

INSTALLATION INSTRUCTION FOR TURBO-II 2-SPEED "BILLET BRAKE" KIT FORWARD PATTERN (#22030-AL)

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*** COMMITMENT * PERFORMANCE * RELIABILITY ***
*** A WINNING COMBINATION ***

The scope of these instructions will be aimed at the installation of this kit and it is assumed that the transmission will be rebuilt properly to work with this valve body. If necessary refer to a transmission manual for detailed instructions on disassembly and reassembly of the Turbo Hydromatic 400 transmission.

Note: Valve body is full manual with a forward shift pattern P-R-N-2-1. As a safety feature, the trans brake is only functional in first gear and reverse. Reverse is activated by engaging the Trans Brake in reverse position. This valve body will work with any Powerglide Forward Pattern Shifter.

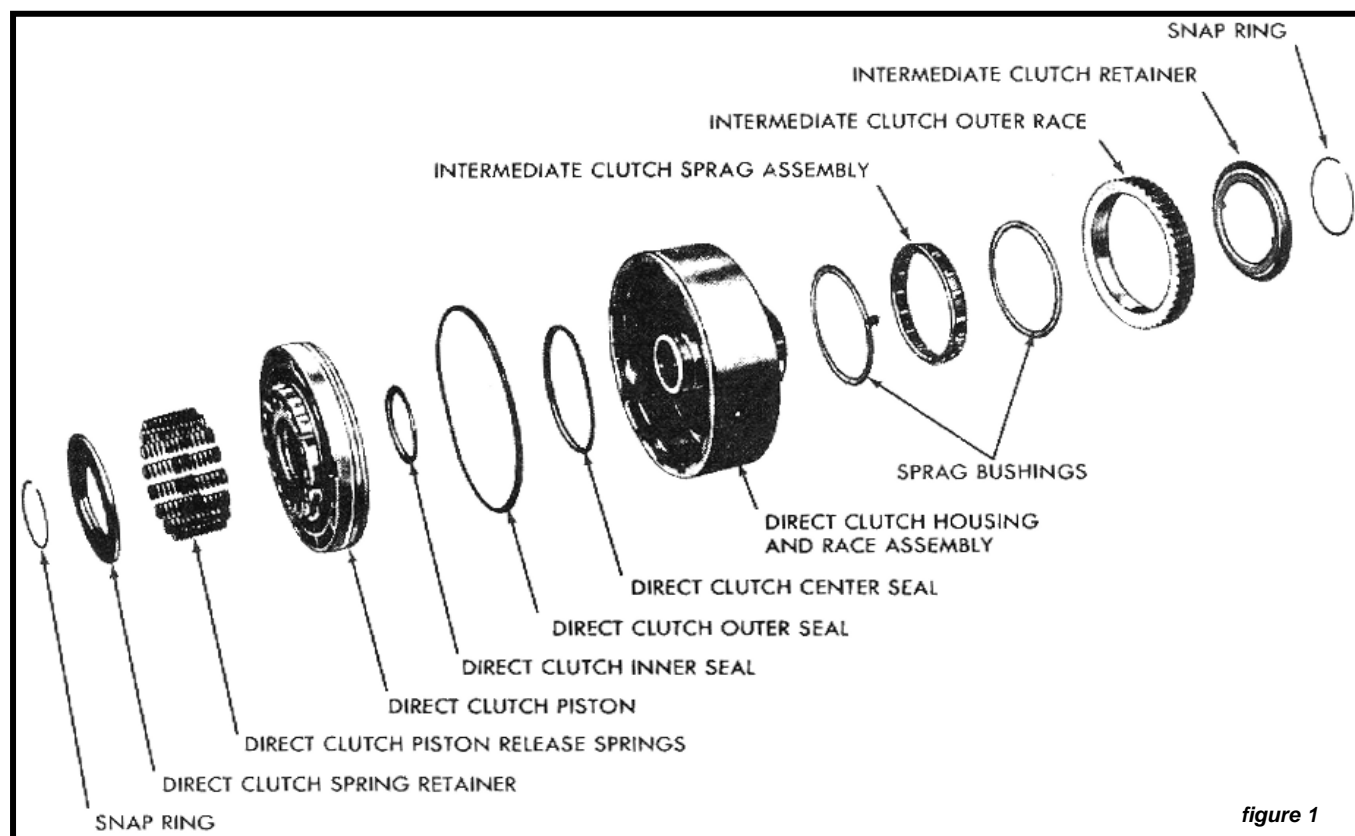
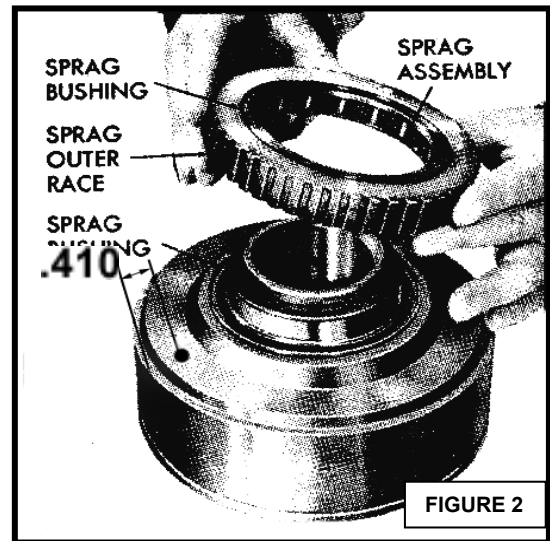
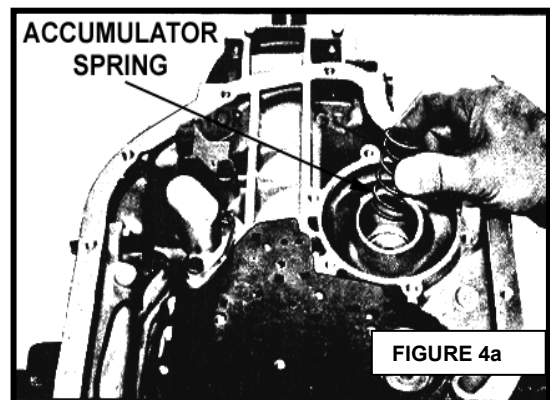
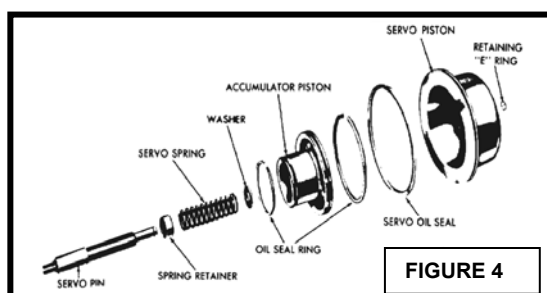
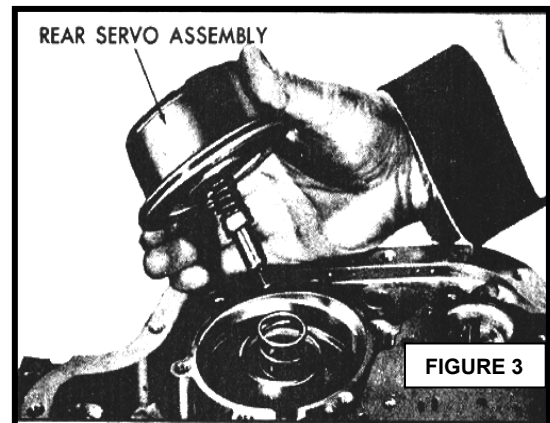


figure 1

1. It is recommended to replace the stock direct drum assembly with COA-22815, COA-22816, or COA-22817 Billet Drum for any 2-speed application.
2. If you are using a Direct Drum which maintains provision for the center/middle lip seal, discard this seal. This valve body utilizes the entire area of the piston for both Direct and Reverse.
3. If using a direct drum that is not equipped with a high flow checkball(s), it is necessary to drill a constant bleed orifice in the drum, using a 1/16" drill. A drill press should be used for this operation. At any place on the outer circumference of the drum, measure in from the edge .410" and place a center punch mark.
figure 2
4. Drill through the drum, being careful not to let the drill score the machined surface for the outer lip seal, as it breaks through.



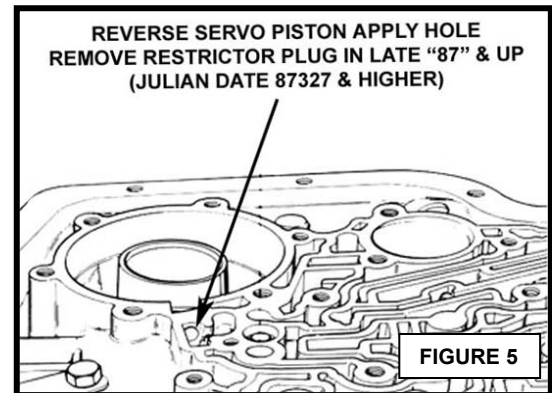
5. After orifice has been drilled, drum is ready for reassembly. Discard 16 stock release springs and replace with 16 new springs furnished. Replace retainer and snap ring. Assemble clutches and steels. A .050 - .060 clutch pack clearance is recommended. Install drum, discard front band, and reassemble transmission.
6. The Low Roller Clutch/Sprag may be omitted when using a Billet Aftermarket Direct Drum
7. As supplied, the valve body is intended to be used with a solid hub to replace the stock intermediate clutch pack. Coan Engineering offers hubs to accommodate multiple direct drum sprag race splines.
8. If you prefer to use an Intermediate Clutch Pack in-lieu of a solid hub, modifications must be made to the separator plate, Figure 6
9. Remove existing valve body, separator plate, and gaskets. Discard all check balls. Remove rear servo assembly. *figure 3* Remove and discard oil-sealing rings from servo accumulator piston (Figure 4) and discard stock accumulator spring (Figure 4a). Install new accumulator spring furnished in kit and replace servo assembly and cover.



10. For installations in late model cases that are equipped with a factory installed restriction in the Reverse Servo Piston apply hole, remove and discard the restrictor. The restrictor resembles a freeze plug installed in the apply hole. *figure 5*

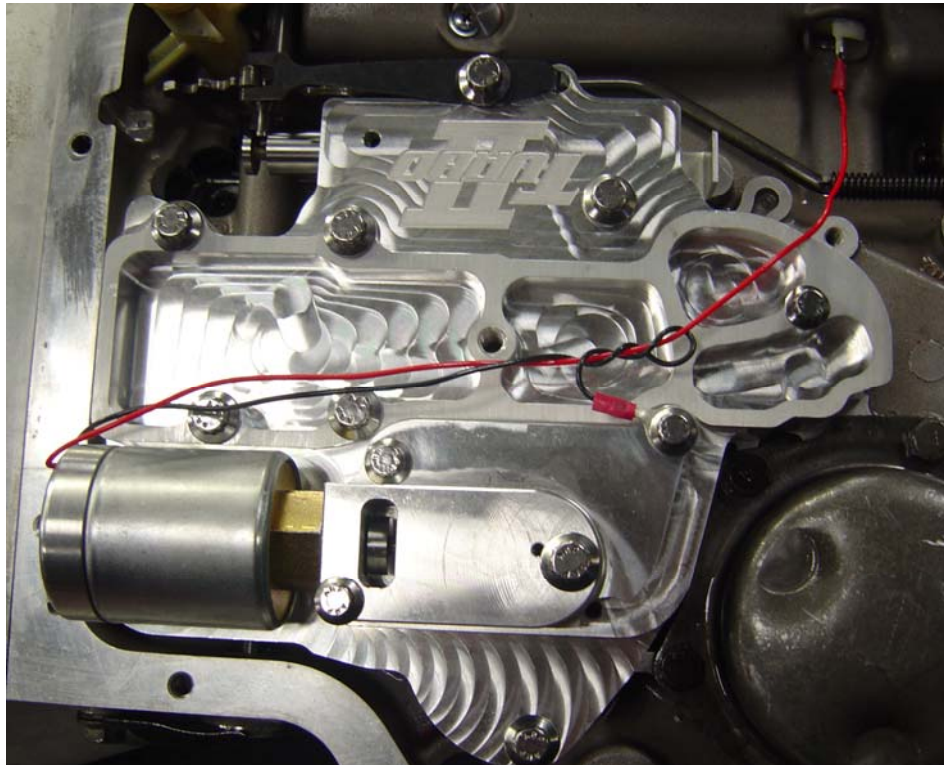
11. Use new separator plate with NO gaskets

12. Install Billet Valve Body using the supplied Manual Valve (Only this Manual Valve will Work). Tighten some of the valve body bolts including the FHSCS under the Solenoid Block.



13. Install the solenoid block and the remaining valve body bolts, grounding the black lead from the solenoid under a center valve body bolt. The valve body may have provisions for 1 more bolt than the case you are using. If so, you can either drill and tap the case for the additional bolt or omit that bolt.
14. Install the supplied case pass through wiring connector (Kickdown Connector) in the transmission case. Attach the Red lead from the solenoid to the case connector.
15. Remove and discard vacuum modulator or existing solenoid. Place spring furnished over stock modulator valve (not included) and install in case. Next install the supplied aluminum modulator plug with "O" ring and tighten in place with the stock modulator clip.
16. **Cooler fittings should never be plugged.** If a cooler is not used, connect the lines together with a loop.

After assembly of transmission is completed, necessary wiring for the solenoid can be done. Position the momentary switch on the shifter or wherever it is comfortable. Run a wire from lead of switch to a twelve volt source, the other lead is connected to outside terminal on case connector. To ensure good ground, it is recommended that a chassis ground be connected to the transmission case. Be sure to use good wiring connections.



TH400 2-Speed "Billet-Brake" Components

1. Billet Valve Body
2. Solenoid Block Assembly
3. Separator plate
4. Manual valve
5. Rear accumulator spring
6. Modulator Plug and o-ring
7. (16) Direct clutch springs
8. Modulator valve spring
9. Case Wiring Connector

If you have any questions regarding the proper installation and/or operation of a Coan Racing product, please call (765) 456-3957. You may also fax us at (765) 456-3960, or e-mail at coan@coanracing.com.

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