

# **PART # 4VB/RPFM**

## **Reverse Pattern Full Manual Valve Body**

**This product has been designed, engineered and tested to meet the highest quality standards obtainable for performance, consistency and durability.**

**NOTES: This product is for off road racing and competition usage only. This product should be installed by a professional transmission mechanic who is fluent with servicing the GMTH400 transmission. This valve body does not retain engine braking in manual low or manual second gear. Removal of the intermediate servo and the intermediate band is required. If any of the clutch pistons in the transmission are the OEM stamped steel type, be sure to replace them the OEM cast aluminum type.**

### **Kit Contents:**

- 1 High Rate Pressure Regulator Spring**
- 1 Pressure Regulator Bore Plug**
- 1 Rear Servo Spring**
- 16 Direct Clutch Release Springs**
- 1 Intermediate Clutch Backing Plate Snap Ring**
- 1 Intermediate Clutch Snap Ring Support**
- 1 Valve Body Assembly**
- 1 Separator Plate**
- 1 Detent Solenoid Delete Plate**
- 1 Modulator Bore Plug**
- 3 Valve Body Mounting Bolts**
- 1 Brass Set Screw**

## Oil Pump Modifications

Remove the OEM pressure regulator components and replace them with the supplied High Rate Pressure Regulator Spring and Pressure Regulator Bore Plug. See Figures 1 and 2.



FIGURE 1



FIGURE 2

## Rear Servo Modifications

Remove the rear servo assembly from the transmission case. Remove the rear accumulator piston and spring from the rear servo. The rear accumulator piston and spring will be replaced with the supplied rear servo spring. See Figures 3 and 4.

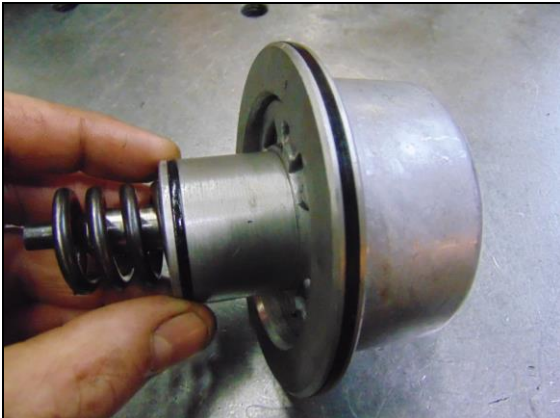


FIGURE 3

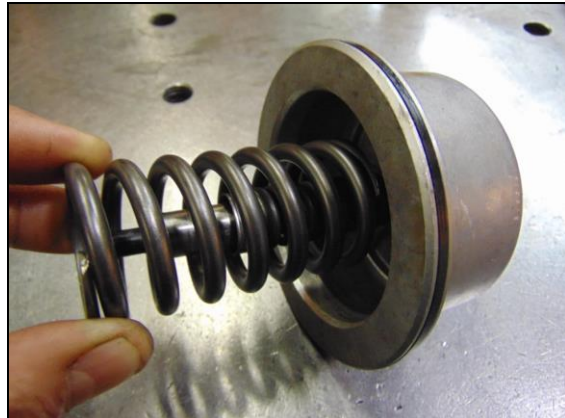


FIGURE 4

## Transmission Case Modifications

Check the case for the presence of an orifice cup plug installed in the rear servo feed passage. See Figure 5. If present, drill the orifice in the cup plug out to a minimum of .125". Install the vacuum modulator bore plug in place of the OEM vacuum modulator assembly. Figure 6.

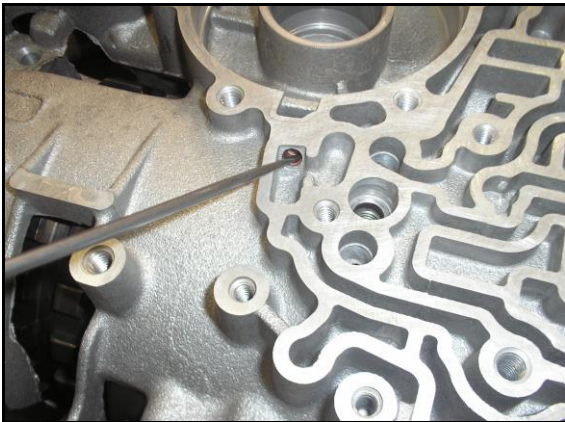


FIGURE 5



FIGURE 6

## Direct Clutch Housing Modifications

Remove the center lip seal from the direct clutch housing. Install the 16 supplied direct clutch release springs. Set direct clutch clearance to .040" to .060". Note that the use of waffle type direct clutch plates will improve 2-3 shift feel, as well as reduce spin losses, improving operational efficiency.

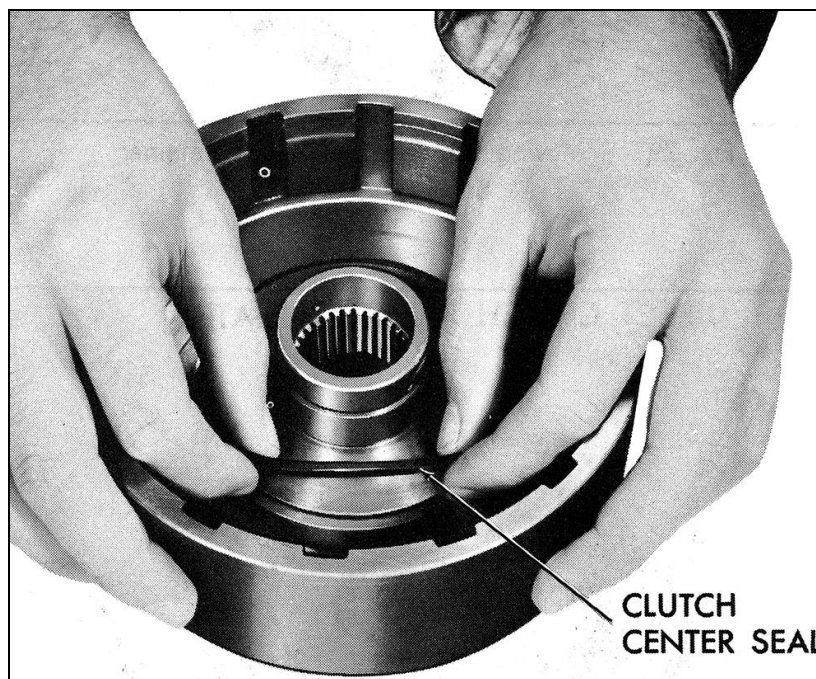
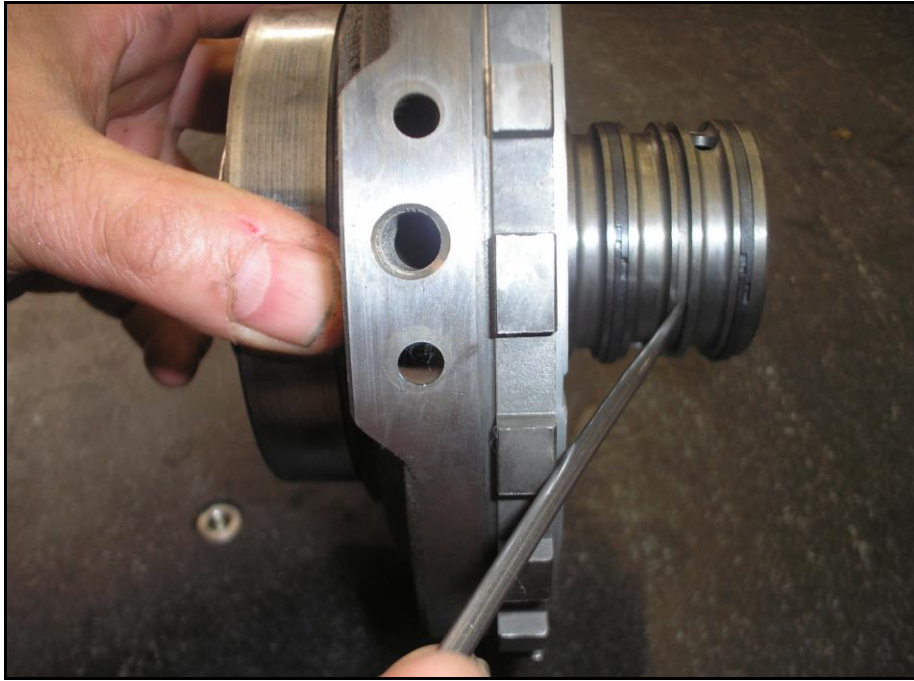


FIGURE 7

## **Center Support Modification**

**Remove/do not install the second center support oil sealing ring. See Figure 8.**



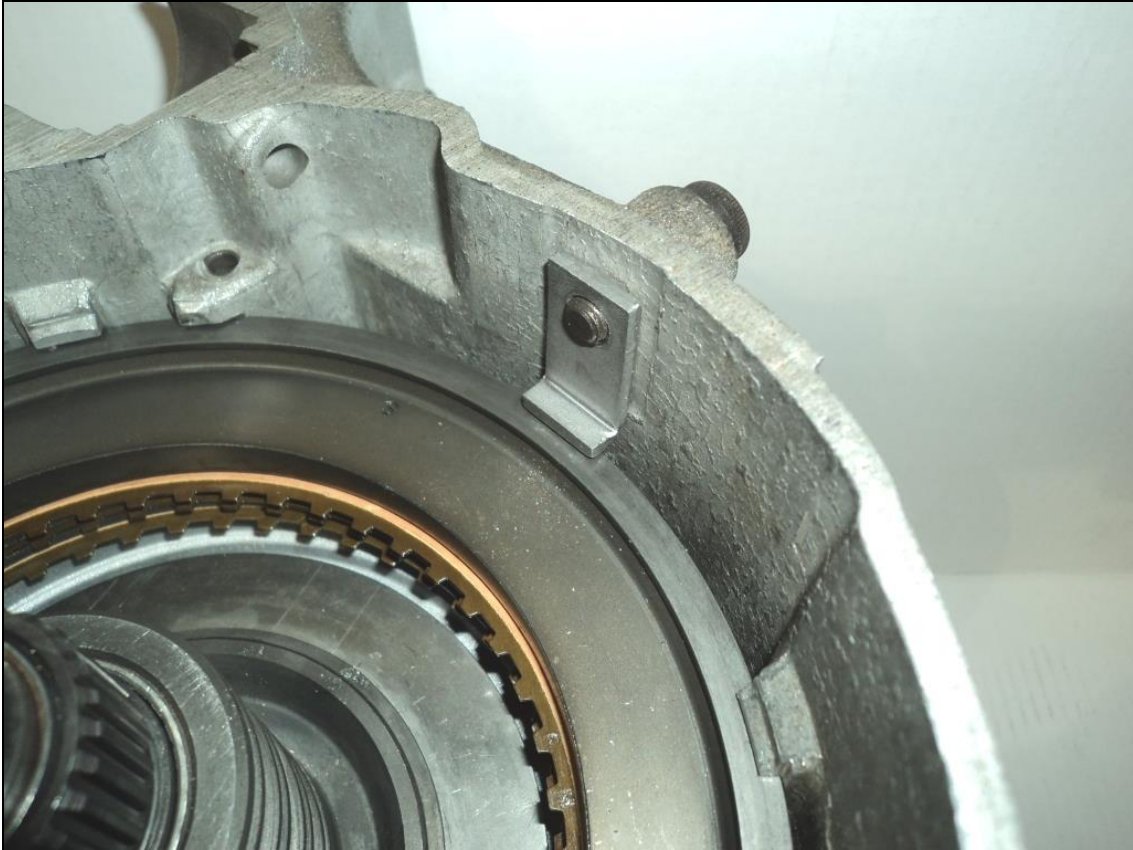
**FIGURE 8**

**Install the supplied detent solenoid delete plate in place of the OEM detent solenoid. Figure 9. Torque the two retaining bolts to 150 inch pounds.**



**FIGURE 9**

**A heavy duty intermediate clutch snap ring and intermediate clutch snap ring support are supplied in this kit to reduce the chances of transmission case lug blowout. Use a punch to knock out the intermediate band anchor pin from the transmission case. Install the supplied shoulder bolt into the pin bore and attach the snap ring support bracket. Torque the shoulder bolt to 165 inch pounds. See Figure 10.**



**FIGURE 10**

**Replace the three short valve body mounting bolts with the supplied replacements. Torque them to 150 inch pounds. Torque the large valve body bolts to 185 inch pounds.**

**Start your burnout in 2<sup>nd</sup> gear and upshift to third under medium throttle. Failure to do so can result in intermediate sprag failure. Note that the use of TH400 style waved intermediate clutch plates will reduce shock loading of the intermediate sprag and greatly improve its performance and service life.**

**Any questions or comments regarding the operation of this product can be addressed by contacting us @ [WWW.CKPERFORMANCE.COM](http://WWW.CKPERFORMANCE.COM). Thank you for selecting our products.**

## Important Converter Charge Pressure Information

Modifying the pressure regulation system for increased line pressure is necessary when maximum torque capacity is required. Because torque converter charge pressure is a derivative of line pressure, increases in line pressure result in increased converter charge pressure. If left as is, this increase in charge pressure acting on the inside of the torque converter can push the converter, flexplate, and crankshaft forward with enough force to quickly destroy the crankshaft main thrust bearing. This issue is very common with the Buick Turbo V6 engine, but can occur with most small and big block engines as well. Placing a restriction in the converter charge circuit reduces the chances of this occurrence. With the pressure regulation system supplied in this kit expect 195 to 200 psi line pressure, and 65 to 75 psi converter charge pressure @ and above 1000 rpm. The following modification should be performed on all TH400 transmissions with increased or fixed line pressure to reduce converter charge pressure to a safe level. Locate the converter charge passage in the pump cover. See Figure A. Using a 5/16-18 tap, thread the passage to a depth of approximately .250". See Figure B. Install the supplied 5/16-18 X 3/16 brass set screw shown in Figure C into the tapped hole, ensuring it is installed to a depth below the pump cover face. Drill out a new .110" to .115" converter charge orifice thru the set screw. See Figure D. IT IS NOW FIXED.



FIGURE A



FIGURE B



FIGURE C



FIGURE D