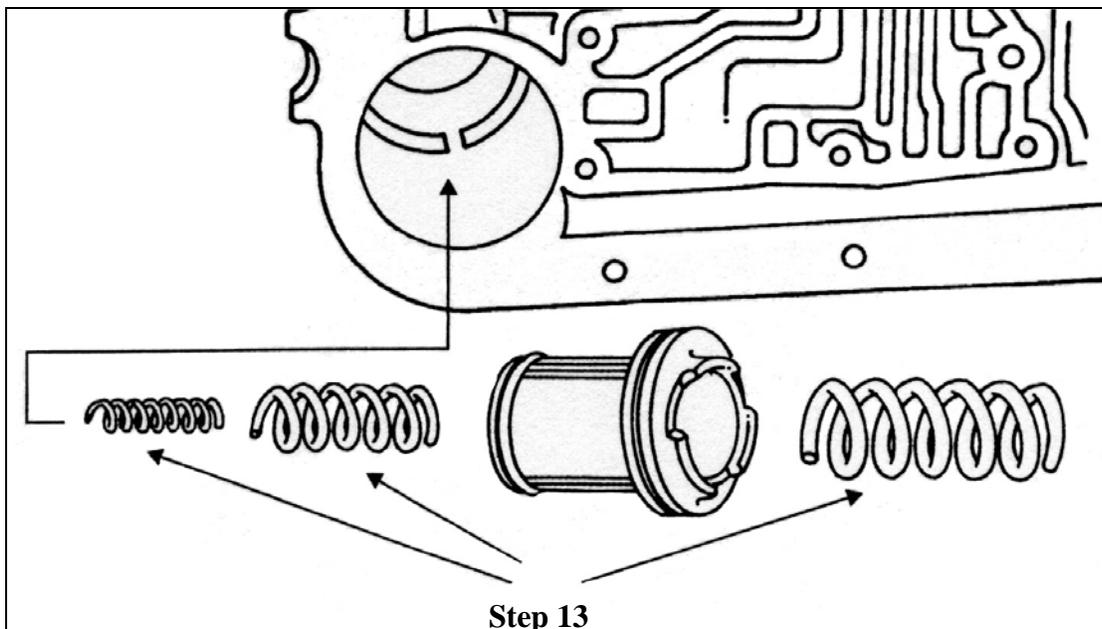


Figure 5 – Step 13

Overdrive Servo Piston

Step 14. Remove the overdrive servo from the bore. It's located toward the front of the case on the opposite side of the 1-2 accumulator. Remove the servo pin, cushion spring and seat from the piston and install them on the servo piston supplied. If the servo bore has a sleeve in it, remove and discard it from the case. Install the new servo into the case reusing the stock return spring. Insure you have caught the band with the pin when reinstalling.

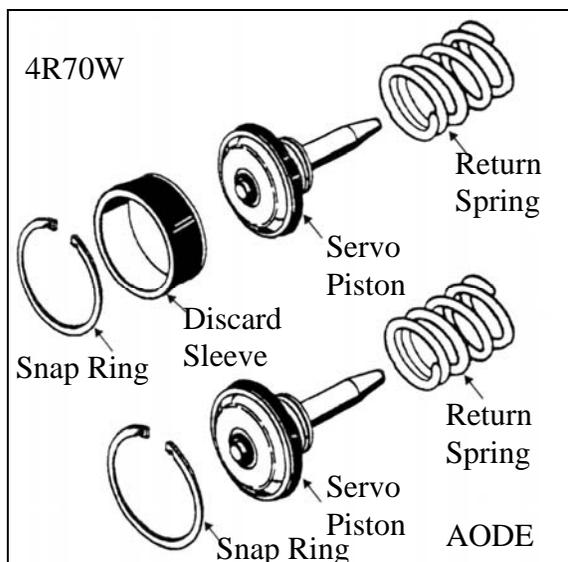


Figure 6 – Step 14

Step 15. Reinstall the valve body to the case using the new case gasket supplied. Torque all the valve body bolts to 120 inch-pounds. Install filter. Insure all solenoids are plugged in securely. Install oil pan using new gasket supplied. Refill transmission with fluid (approx. 7 to 8 quarts) until fluid is just over the fill mark with the engine warm and running in Park.

Step 16. This step is only necessary if rebuilding the transmission.

- a. Remove and discard the O.E. snap ring on the 2nd gear roller clutch from the Reverse Clutch Drum.
- b. Install the G-lock ring with cup side facing up.
- c. Walk spiral ring into retaining groove moving the G-lock ring as needed to allow enough clearance for the spiral ring to go into position.

Note: Make sure the spiral ring is fully seated in the groove all the way around the hub. Insure the ring is installed in the direction illustrated.

- d. Stake the G-lock ring in six places across from the six dimples in the sprag retainer. Stake the G-lock as follows.
 - i. Using a flat punch and hammer, lightly tap the wall on the G-lock ring at about a 45 degree angle.
 - ii. After the wall has bent in toward the spiral ring, tap one more time straight down, bending the wall of the G-lock ring closer to the top of the spiral ring. (The wall of the G-lock ring does not have to be touching the spiral ring.)
 - iii. Stake the G-lock ring in the sequence as shown in the illustration.

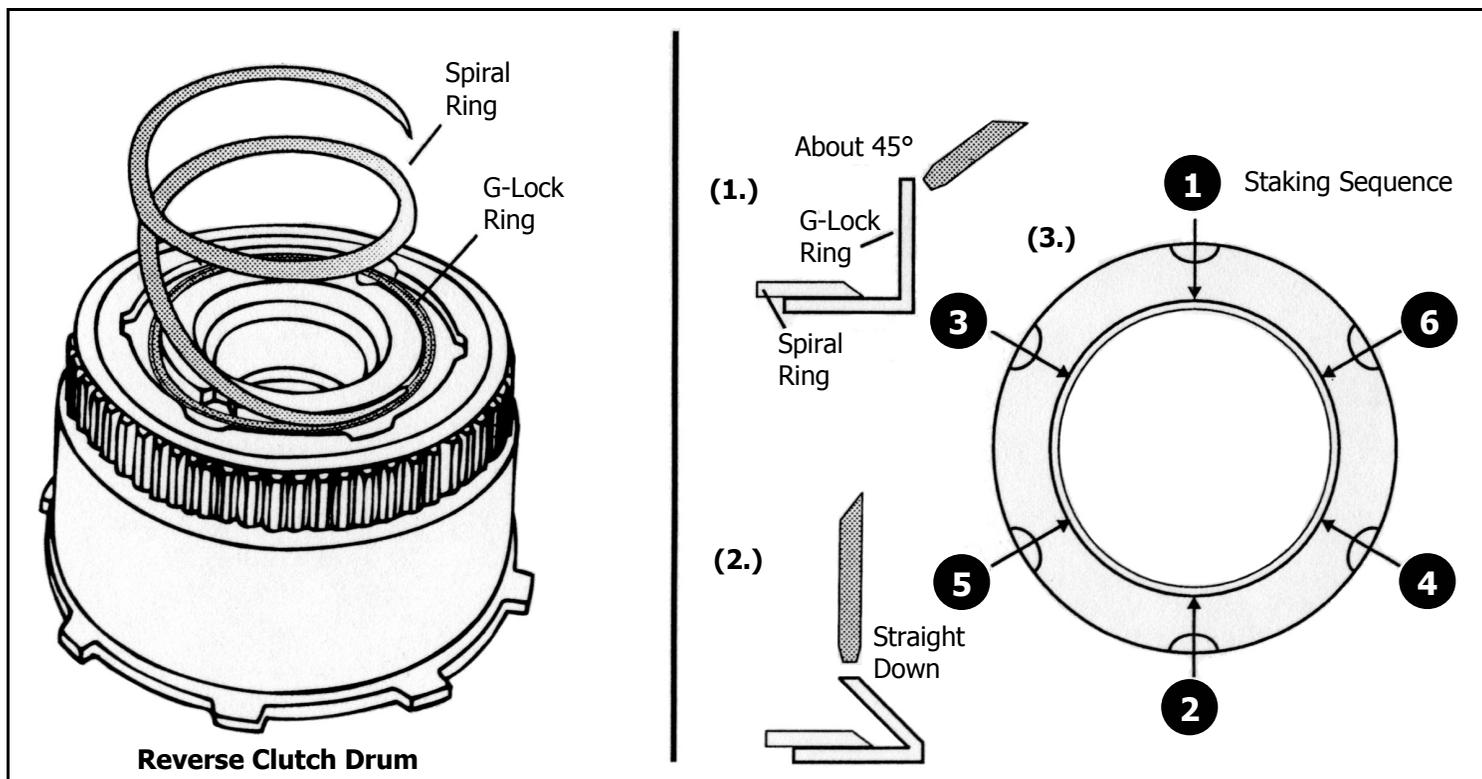


Figure 7 – Step 16

Step 17. This step is only necessary if rebuilding the transmission.

Drill the hole labeled **A** in the pump stator shaft to 3/32" (.093) using the drill bit supplied. **Note:** hole **A** is the first hole back on the stator shaft from rear side of pump. Only open the hole size. **Do not drill through shaft.**

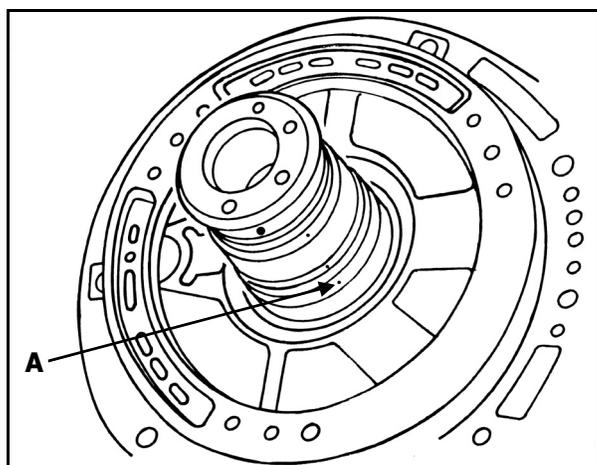


Figure 8 – Step 17

Suggested Part Upgrade:

If the transmission is being rebuilt at this time, we suggest replacing the intermediate stub shaft with Ford part number F8AZ-7F351-AA. To identify the new upgraded shaft, look at the area behind the small splines. The new part does not have a groove before the splines start on the shaft.