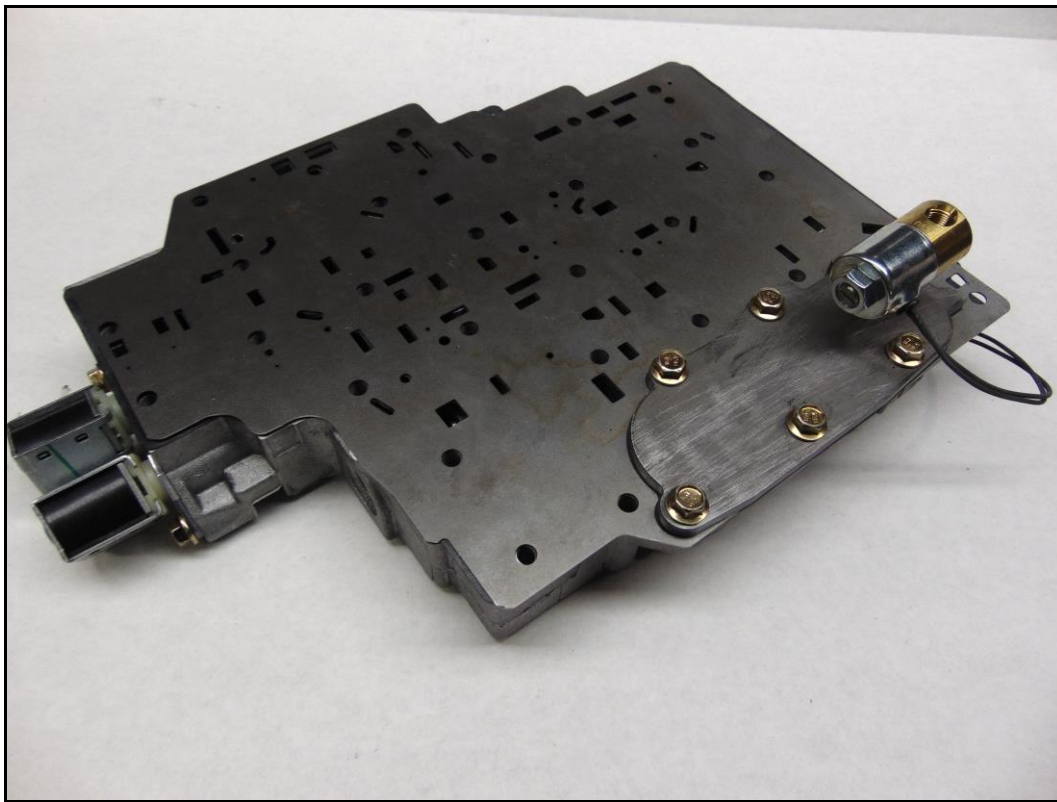


4L80E D321 MANUAL SHIFT TRANSBRAKE

PART # 4L8VB/FPFMTB

This product is for competition usage only. This product should be installed by a professional transmission mechanic who is fluent with servicing the GM4L80E transmission. This product has been designed, engineered and tested to meet the highest quality standards obtainable for performance, consistency and durability. Exclusive fluid release design uses pressurized oil to release the brake valve. No lazy solenoid orifice dependent brake valve scheduling. Re-engineered second gear circuitry vastly improves intermediate clutch durability. Driver has full manual control of shift schedule. Transmission will engage and remain in gear selected by the driver. Beyond the 1000 horsepower/750 foot pounds of torque power level, consider the use of an aftermarket input shaft, forward clutch hub, 36 element sprag and drum, intermediate pressure plate, and/or mainshaft.

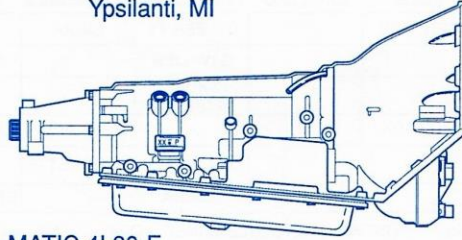
INSTALLERS: BE SURE THE “ADDITIONAL IMPORTANT INFORMATION” OUTLINED AT THE END OF THE INSTALLATION INSTRUCTIONS IS PASSED ON TO YOUR CUSTOMER TO AVOID ANY SAFETY HAZARDS, MECHANICAL PROBLEMS, OR OTHER CONCERNS THAT MAY RESULT DUE TO THEIR FAILURE TO UNDERSTAND PROPER USAGE OF THIS PRODUCT.



HYDRA-MATIC 4L80-E TRANSMISSION

RPO CODE MT1

Produced at: Willow Run
Ypsilanti, MI



HYDRA-MATIC 4L80-E
(4-SPEED)

Vehicles used in:

C/K	PICK-UP & CHASSIS CAB
G	VAN, SPORTVAN, SCHOOL BUS, HI-CUBE / CUTAWAY VAN
P	CHASSIS, VAN, SCHOOL BUS, MOTOR HOME CHASSIS
R/V	LIGHT CHASSIS CAB, SUBURBAN

BASIC SPECIFICATIONS

Current Vehicle Platforms

Trucks: C/K, G, RV
Special Applications: Motor Home,
School Bus

Transmission Fluid Capacity (Approximate)

Bottom Pan Removal: 7.3L (7.7 QTS)
Dry: 12.8L (13.5 QTS)

Current Engine Range

4.3L to 7.4L Gas
6.2L Diesel

Transmission Fluid Type

Dexron II®

Transmission Drive

Rear Wheel Drive
4-Wheel Drive

Transmission Weight

Dry: 107 Kg (236 LBS)
Wet: 118 Kg (260 LBS)

Transmission Type

4 = Four Speed
L = Longitudinal Mount
80 = High Torque Capacity
E = Electronically Controlled

Converter Sizes Available

310mm - 4 Element (Dual Stators)
- 3 Element (Single Stator)

Automatic Overdrive with Torque Converter Clutch Assembly.

Gear Ratios

1st	2.482
2nd	1.482
3rd	1.000
4th	0.750
REV	2.077

7 Position Quadrant

(P, R, N, OD, D, 2, 1)

Pressure Taps Available

Line Pressure

Maximum Trailer Towing Capacity

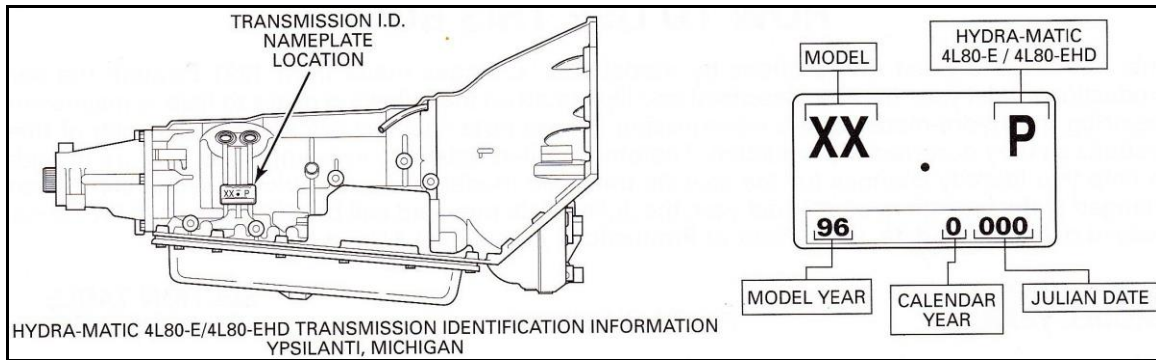
9,072 Kg (20,000 LBS)

Case Material

Die Cast Aluminum

Maximum Gross Vehicle Weight

7,484 Kg (16,500 LBS)



KIT CONTENTS

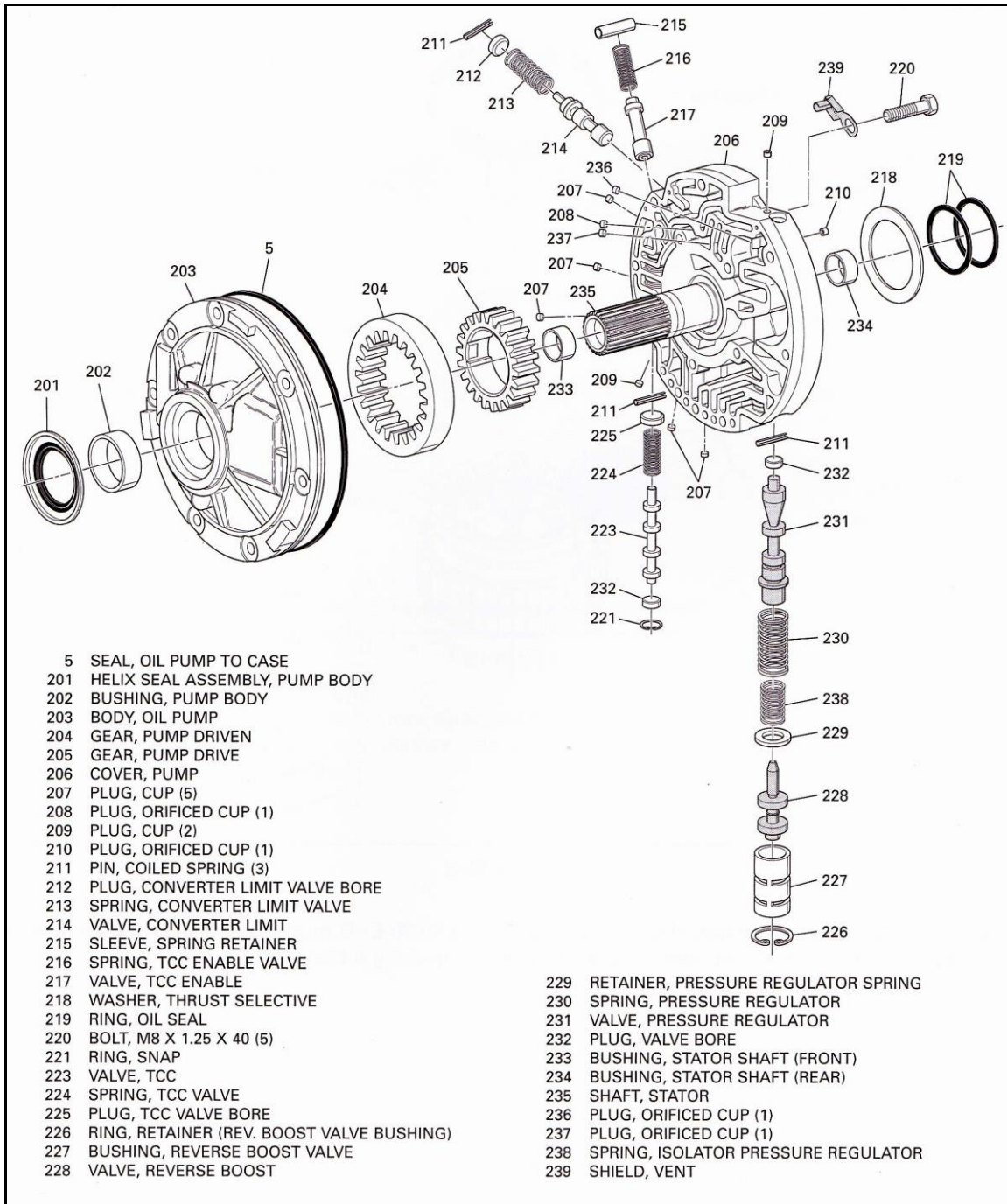
- 1 Transmission Brake Valve Body Assembly**
- 1 .250 Cup Plug**
- 1 .375" Cup Plug**
- 1 Rear Servo Spring**
- 1 Intermediate Clutch Backing Plate Snap Ring**
- 16 Direct Clutch Apply Release Springs**
- 1 External Wiring Harness**

Valve body assembly is fit with new AC Delco A Shift Solenoid, B Shift Solenoid, PWM Lock Up Solenoid, Pressure Manifold and Rostra Internal Wiring Harness. Actuator Feed Valve Bore is reamed oversize and fit with Trans-Go Actuator Feed Valve.

INSTALLATION INSTRUCTIONS

Oil Pump Modifications

Use the illustration below as a guide for performing the modifications outlined to the oil pump assembly.



4L80E OIL PUMP COVER ASSEMBLY SCHEMATIC

Remove ring (226), reverse boost bushing (227) and reverse boost valve (228) from the oil pump cover (206). Measure the outside diameter of the small land on the reverse boost valve. It should measure in @ .740. If smaller or larger, replace with a valve and bushing combination that matches the diameter specified. Grind a flat @ .500" wide on the large land of the reverse boost valve. See Figure 1. Locate reverse boost valve feed passage in the pump cover. See Figure 2. With pump cover situated as in the figure, it is the third passage from the left. Drill passage out with .375" drill. Do not let drill walk, making the hole oversize. Install the supplied .388" cup plug in the passage just below flush. A dab of Loctite on the o/d of the plug prior to installation is recommended. Deck the machined surface perpendicular to the passage with a whetstone to remove any burrs raised during drilling and plugging operations. All applications with lock-up torque converters. Install the supplied .250" cup plug into the passage shown in Figure 3. Drill a .125" orifice thru the plug. Be sure to remove all chips from the passage by blowing thru with compressed air in both directions. This will help keep locked up torque converter pressures down and help keep pump drive gear from eating the pump cover.



FIGURE 1

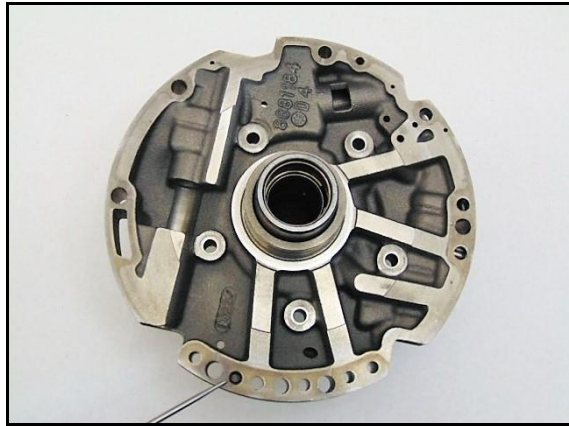


FIGURE 2

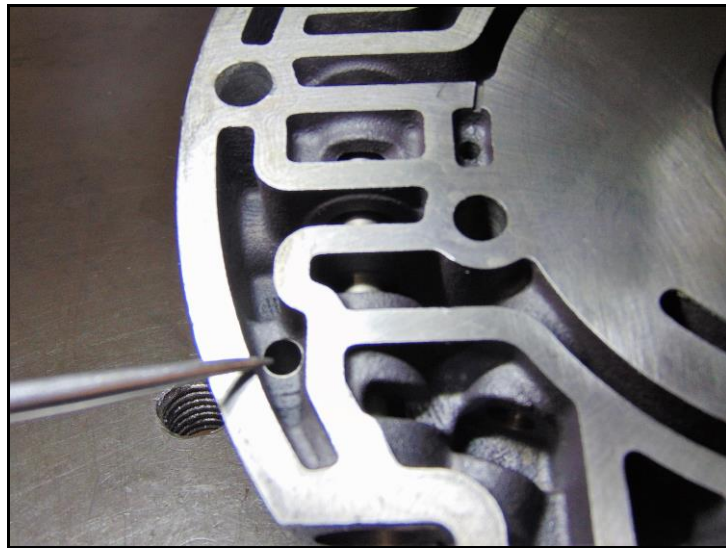


FIGURE 3

The diameter of the seal drain back hole in the pump cover is too small for a fixed line pressure application and can result in front seal blow out. To eliminate seal blowout, enlarge the drain back hole with a .250" drill. See Figure 4.



FIGURE 4

Direct Clutch Housing Modifications

Remove/do not install the center lip seal from the direct clutch housing. See Figure 5. Drill a .055" hole at a 45-degree angle through the side of the drum beginning at the location shown in Figure 6 and exiting at the rear of the housing. This location is the 90-degree corner/machined surface immediately below the point where bottom edge of the clutch piston outer lip seal would be. Due the difficulty of drilling thru the housing with a .055" drill bit, it is recommended to start the hole with a slightly larger bit and then finish the hole and break thru with the .055" bit.

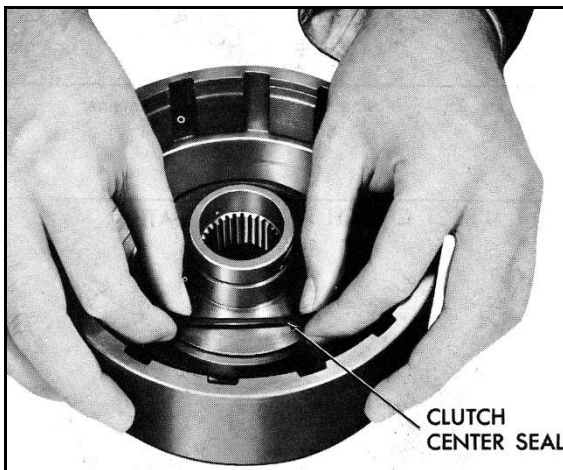


FIGURE 5



FIGURE 6

Replace the direct clutch apply/release springs with supplied apply/release springs. See Figure 7. Carefully separate the OEM apply/release spring retainer assembly and replace the springs. Use caution to not damage the assembly. The use of an OEM TH400 direct clutch piston and apply/release spring retainer is an excellent upgrade for the OEM components. See Figure 7. Face grooved clutch plates are recommended to improve clutch apply, release, and transmission efficiency. Set clutch pack end clearance at .040" to .060".

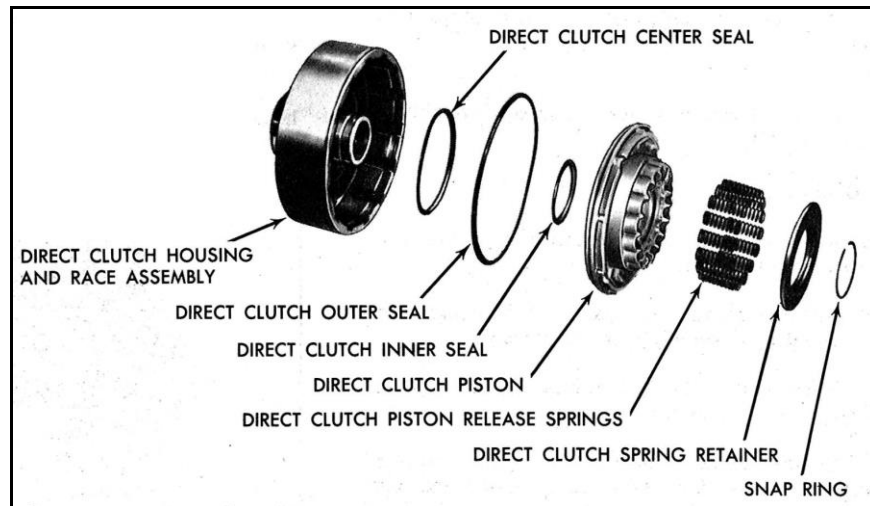


FIGURE 7

Rear Servo Modifications

Remove the rear servo assembly from the transmission case. Remove the rear accumulator piston and spring from the rear servo. See Figure 8. The rear accumulator piston and spring will be replaced with the supplied rear servo spring. See Figure 9. Correct rear servo adjustment is critical to proper reverse/transbrake operation. Be certain to check and adjust properly if transmission is being overhauled or rear band is replaced.

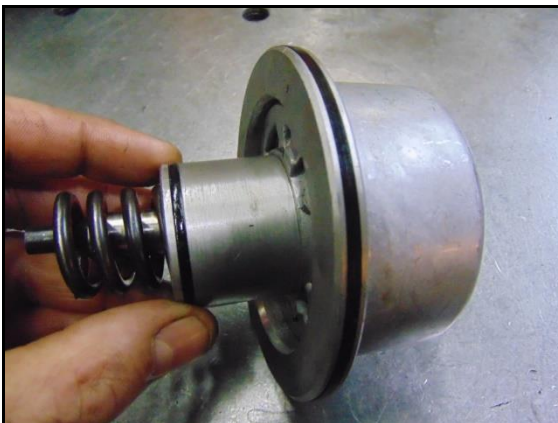


FIGURE 8

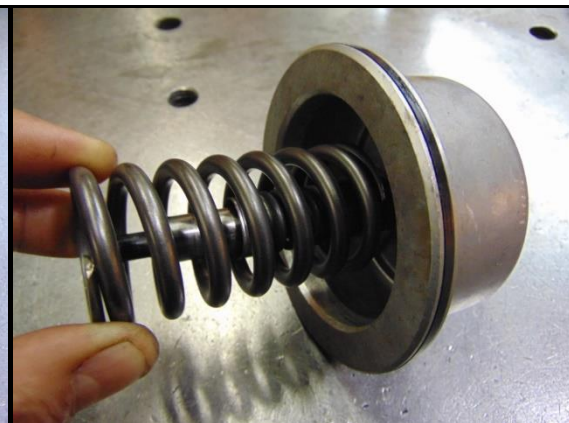


FIGURE 9

Transmission Case Modifications

After the center support has been installed in the case, install the supplied .388" cup plug into the case at the location shown in Figure 10 . Be sure the cup plug is seated against the center support. Install the supplied checkballs at locations 1, 3, and 10 in the transmission case. Delete all others. See Figure 11.



FIGURE 10

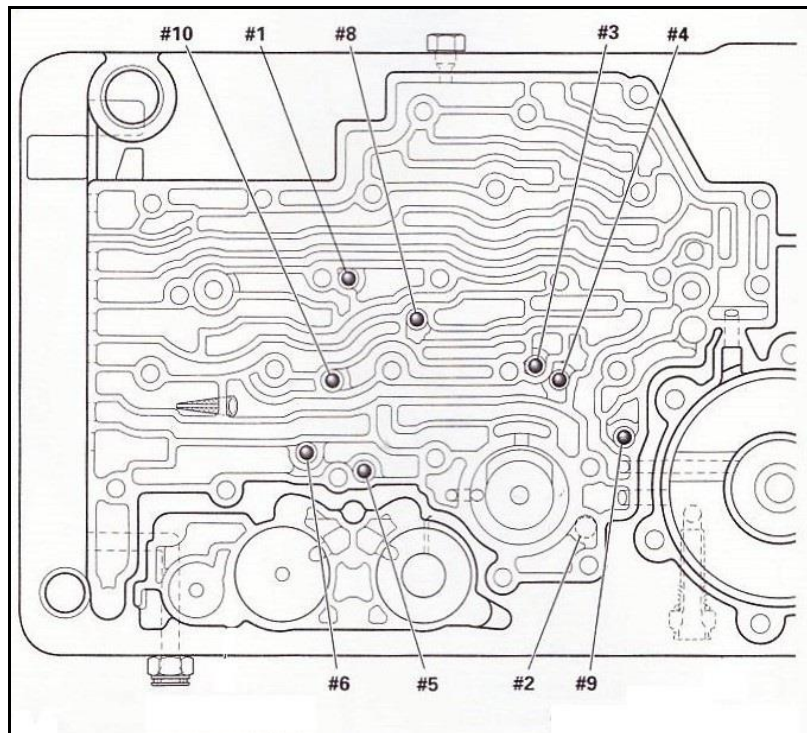


FIGURE 11

Wiring Instructions and Additional Information

This product is designed to operate with a fixed line pressure. The fixed line pressure generated with an OEM pressure regulator spring should be approximately 180 to 200 psi in ALL RANGES at and above 1000 rpm. Always check after installation. The wire that will be used to supply voltage to the internal transbrake solenoid with this product is found in Plug Wire Location 3 of the OEM Wiring Harness to Case Connector. This wire was previously used as the EPC solenoid power supply wire, which will no longer BE used for that purpose. Plug Wire Location 3 is located in the top row of the OEM Wiring Harness to Case Connector. The top row contains four wires and it is the third wire from the left side. This wire is normally, but not always, red with a black tracer. Cut this wire between the ECM and connector, leaving a minimum of three inches of wire extending out from the connector. Attach a “Hot in Run” 12 volt / 20 amp fused power supply to the momentary switch to activate the transmission brake and on to Plug Wire Location 3 where it extends out of the connector. When activated the current will now flow thru the connector and internal harness and on to the internal transmission brake solenoid for activation. With proper service tooling the wire and pin can be removed from the connector and a service repair pin and wire attached so original wiring remains undisturbed. After the selector is placed in Reverse Range the transmission brake must be activated to engage Reverse. If this is an issue, the power supply to the reverse lights can be spliced to the transmission brake power supply wire between the button and the transmission case to engage reverse without depressing the button. Installing a diode in line between the reverse light power supply and the splice will eliminate the illumination of the reverse lights when the transmission brake is applied. Using the supplied external wiring harness supply 12 volts key on to the pink wire. This will supply 12 volts to the internal shift and lock-up solenoids. Connect a toggle switch in series between chassis ground and the brown wire to activate lock up. Do not activate transmission brake with the vehicle in motion. Do not engage the transmission brake for more than 5-7 seconds at a time to avoid overheating the transmission. If the desired stall speed cannot be reached within this time frame, the torque converter or engine tune must be evaluated. This valve body does not have engine braking in Manual Low Range, eliminating the chance of engine overspeeding and loss of vehicle control that can result if the transmission is downshifted to Manual Low Range at high vehicle speed. In the event gaskets need replacement, one new hole has been added to both gaskets. To generate holes lay gasket down under plate on a steel surface and trace passage in plate with a sharp scribe. This will quickly and easily generate the required holes.

Any questions or concerns regarding this product should be directed to us @ www.CKPERFORMANCE.COM or 631 218 1989. Thank you for purchasing our products.