

**#24RMRKHDS**  
**HEAVY DUTY STREET MASTER REBUILD KIT**

**COMPONENT CHECK LIST**

**PART DESCRIPTION**

**STEEL PLATES**

3 OEM OVERDRIVE  
2 OEM OVERRUN  
2 OEM FORWARD WAVE  
3 OEM FORWARD FLAT  
6 OEM DIRECT  
7 OEM LO-REVERSE  
1 OEM LO-REVERSE WAVE PLATE

**CLUTCH PLATES AND BAND**

2 OEM OVERDRIVE  
2 HIGH ENERGY OVERRUN  
4 OEM FORWARD  
6 HI-ENERGY DIRECT  
6 HI-STATIC PARALLEL GROOVED LO-REVERSE  
1 PRO-SERIES HI-ENERGY BAND

**ONE WAY CLUTCH ASSEMBLIES**

1 OEM OVERDRIVE ROLLER CLUTCH  
1 BORG WARNER LOW ROLLER CLUTCH

**MASTER BUSHING KIT**

PUMP  
O/D CARRIER  
FORWARD DRUM  
CENTER SUPPORT FRONT  
CENTER SUPPORT REAR  
DIRECT DRUM FRONT  
DIRECT DRUM REAR  
FRONT INTERNAL GEAR  
SUN GEAR  
LO-CLUTCH HOUSING  
REAR CARRIER  
CASE

**MASTER THRUST WASHER KIT**

**PUMP ROTOR GUIDE**

**CENTER SUPPORT FRONT**

**CENTER SUPPORT REAR**

**FORWARD DRUM**

**REAR CARRIER**

**SUN SHELL TO L0-CLUTCH HOUSING**

**FRONT INTERNAL GEAR WASHER**

**PLASTIC SELECTIVE CENTER SECTION**

**15 PIECE SELECTIVE CENTER SECTION END PLAY WASHER KIT**

**MASTER THRUST BEARING KIT**

**OVERDRIVE CARRIER TO OVERDRIVE SUN GEAR**

**OVERDRIVE CARRIER TO OVERDRIVE INTERNAL GEAR**

**FRONT INTERNAL GEAR TO FRONT CARRIER**

**FRONT INTERNAL GEAR TO FRONT SUN GEAR**

**LOW ROLLER CLUTCH INNER RACE TO REAR CARRIER**

**REAR SUN GEAR TO REAR INTERNAL GEAR**

**MISC**

**HARDENED PUMP VANE RINGS**

**TRANSMISSION CASE CONNECTOR**

**FRONT SEAL RETAINER**

**PUMP VANES**

**PUMP PRIMING SPRING**

**HEAT TREATED STATOR SHAFT**

**3 STATOR SHAFT MOUNTING BOLTS**

**SLIDE PIN**

**HEAT TREATED SUN GEAR SHELL**

**UNIVERSAL LOCK UP SOLENOID**

**GASKET AND SEAL KIT**

**HIGH FLOW FILTER**

## **2004R SHIFT RECALIBRATION KIT**

**PRESSURE REGULATOR VALVE**

**PRESSURE REGULATOR VALVE SPRING**

**.471" TV BOOST VALVE AND SLEEVE**

**.300" REVERSE BOOST VALVE AND SLEEVE**

**1-2 ACCUMULATOR SPRING (LARGE PLAIN)**

**4 .250" CUP PLUGS**

**1 ACCUMULATOR VALVE SPRING (LONG PLAIN)**

**1 LINE BIAS VALVE SPRING (SHORT TIGHT WOUND)**

**1 SEPERATOR PLATE**

**This kit works well with both the OEM 692 V8 and 694 Turbo V6 Intermediate Servo Assemblies.**

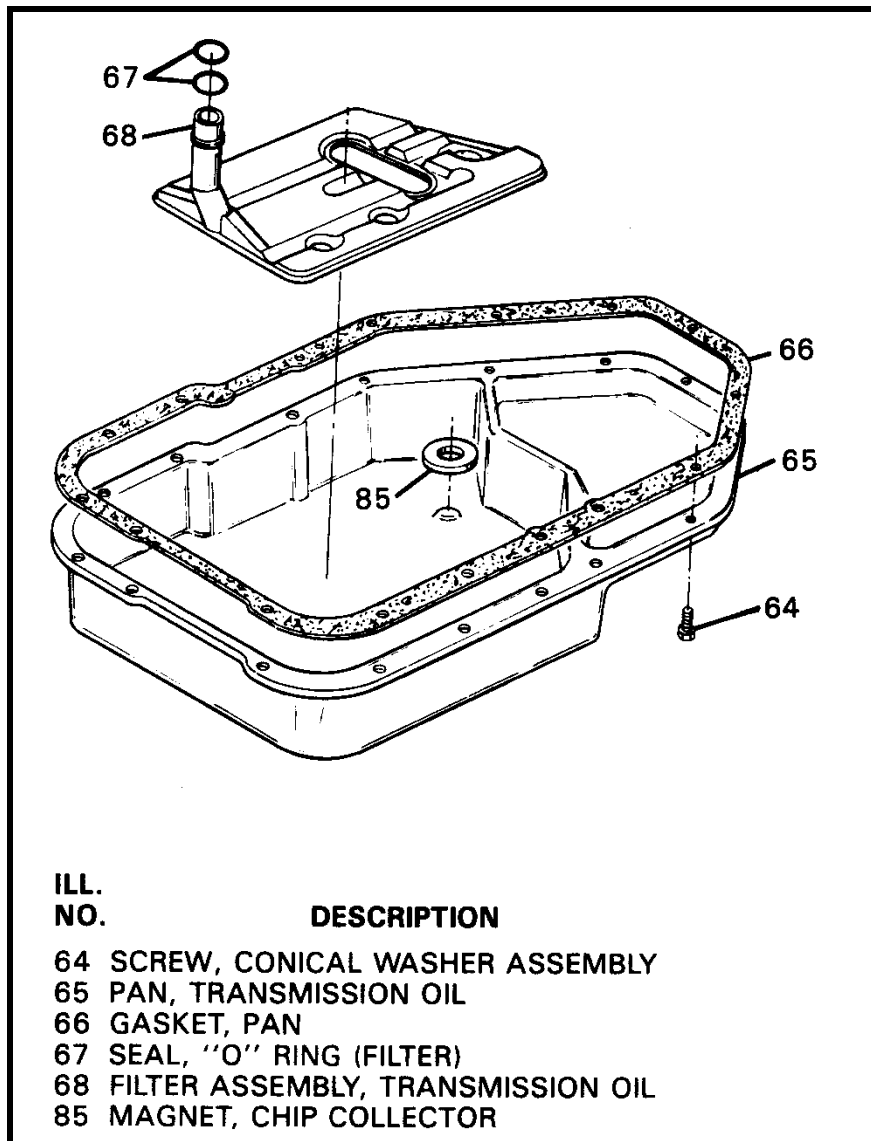
## **2004R SHIFT RECALIBRATION KIT #24RSRK/A**

This easy to install kit includes all the necessary parts to recalibrate the hydraulic circuitry of the GM2004R transmission for high performance street and drag strip usage. The main focus of this kit is to reduce clutch and band slippage common with the factory hydraulic calibration. All of the components in this kit work together to achieve the desired results. Mixing parts and tech from other kits will produce undesirable results and make it difficult for us to assist you if there are problems or issues that the kit has not corrected, or that result after installation. Revised boost valves and pressure regulator spring significantly raise transmission mainline pressure to increase clutch and band apply pressures and capacity. This reduces friction element failure and excessive heat buildup during ratio changes. A re-designed separator plate increases the flow of oil to the friction elements and eliminates unnecessary circuits. Re-engineered circuitry furnishes a throttle sensitive pressure rise system that meets the demands of high output engines. This kit allows the shifts to get shorter and firmer as the throttle is opened, resulting in clean, positive gear changes at small throttle angles, and short firm shifts at larger throttle angles. Most kits do not have this feature engineered into them resulting in brutal part throttle shifts that beat and break internal components as well as generate many new drivability complaints. Several thousand of these kits are in use and this kit is recognized as the best of its kind. Shift point rpm and road speed are a function of the tv cable adjustment and geometry, valve body, governor and axle ratio in use. This kit will not change shift point rpm or road speed. If higher or lower shift points are needed, contact us for assistance. Please note that high performance applications will benefit from the use of a larger intermediate servo to multiply the clamping force applied to the intermediate band. If your transmission is not from an 86 - 87 Buick Grand National or 89 Turbo Trans Am, equip with a high performance intermediate servo assembly, the use of a high-performance servo assembly should be considered. Contact us for the proper servo for your application.

**\*\*CONTACT INFORMATION\*\***  
**WWW.CKPERFORMANCE.COM**

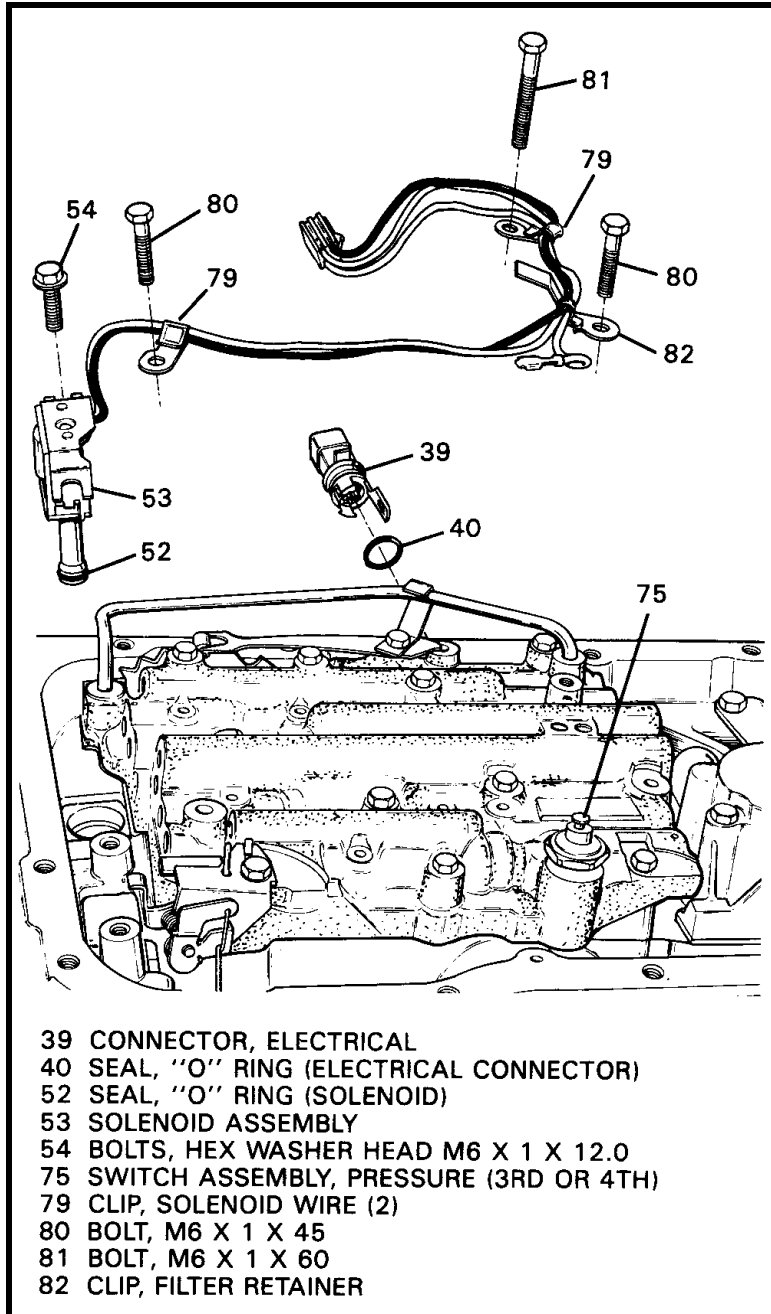
**INSTALLATION INSTRUCTIONS FOR PART #24RSRK/A**  
**2004R SHIFT RECALIBRATION KIT**

Begin by removing the transmission oil pan. If the transmission is in the vehicle when installing this kit, be sure to allow adequate time for the vehicle to cool before removing the oil pan. Remember that the pan is full of oil when removing it. Be careful so that you do not spill oil in your work area. Remove the transmission oil filter. Verify the presence of the oil filter o-ring seal or multi lip seal on the oil filter neck. If the o-ring seal is not present, remove it from the pump bore and reinstall it. If the filter is equipt with a multi lip seal, it is ok if it remains in the pump bore. Remove and discard the transmission oil pan gasket. Thoroughly clean the transmission oil pan and magnet. Clean the gasket mounting surfaces on oil pan and transmission case.



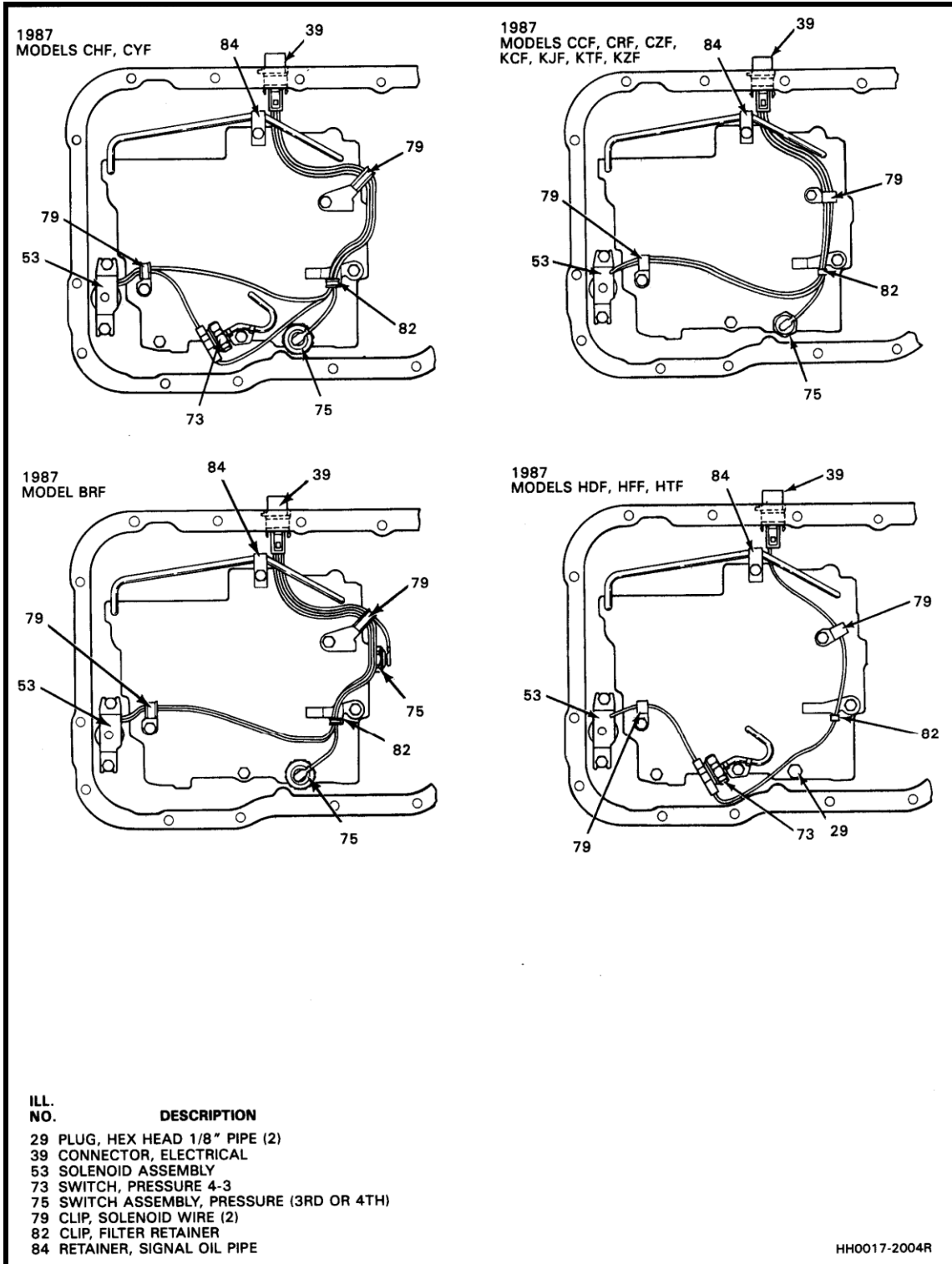
**OIL PAN AND FILTER**

Remove the two bolts (54) that fasten the solenoid assembly (53) to the case. Unplug the wiring harness from the electrical connector (39). Disconnect any of the pressure or temperature switches from the wiring harness and unhook the wiring harness from any solenoid wire and filter retainer clips (79, 82) that are installed on the valve body.



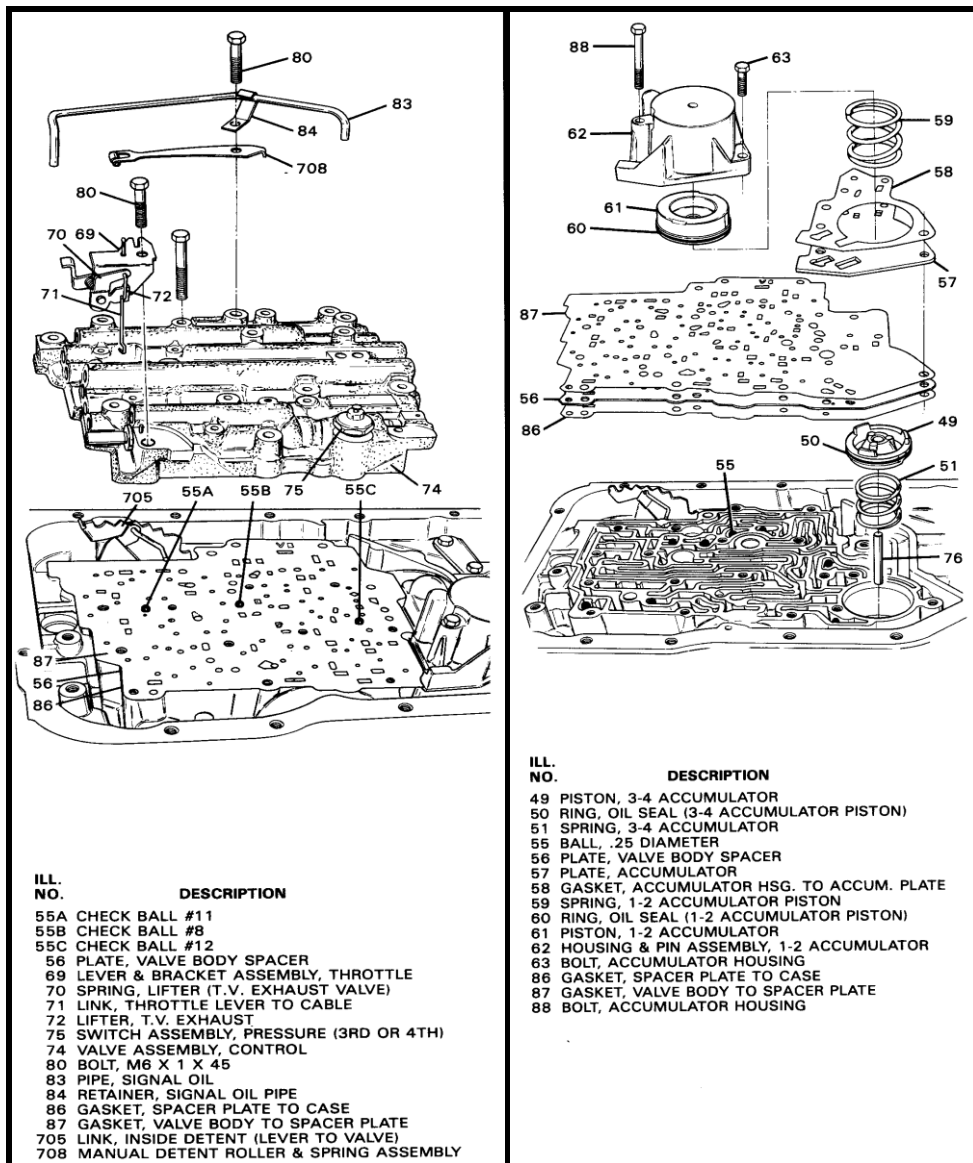
**INTERNAL WIRING HARNESS**

There are a few different types of internal wiring harnesses. The most common types are shown here.



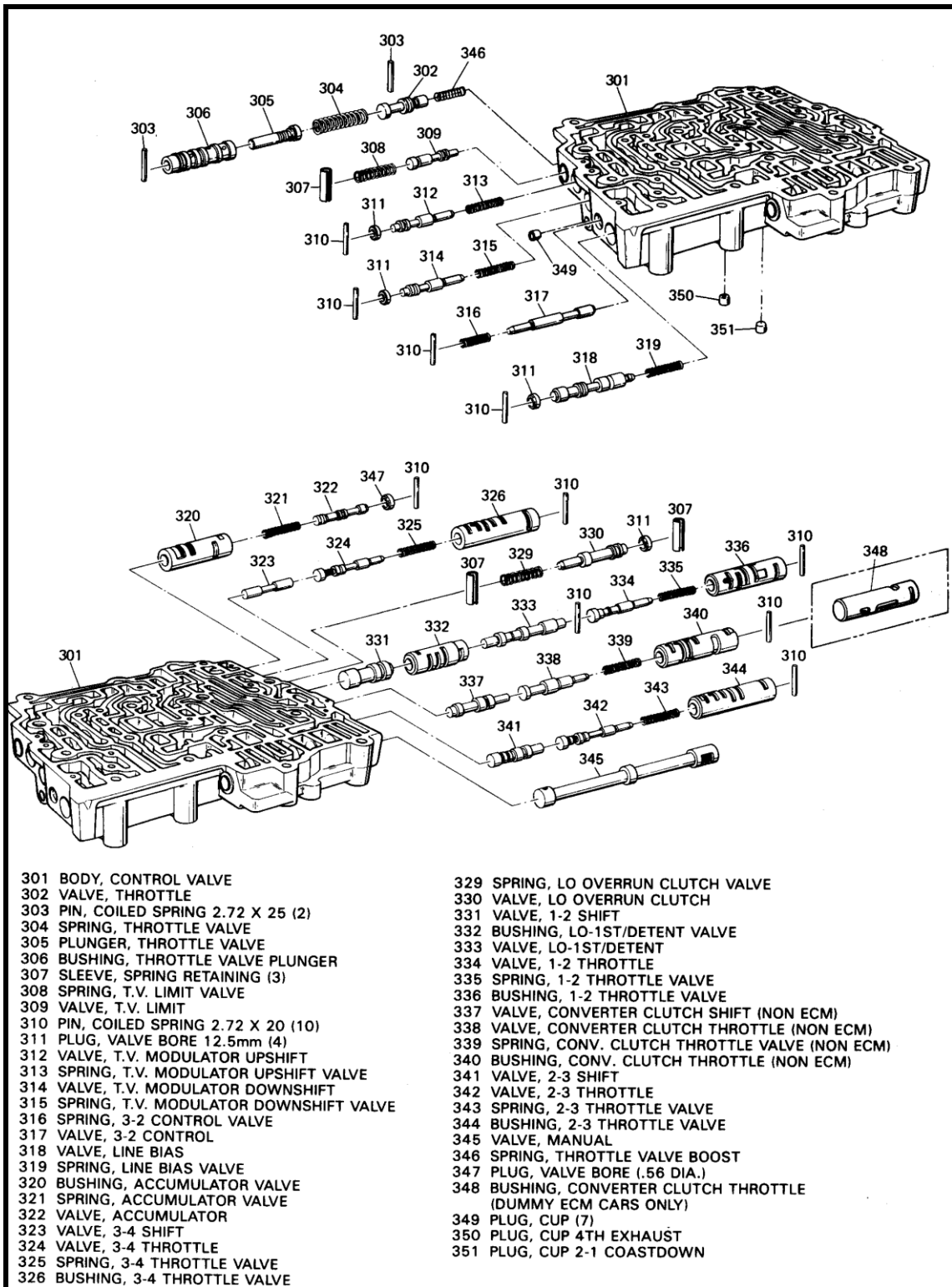
**COMMON INTERNAL WIRING HARNESS'S**

Remove and discard both the signal oil pipe retainer (84) and signal oil pipe (83). Remove the throttle lever and bracket assembly and related components (69, 70, 71 and 72). Remove the remaining bolts that fasten the valve body assembly to the transmission case and remove the valve body. If the transmission is in the car be sure to support the valve body when removing the bolts. Remember there are checkballs in the valve body, do not lose them. Remove the 1-2 accumulator housing (62) and its related components. Discard the accumulator housing gasket (58) and the 1-2 accumulator spring (59). Remove and discard the separator plate and gaskets (56, 86 and 87). Remember there are checkballs on top of the separator plate, do not lose them. Remove and discard the 3-4 accumulator piston (49) and the 3-4 accumulator spring (51). Note that some models have the spring on top of the piston and others have it at the bottom. Remove the 3-4 accumulator piston pin (76) from its bore in the transmission case.



## VALVE BODY AND RELATED COMONENTS





**VALVE BODY EXPLODED VIEW**

Locate the accumulator valvetrain and related components (310, 347, 322, 321 and 320) and remove them from the valve body as shown in the figure below. Replace the accumulator valve spring (321) with the one supplied in this kit and install the components back into the valve body exactly as shown in the figure. The replacement accumulator valve spring in this kit is approximately .265" in diameter and has an overall length of approximately 1.320".



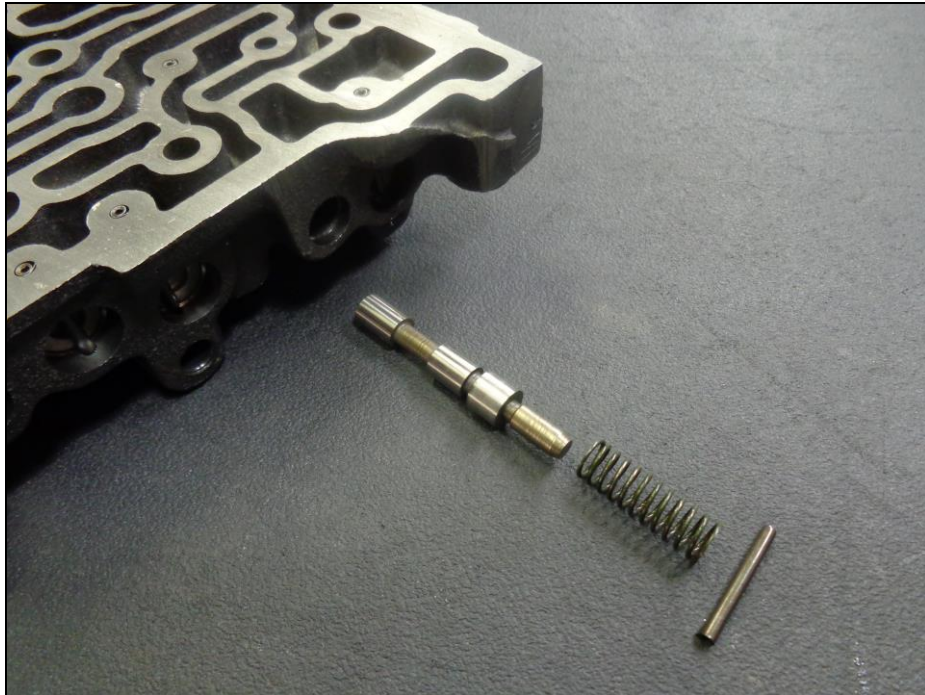
**ACCUMULATOR VALVETRAIN**

Locate the line bias valve and related components (310, 311, 318 and 319) and remove them from the valve body as shown in the figure below. Replace the line bias valve spring (319) with the one supplied in this kit and install the components back into the valve body exactly as shown in the figure. The replacement line bias valve spring in this kit is approximately .187" in diameter and has an overall length of approximately .925". This is a tightly wound spring. It may be necessary to gently tap the valve bore plug (311) to permit installation of the roll pin (310).

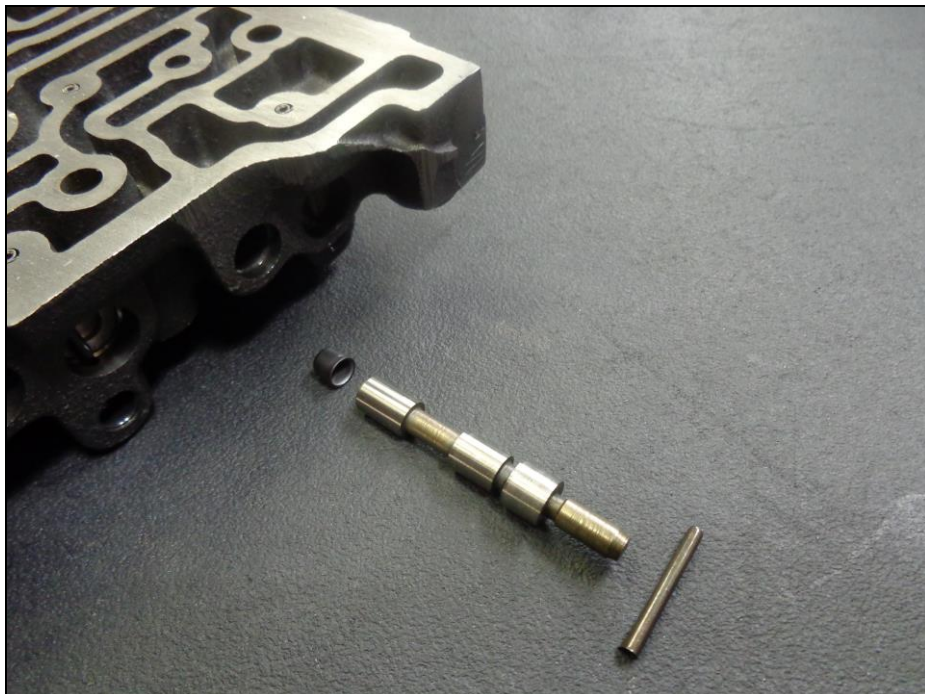


**LINE BIAS VALVETRAIN**

Locate the 3-2 control valvetrain and related components (310, 316 and 317) and remove them from the valve body as shown in the figure below. Discard the 3-2 control valve spring (316).



Install one .250" cup plug (cupped end toward the valve) onto the inboard end of the 3-2 control valve (retain with petroleum jelly) and install the valve into the bore exactly as shown in the figure below.





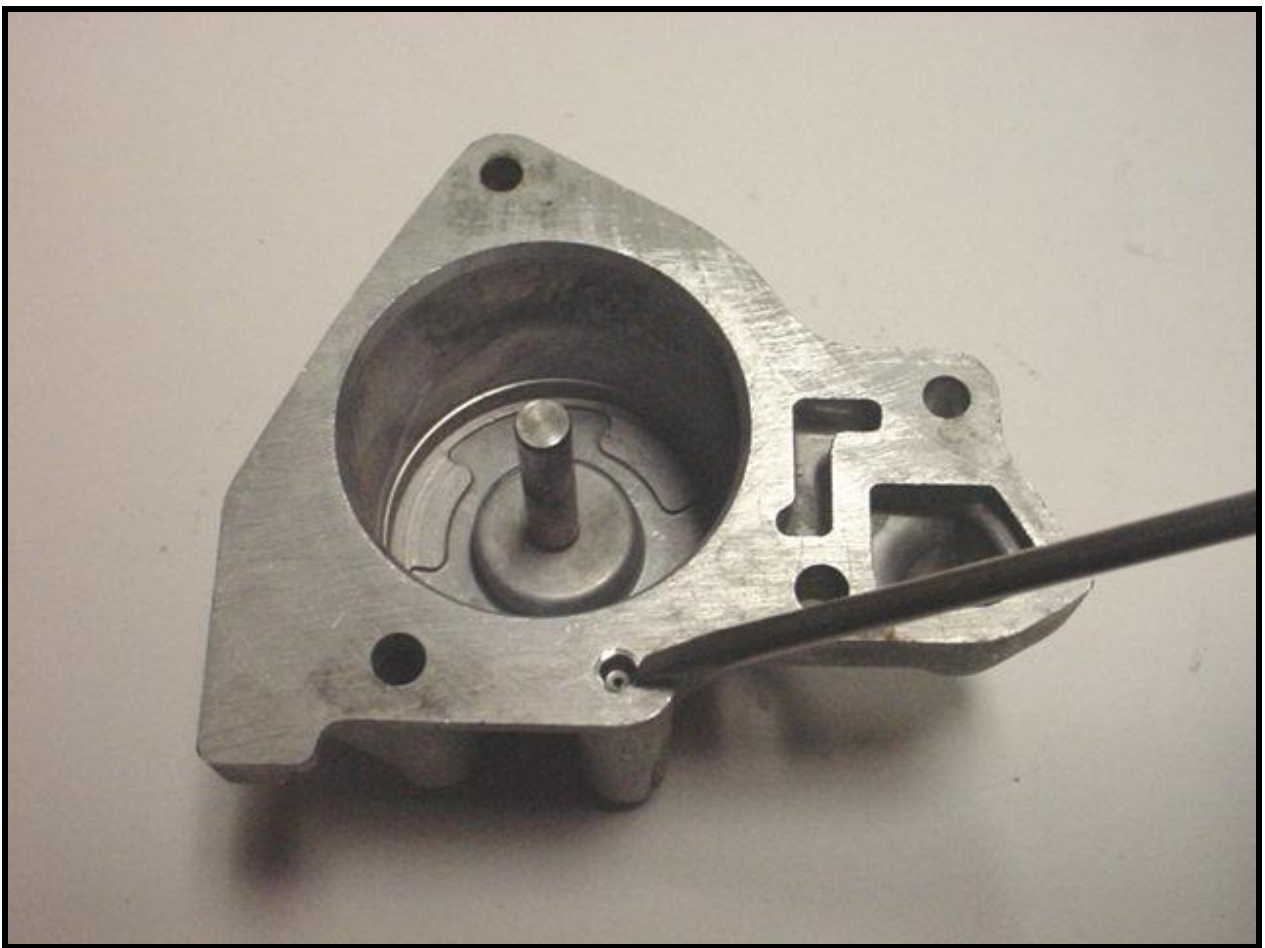
**Install one .250" cup plug (cupped end up) into the valve body passage as shown in the figure below. The plug is meant to close off the passage.**



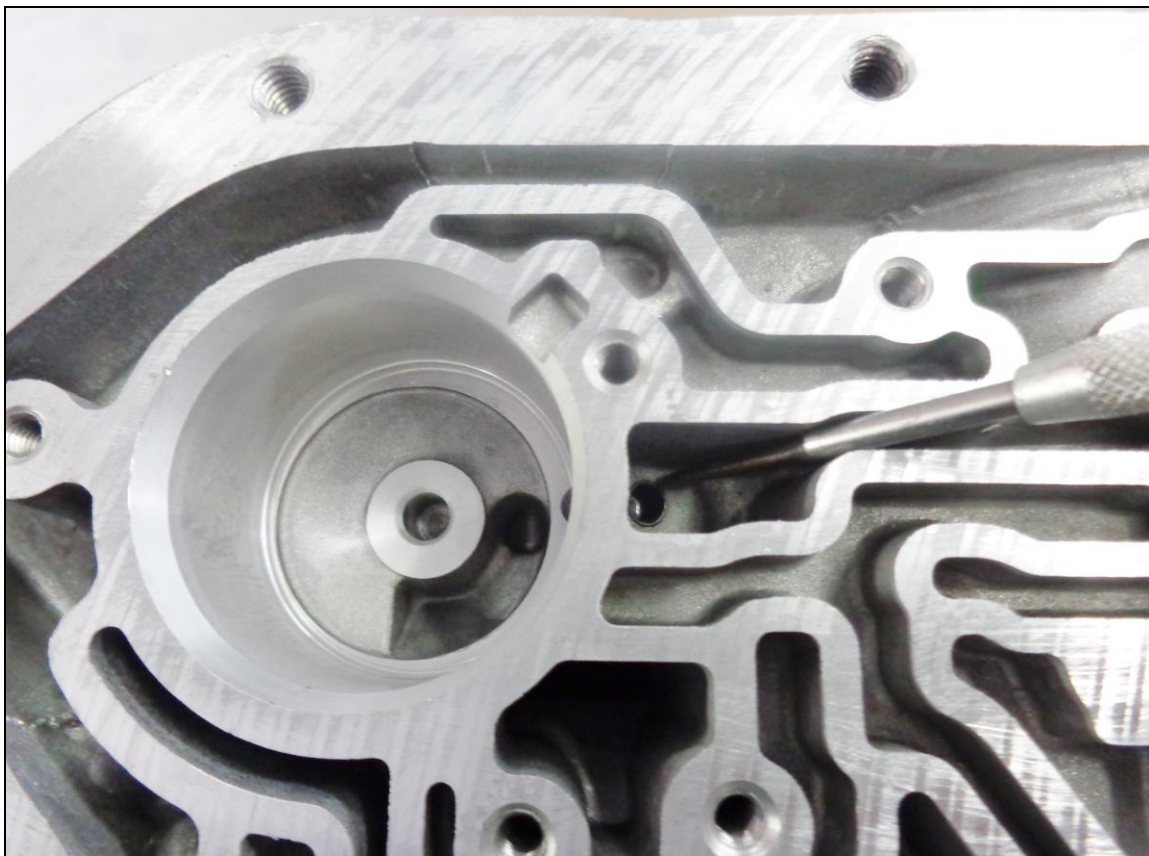
The 1-2 accumulator influences 1-2 upshift feel. To give tunability over the circuit there are two possible accumulator 1-2 accumulator combinations.

The first combination is for 350 cubic inch and smaller engines with up to 275 horsepower, with performance axle ratio (i.e. 3.23:1-3.73:1) and stall converters up to 2200 rpm. Install the supplied 1-2 accumulator spring (59) on top of the 1-2 accumulator piston as shown in the figure. Install it into the 1-2 accumulator housing (62) as shown in the figure used for disassembly.

The second combination is for all applications above 275 horsepower. Omit the 1-2 accumulator piston (60) and spring (59). Using a small punch install one of the supplied .250" cup plugs flush into the 1-2 accumulator feed hole in the 1-2 accumulator housing (62). This is shown in the figure below. After installing the cup plug, be sure to deck the housing so that is completely flat.

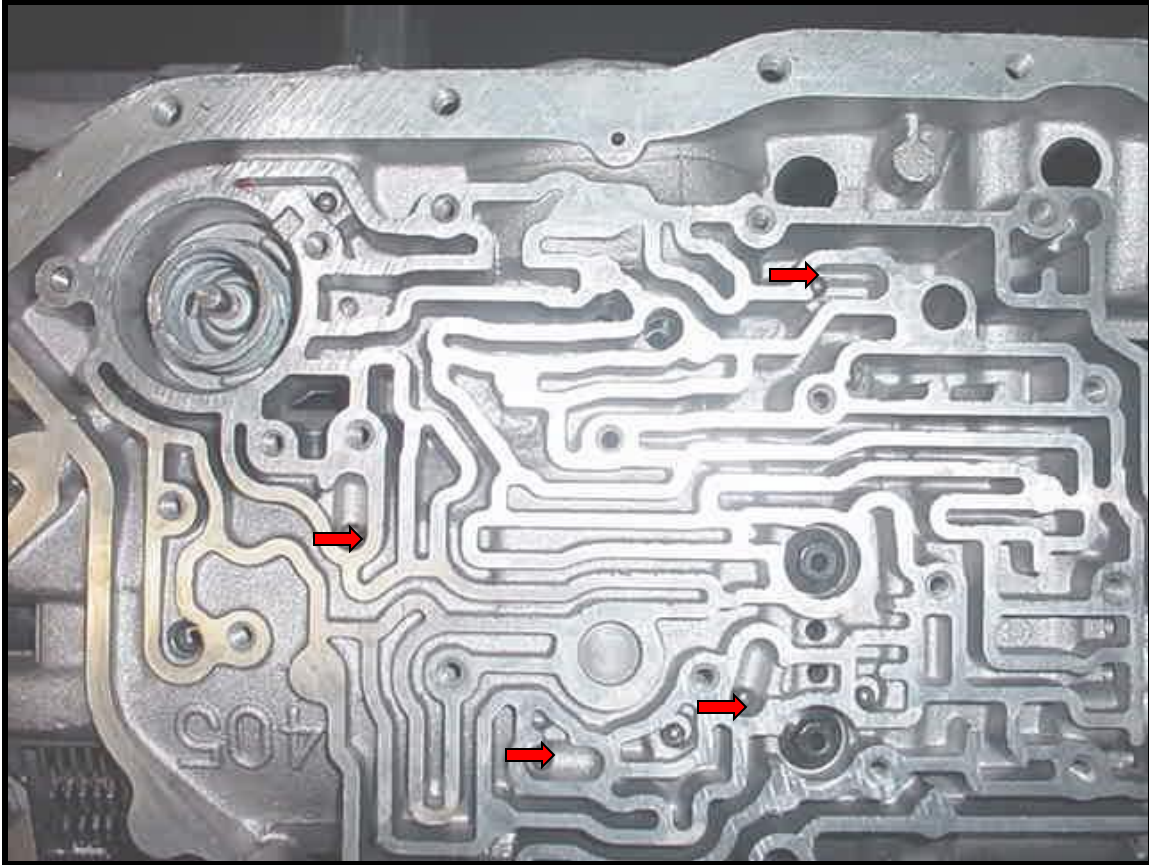


Remove and discard the 3-4 accumulator pin, piston and spring as shown in figures. Using a small punch install one of the supplied .250" cup plugs flush into the 3-4 accumulator feed hole in the case, deleting the accumulator. This will give the shortest and firmest shift available with this kit. This feed hole is pointed out in the figure. The hole intersects with the 3-4 accumulator piston bore in the transmission case.

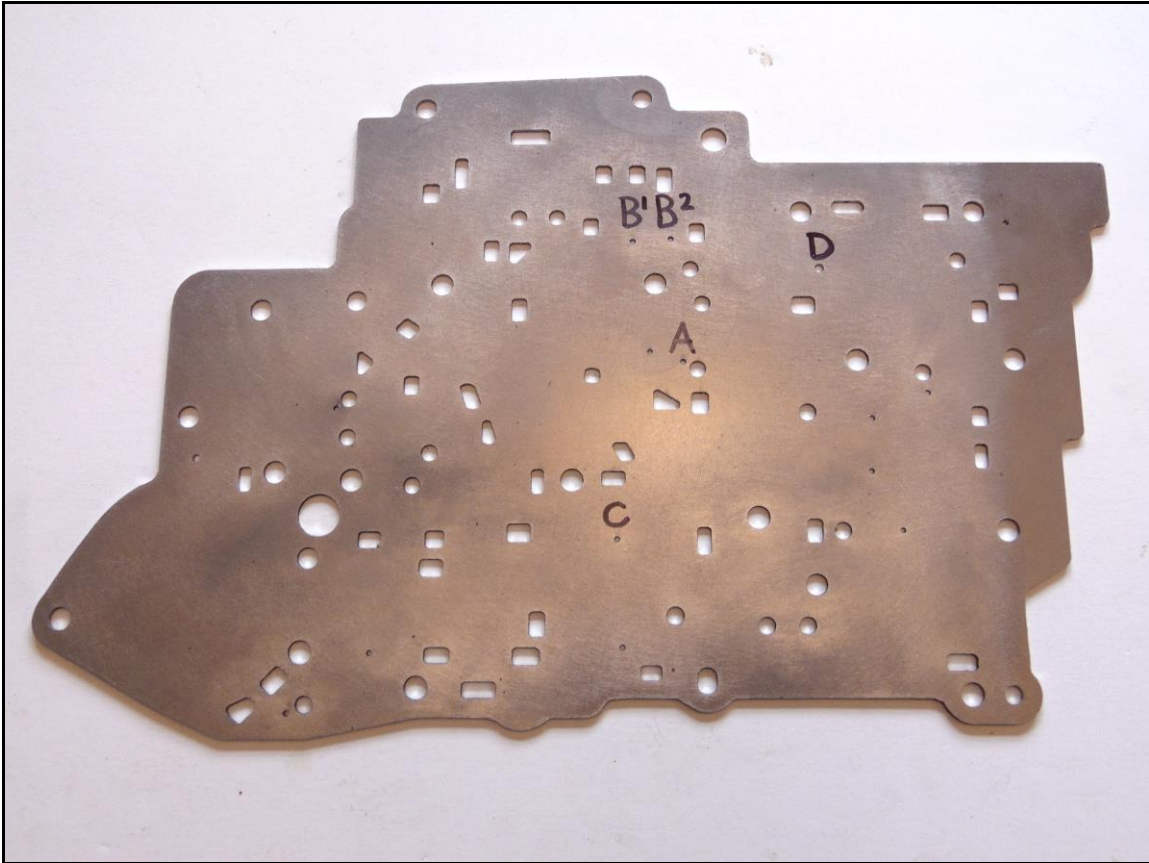




If this kit is being installed with the transmission out of the vehicle, install four .250" checkballs at the locations shown in the figure below. Your transmission will have extra checkballs in the case. Only install the four shown in the figure.

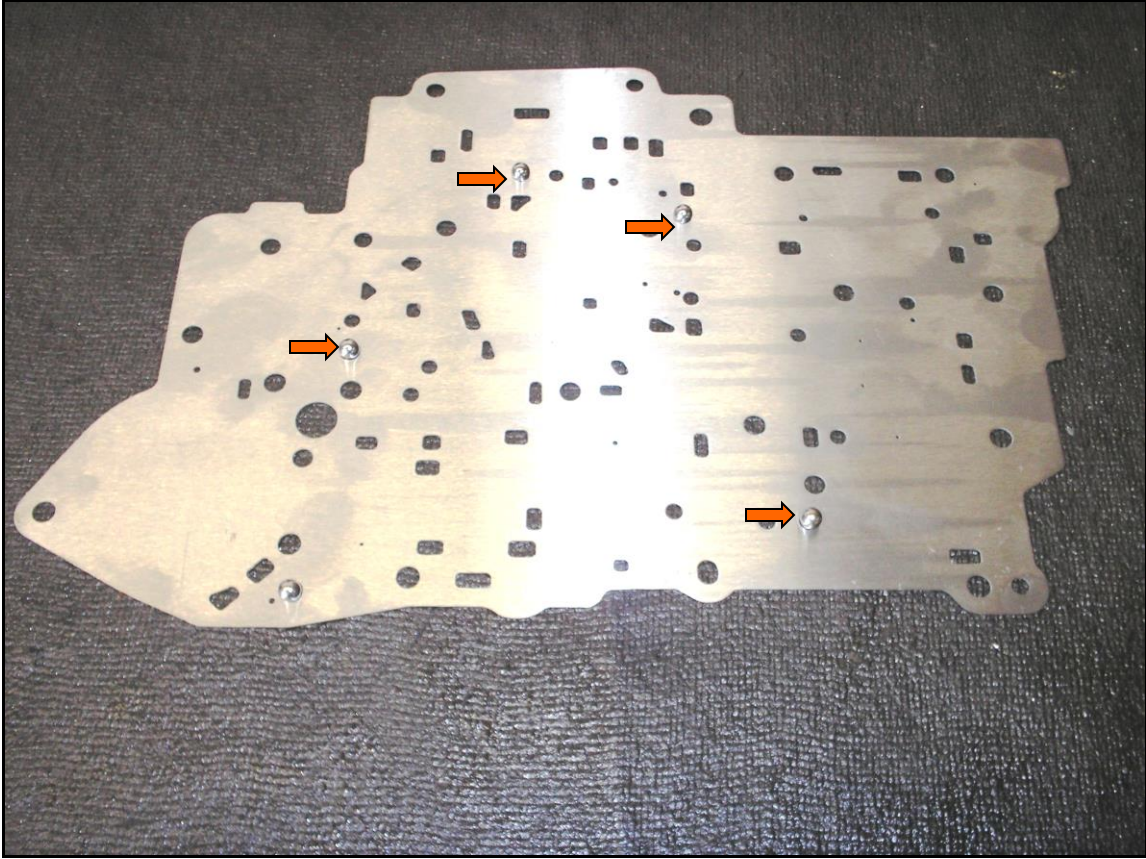


The size of the orifices at locations A, B1, B2, C, and D called out on the separator plate influence shift feel during the upshifts. The orifice immediately below the letter "A" is for the 1-2 upshift. The orifice immediately below the letter/number combinations "B1" and "B2" are for the 2-3 upshift. The orifice immediately below the letter "C" is for the 3-4 upshift. For engine combinations producing up to 250 horsepower drill orifices out "A" and "C" between .078" to .088", and "B1" and "B2" to between .084" to .094". For engine combinations producing up to 350 horsepower drill orifices out "A" and "C" between .084" to .094", and "B1" and "B2" to between .090" to .098". For engine combinations producing over 350 horsepower drill orifices out "A" and "C" to .110", and "B1" and "B2" to .125". Be sure to use the sizes recommended. Orifice "D" is for the 2-3 accumulator feed. For engine combinations producing up to 350 horsepower, drill it out to between .115" and .125". For engine combinations producing over 350 horsepower drill out to .140"



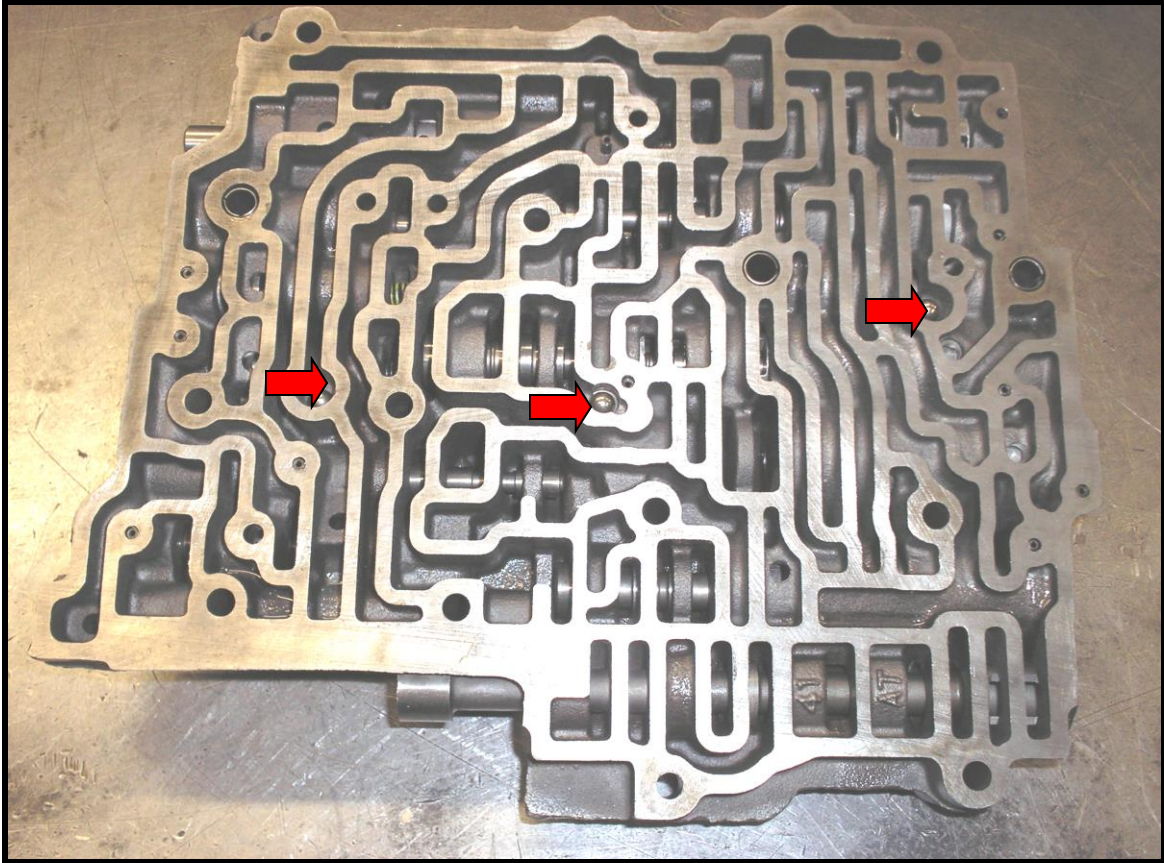


If this kit is being installed with the transmission in the vehicle, install four .250" checkballs at the locations shown in the photo below. Use a slight dab of petroleum jelly to retain the checkballs to the plate. Your transmission will have extra checkballs on the plate. Only install the four shown in the figure.

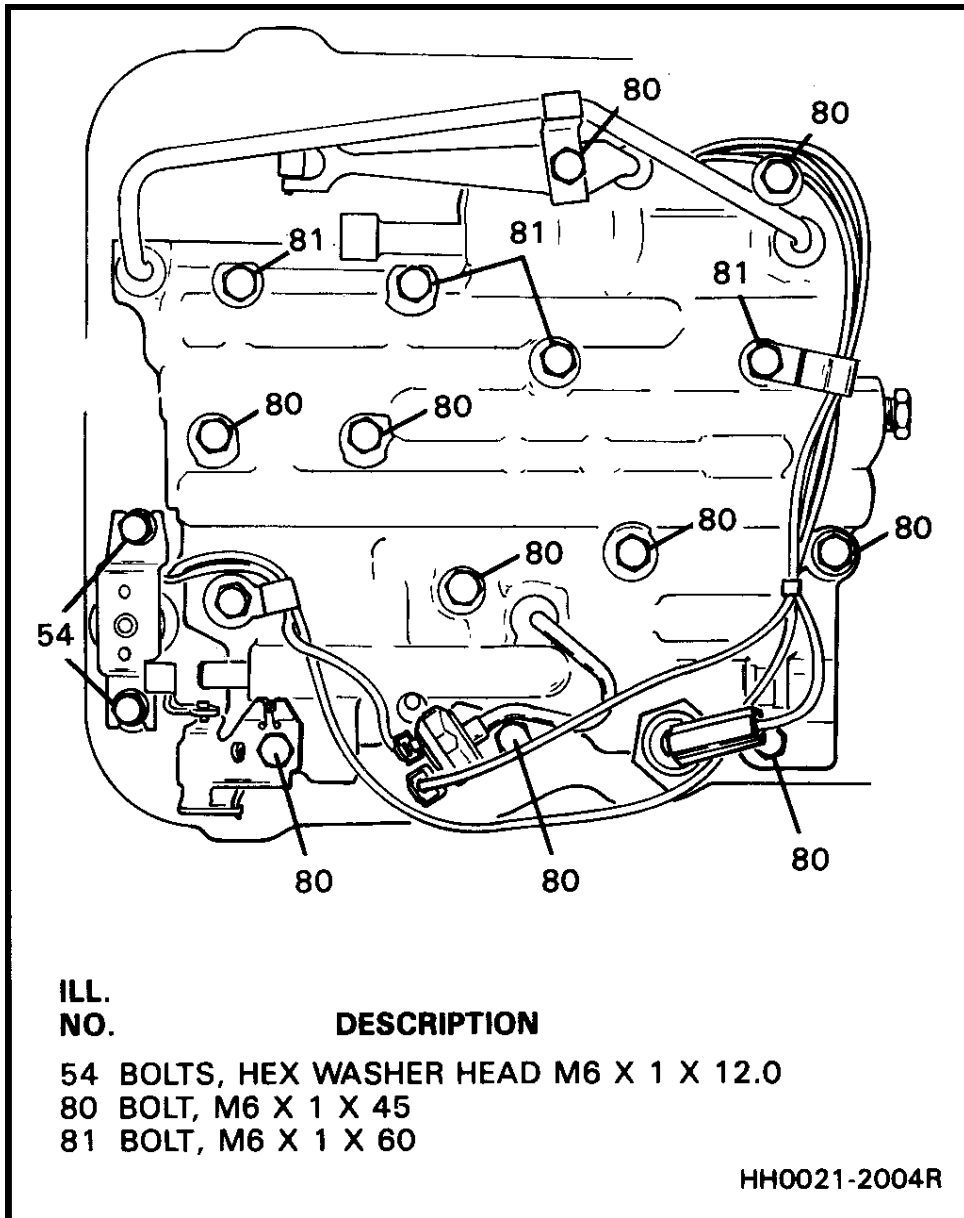


Reinstall the separator plate and gaskets (56, 86, 87), accumulator plate and gasket (57, 58), and the 1-2 accumulator housing (62) and its related components onto the transmission case. Finger tighten the accumulator housing bolts.

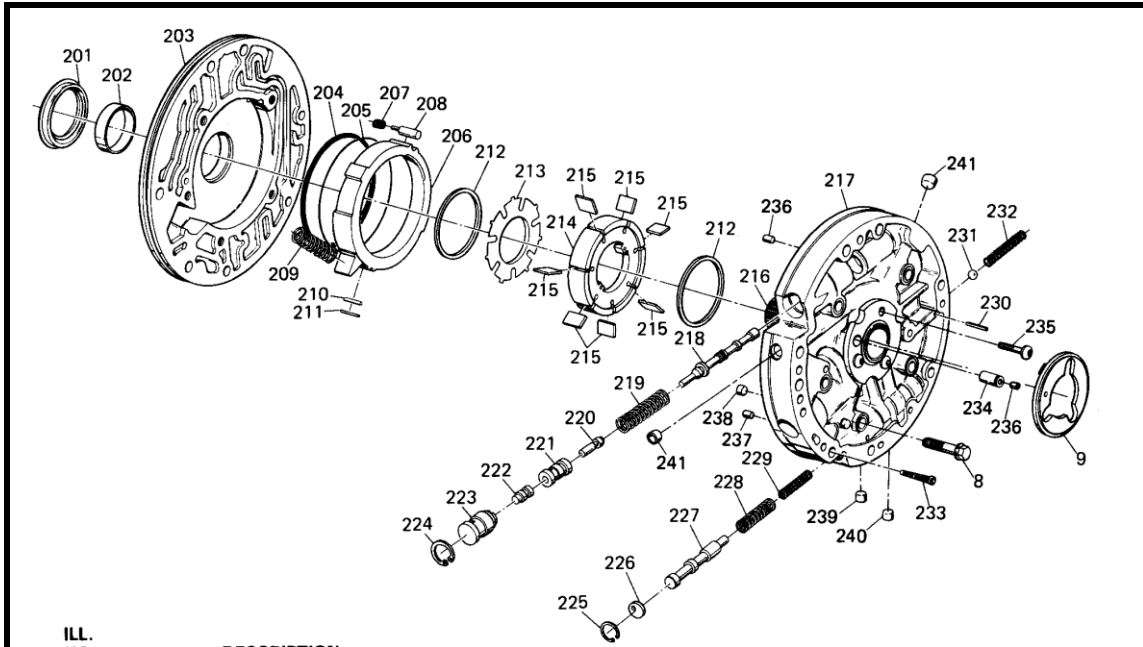
Install three .250" checkballs at the locations shown in Figure. If the vehicle has over 400 horsepower or a torque converter with over 2800 RPM stall speed, you may omit the center or middle checkball. This will give the firmest 1-2 upshift. DO NOT OMIT the checkball with low RPM stall converter or harsh 1-2 upshifts will result.



Install the valve body and related components to the transmission case. Finger tighten the bolts. Install the solenoid wiring harness assembly onto the valve body and plug it into the case connector. Install the solenoid into its bore and torque the retaining bolts (54) to 100 inch lbs. Reinstall the remaining valve body bolts and working your way from the inside out, torque the 15 valve body and accumulator housing bolts to 125 inch pounds. Before continuing, check for proper operation of the manual linkage by moving it back and forth. It should click 6 times in each direction and lock the drive shaft when shifted into park.



# OIL PUMP SCHEMATIC



**ILL.  
NO.**

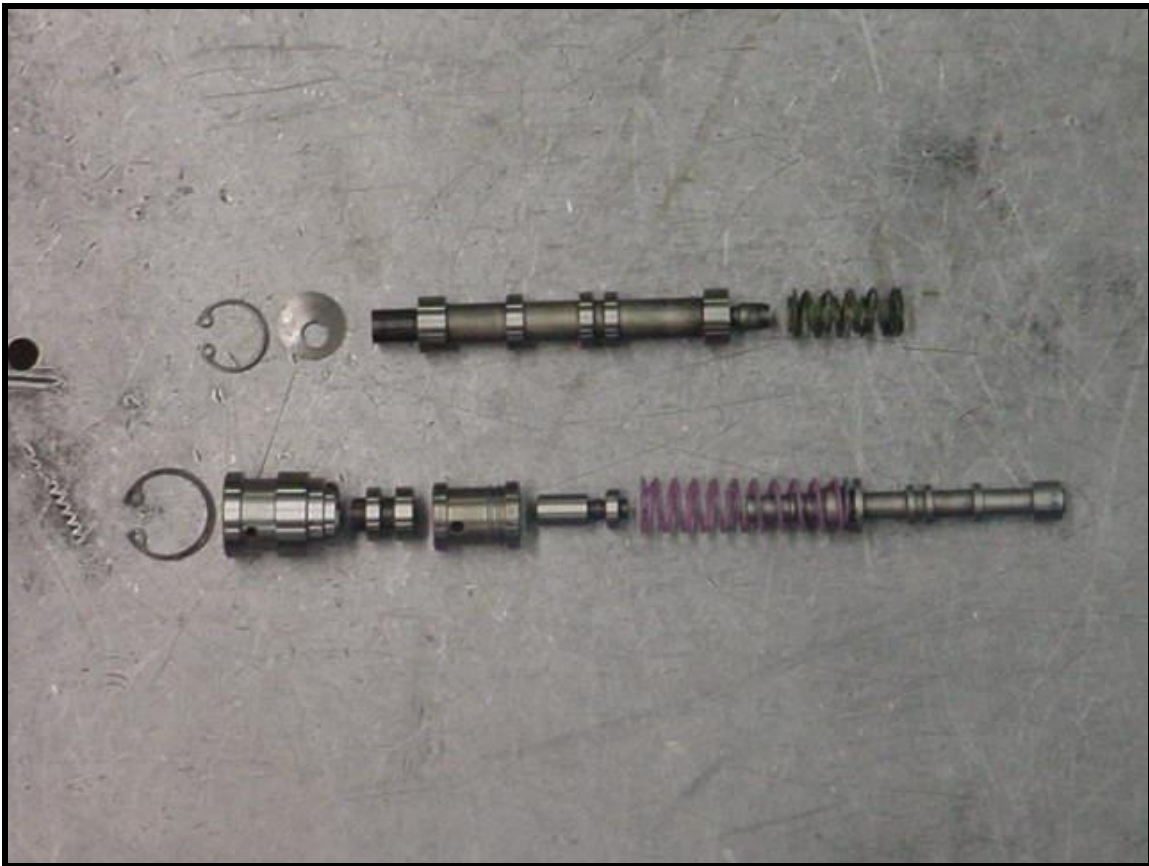
**DESCRIPTION**

- 8 BOLT, PUMP COVER TO BODY
- 9 WASHER, THRUST (HOUSING TO PUMP)
- 201 SEAL, HELIX (PUMP BODY) (FRONT)
- 202 BUSHING, PUMP BODY
- 203 BODY, PUMP
- 204 RING, OIL SEAL (SLIDE TO WEAR PLATE)
- 205 SEAL, "O" RING (SLIDE SEAL BACK-UP)
- 206 SLIDE, PUMP
- 207 SPRING, PIVOT PIN
- 208 PIN, PIVOT SLIDE
- 209 SPRING, PUMP SLIDE (INNER/OUTER)
- 210 SUPPORT, PUMP SLIDE SEAL
- 211 SEAL, PUMP SLIDE
- 212 RING, PUMP VANE
- 213 GUIDE, ROTOR
- 214 ROTOR, OIL PUMP
- 215 VANE, PUMP
- 216 SHAFT & FLANGE ASSEMBLY, STATOR
- 217 COVER, PUMP
- 218 VALVE, PRESSURE REGULATOR
- 219 SPRING, PRESSURE REGULATOR VALVE
- 220 VALVE, REVERSE BOOST
- 221 BUSHING, REVERSE BOOST VALVE
- 222 VALVE, T.V. BOOST
- 223 BUSHING, T.V. BOOST VALVE
- 224 RING, SNAP PRESSURE REGULATOR CASE
- 225 RING, SNAP (CONVERTER CL. PUMP VALVE RET.)
- 226 STOP, VALVE (CONVERTER CLUTCH)
- 227 VALVE, CONVERTER CLUTCH
- 228 SPRING, CONVERTER CLUTCH VALVE (OUTER)
- 229 SPRING, CONVERTER CLUTCH VALVE (INNER)
- 230 RIVET, FLAT HEAD (.156 X 1.0)
- 231 BALL, PRESSURE RELIEF
- 232 SPRING, PRESSURE RELIEF
- 233 SCREEN ASSEMBLY, GOVERNOR
- 234 PIN, DOWEL (PUMP COVER)
- 235 SCREW, SOCKET BUTTON HEAD (M6 X 1 X 16)
- 236 PLUG, CUP (SELECTIVE WASHER LUBE) (2)
- 237 PLUG, ORIFICE (CONV. CLUTCH SIGNAL) 4.84 DIA.
- 238 PLUG, ORIFICE (COOLER FEED) 6.84 DIA.
- 239 PLUG, CUP (COOLER FEED) 6.8 DIA.
- 240 PLUG, CUP (CLUTCH RELEASE) 6.8 DIA.
- 241 PLUG, CUP (LINE/CASE) .511 DIA. (2)

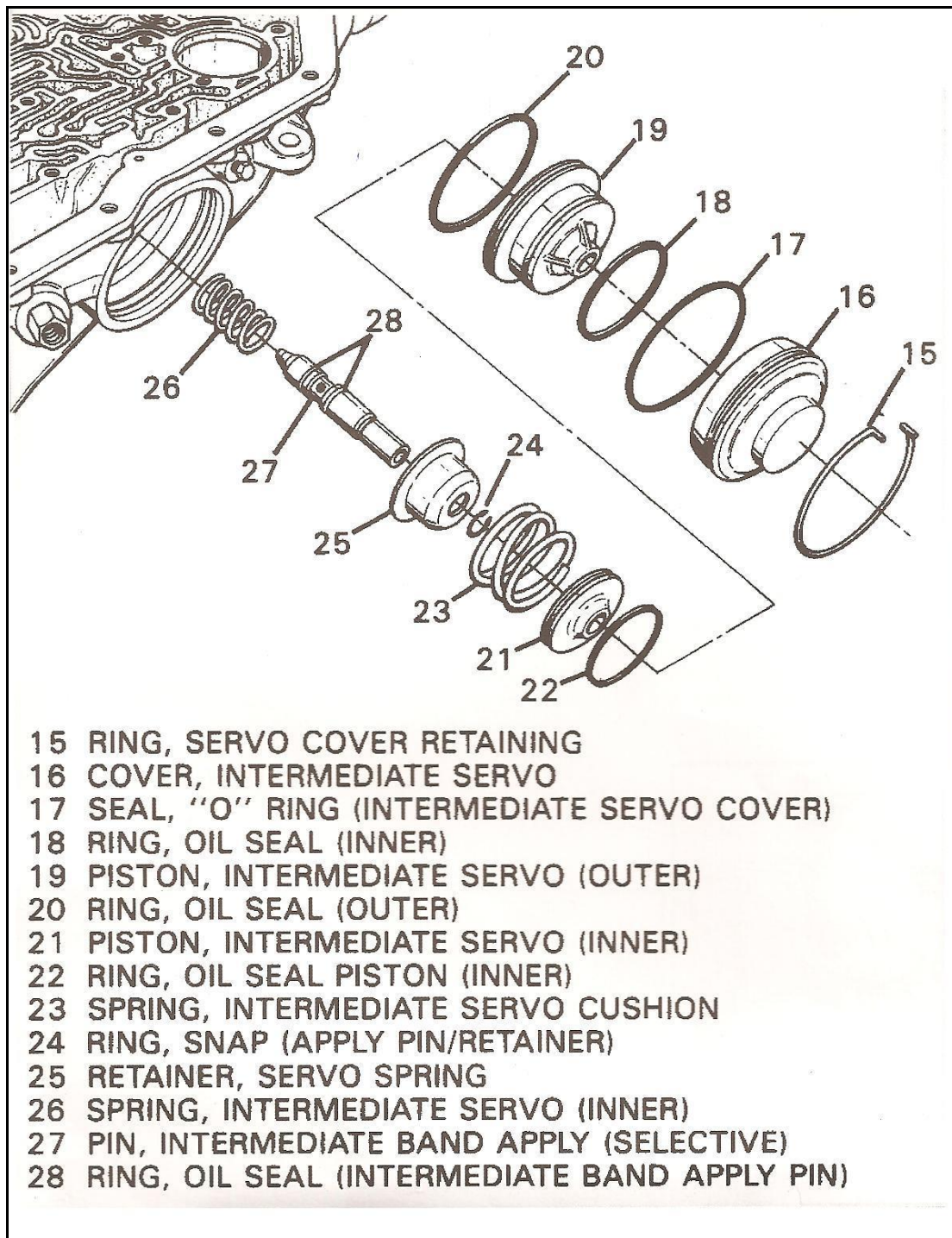
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Locate the pressure regulator assembly in this kit. Locate its position in the front pump of the transmission. Its bore in the oil pump is to the left of the bore that the oil filter is inserted into. Study the front pump illustration on the previous page and note the orientation of items 224, 223,222,221,220, and 219. Remove the snap ring (224) that retains the pressure regulator assembly into its bore. Remember that the parts are spring loaded and will pop out once the snap ring has been removed. Remove and discard item numbers 223,222, and 219. These three items are included in this kit and are installed to improve oil pressure. If item 218 (pressure regulator valve) comes out with the rest of the parts, coat it with petroleum jelly and reinstall it into the oil pump. Using the oil pump illustration and the photo below reinstall the updated pressure regulator assembly into its bore in the oil pumps. The lower valve train in the photo below is the pressure regulator assembly. Be sure that the snap ring (218) is completely seated into its groove before proceeding.



Verify the presence of the o-ring on the filter neck (item 67 on page 5) and reinstall the oil filter onto the pump. Install the supplied pan gasket and oil pan and torque the 16 pan bolts to 180 inch pounds.



Locate the intermediate servo assembly on the passenger side of the transmission case. Using the figure as a guide, remove the servo cover retaining ring (15) and remove the servo assembly. Reinstall the servo assembly fitting the servo cover (16) with the new servo cover o-ring seal (17) supplied in this kit. Be sure retaining ring is fully seated in its groove.

**Start the engine and fill the transmission oil to its proper level as shown on the dipstick. Road test the transmission, recheck the oil level and readjust the TV cable and manual linkage if necessary.**

**When performing any oil pressure checks with the newly installed components and modifications in this kit, minimum and maximum T.V. pressures will be similar in all ranges except Reverse. At 1000 plus rpm hot expect 65 to 90 psi. at minimum T.V. , and 245 to 295 psi. @ maximum T.V. At 1000 plus rpm hot in Reverse expect 140 psi. at minimum T.V. , and 240 psi. @ maximum T.V. If pressure value is fixed at any value between 200 and 260 psi at any throttle angle between minimum and maximum T.V. in Reverse, this is acceptable.**