HYDRA-MATIC 6L80 *(6 Speed)*

PRELIMINARY INFORMATION

The new Hydra-matic 6L80 (6 Speed) is a fully automatic, six speed, rear wheel drive, electronically controlled transmission that features clutch to clutch shifting. It was first introduced in the 2006 Corvette, and is scheduled for Pick-ups in 2007, as shown in Figure 1. It consists primarily of a four element torque converter, two planetary gear sets, five clutch packs, one sprag and a hydraulic pressurization and control system. Two planetary gear sets provide the six forward gear ratios and reverse. Changing gear ratios is fully automatic and is accomplished through the use of a Transmission Control Module (TCM), that is ***located within the transmission.*** The TCM receives and monitors various electronic sensor inputs, and uses this information to shift the transmission at the optimum time. The TCM commands shift solenoids and variable bleed Clutch Pressure Control (CPC) solenoids within the transmission to control shift timing. The TCM controls shift feel through the CPC solenoids. The TCM also controls the apply and release of the torque converter clutch which allows the engine to deliver the maximum fuel efficiency without sacrificing vehicle performance. This manual contains procedures necessary to diagnose, overhaul and/or repair the new 6L80 (6 Speed) transmission from General Motors.

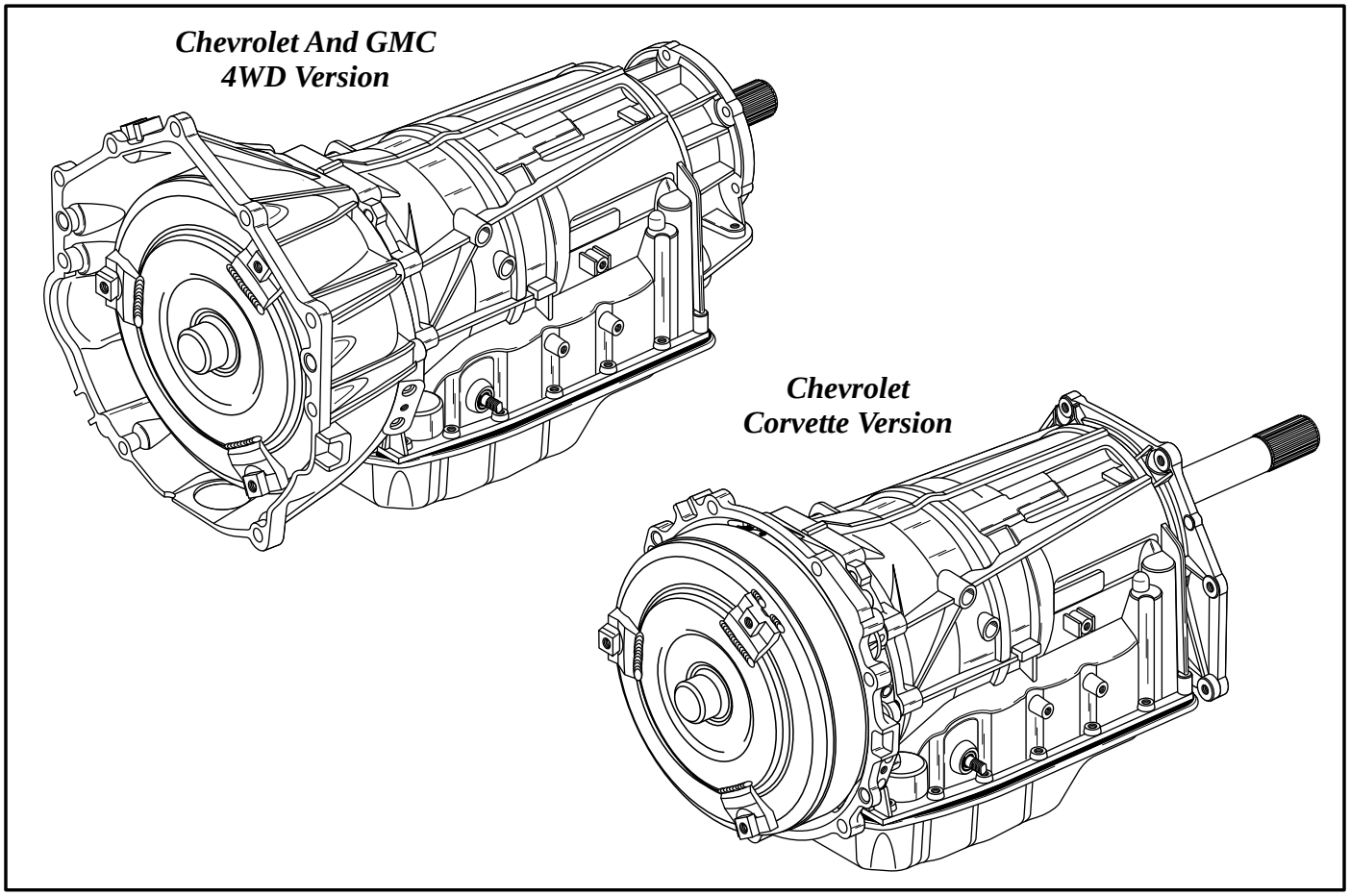

Figure 1

GENERAL DESCRIPTION

The new Hydra-matic 6L80 (6 Speed) is a fully automatic, six speed, rear wheel drive, electronically controlled transmission that features clutch to clutch shifting. It consists primarily of a four element torque converter, two planetary gear sets, five clutch packs, one sprag and a hydraulic pressurization and control system.

The four element torque converter contains a pump, a turbine, a pressure plate splined to the turbine, and a stator assembly. The torque converter acts as a fluid coupling to smoothly transmit power from the engine to the transmission. It also hydraulically provides additional torque multiplication when required. The pressure plate, when applied, provides a mechanical "direct drive" coupling of the engine to the turbine shaft of the transmission.

The two planetary gear sets provide the six forward gear ratios and reverse. Changing gear ratios is fully automatic and is accomplished through the use of a Transmission Control Module (TCM) located within the transmission. The TCM receives and monitors various electronic sensor inputs, and uses this information to shift the transmission at the optimum time.

The TCM commands shift solenoids and variable bleed Clutch Pressure Control (CPC) solenoids within the transmission to control shift timing. The TCM controls shift feel through the CPC solenoids. The TCM also controls the apply and release of the torque converter clutch which allows the engine to deliver the maximum fuel efficiency without sacrificing vehicle performance.

The hydraulic system primarily consists of a vane type pump, two control valve bodies, converter housing and case. The pump maintains the working pressures needed to apply the clutch pistons that apply or release the friction components. These friction components, when applied or released, support the shifting qualities of the transmission.

The friction components used in this transmission consist of five multiple disc clutches. The multiple disc clutches combine with one mechanical sprag clutch, to deliver seven different gear ratios through the gearsets that then transfer torque through the output shaft. Refer to Figure 4 for the component application chart for this transmission.

SHIFT QUADRANTS

The transmission shift quadrants vary by model. There may be four to seven different positions shown on the shift quadrants, as shown in Figure 2 and in Figure 3.

Standard Shift Quadrant

P - Park position enables the engine to be started while preventing the vehicle from moving. For safety reasons, the vehicle's parking brake should always be used in addition to the "Park" position. Park position should not be selected until the vehicle has come to a complete stop.

R - Reverse enables the vehicle to be operated in a rearward direction.

N - Neutral position enables the engine to start and operate without driving the vehicle. If necessary, this position should be selected to restart the engine while the vehicle is moving.

D - Drive range should be used for all normal driving conditions for maximum efficiency and fuel economy. Drive range allows the transmission to operate in each of the six forward gear ratios. Downshifts to a lower gear are available for safe passing, by depressing the accelerator, or by manually selecting a lower gear with the shift lever.

Manual Shift Ranges

Some vehicles are equipped with a shift quadrant that allow manual range selection. For example, "M" manual range and/or manual range "2" or "1", as shown in Figure 2. These ranges can be used for conditions where it may be desirable to control the selection of gear ratios. These conditions include trailer towing, driving on hilly terrain, and are also helpful for engine braking when descending slight grades.

M - When manual mode is selected, the current gear range will be the highest attainable range with all of the lower gears available. Plus/Minus buttons may be used to select the desired range of gears for the current driving conditions.

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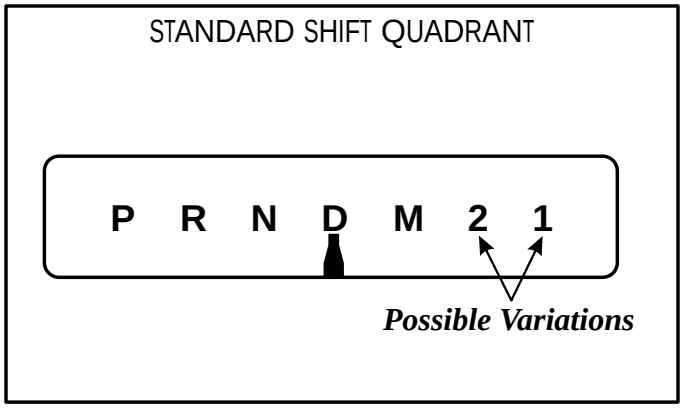


Figure 2

Standard Shift Quadrant (Cont'd)

2 - Manual 2nd just adds more performance for congested traffic and hilly terrain. It has the same starting ratio (1st gear) as the Drive range, but prevents the transmission from shifting above 2nd gear. Manual 2nd can be used to retain 2nd gear for acceleration and engine braking as desired. Manual 2nd can be selected at any vehicle speed, but will downshift into 2nd gear, only if vehicle speed is low enough not to over-rev the engine. This speed is calibrated in the TCM.

1 - Manual 1st has the same starting ratio as Drive range but prevents the transmission from shifting above 1st gear. Manual 1st can be used for heavy towing and engine braking as desired. Manual 1st can be selected at any vehicle speed but will downshift into 1st gear, only if vehicle speed is low enough not to over-rev the engine. This speed is calibrated in the TCM.

SHIFT QUADRANTS (CONT'D)

Driver Shift Control (DSC) Quadrant

Some vehicles are equipped with Driver Shift Control (DSC) version of the selector system, as shown in Figure 3. This configuration allows the driver to manually shift between forward gears.

P - Park position enables the engine to be started while preventing the vehicle from moving. For safety reasons, the vehicle's parking brake should always be used in addition to the "Park" position. Park position should not be selected until the vehicle has come to a complete stop.

Driver Shift Control (DSC) Quadrant (Cont'd)

R - Reverse enables the vehicle to be operated in a rearward direction.

N - Neutral position enables the engine to start and operate without driving the vehicle. If necessary, this position should be selected to restart the engine while the vehicle is moving.

D - Drive range should be used for all normal driving conditions for maximum efficiency and fuel economy. Drive range allows the transmission to upshift and downshift in each of the six forward gear ratios, according to the normal shift pattern that is programed in the TCM.

M/S - In the M/S (Manual or Sport) position, the driver may manually select the range of gears by tapping the selector lever towards "+" or "-" to cause an upshift or downshift, as shown in Figure 3. The transmission will shift up or down depending on the request that is made by tapping the selector lever.

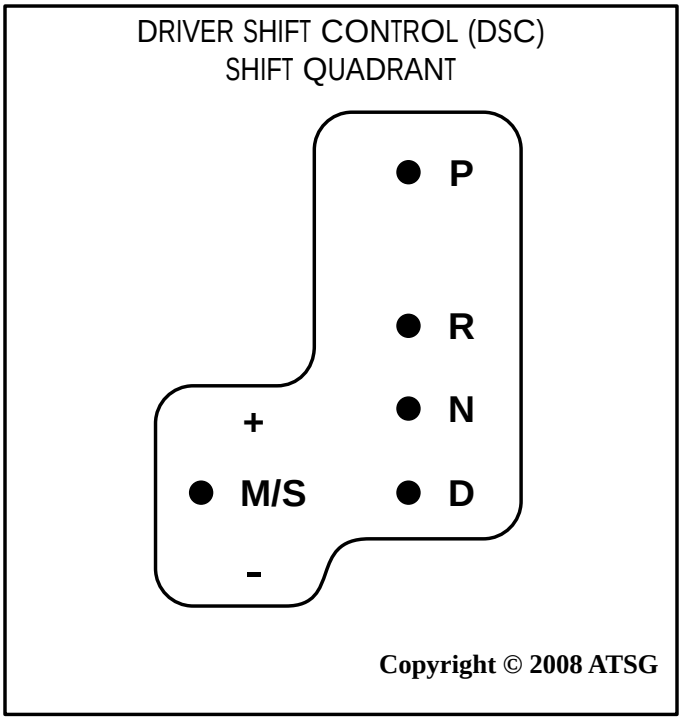
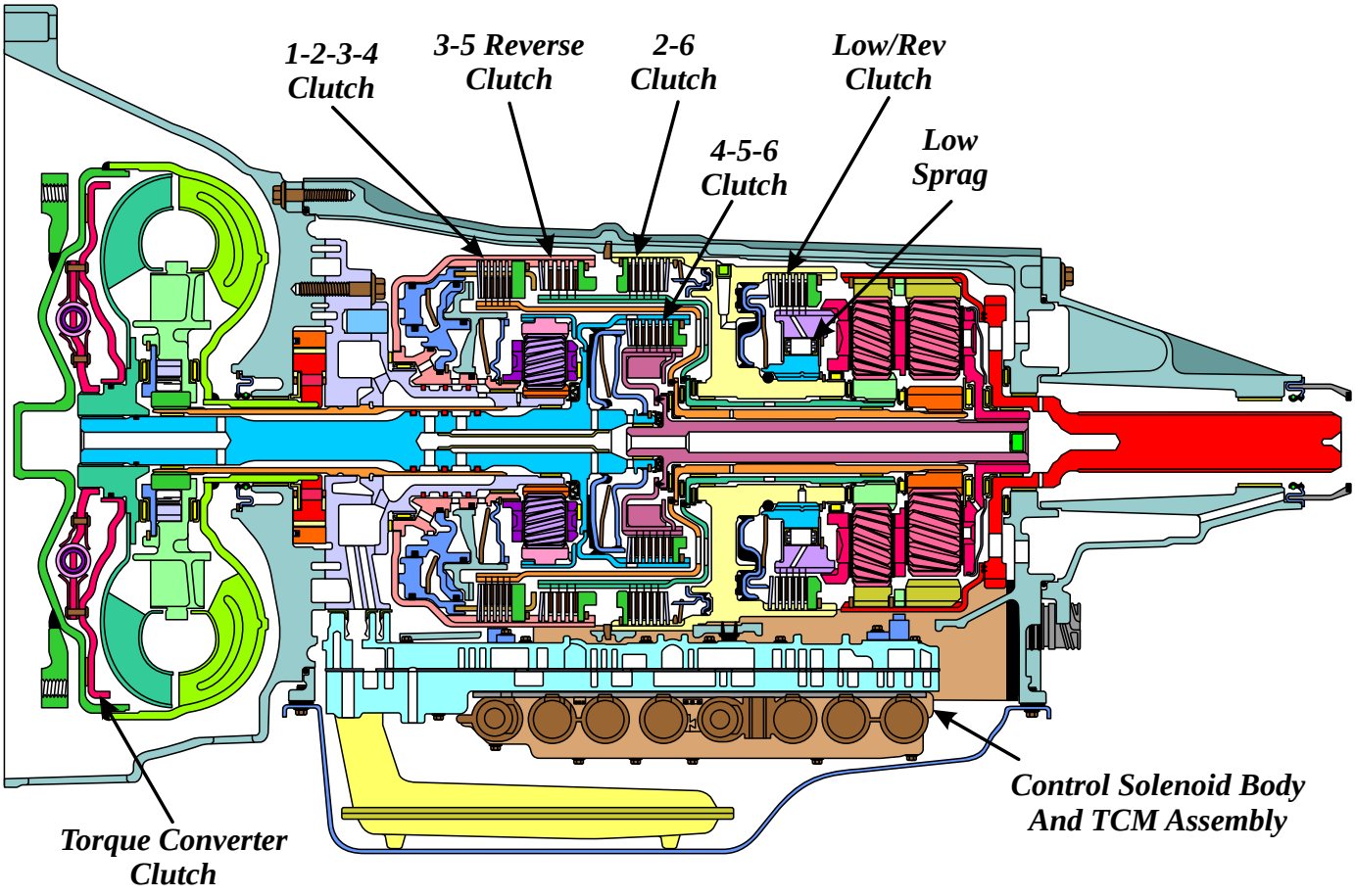


Figure 3

INTERNAL COMPONENT IDENTIFICATION AND LOCATION



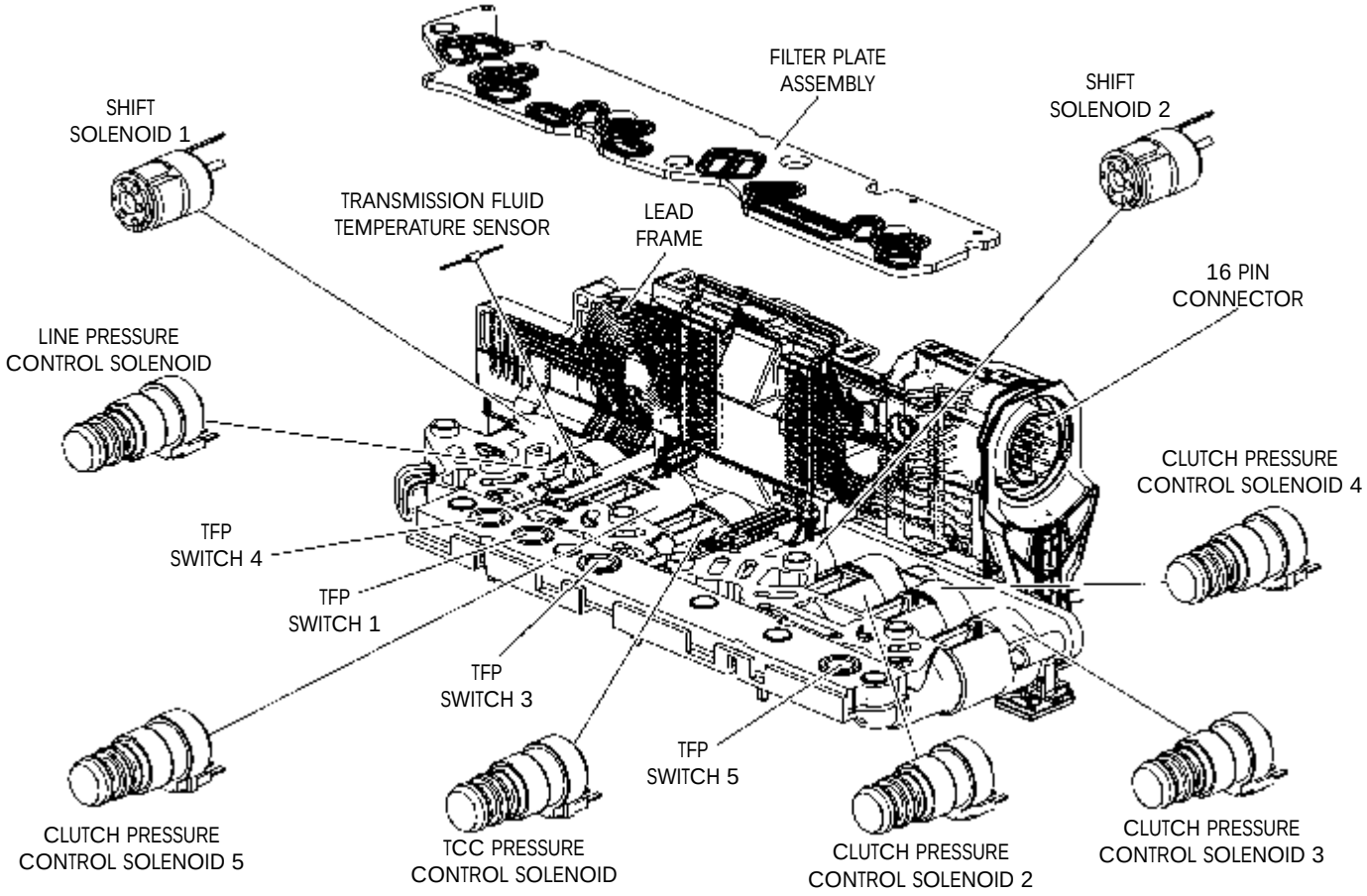
COMPONENT APPLICATION CHART

RANGE	1-2-3-4 Clutch	3-5, Rev Clutch	4-5-6 Clutch	2-6 Clutch	Low & Rev Clutch	Low Sprag	Torq Conv Clutch	GEAR RATIO	
Park					Applied				
Reverse		Applied			Applied			3.06	
Neutral					Applied				
"D"-1st	Applied				Applied	Holding		4.03	
"D"-2nd	Applied			Applied			Applied*	2.36	
"D"-3rd	Applied	Applied					Applied*	1.53	
"D"-4th	Applied		Applied				Applied*	1.15	
"D"-5th		Applied	Applied				Applied*	0.85	
"D"-6th			Applied	Applied			Applied*	0.67	
"M"-2nd	Applied			Applied			Applied*	2.36	
"M"-1st	Applied				Applied	Holding		4.03	

** TCC IS AVAILABLE IN 2ND THRU 6TH GEAR, BASED ON THROTTLE POSITION, FLUID TEMP AND VEHICLE SPEED.*

Figure 4

CONTROL SOLENOID BODY AND TCM ASSEMBLY



SOLENOID APPLICATION CHART

RANGE	*Shift Sol. 1*	*Shift Sol. 2*	*CPC Sol. 5 1-2-3-4 CL.*	*CPC Sol. 4 2-6 CL.*	*CPC Sol. 2 3-5 Rev CL.*	*CPC Sol. 3 4-5-6, Low/Rev CL.*	*TCC PC Sol. Torq Conv CL.*	*LINE PC Sol. Line Pres Cont*	*GEAR RATIO*
Park	*ON*	*ON*	*OFF*	*OFF*	*ON*	*OFF*	*OFF*	*ON***	
Reverse	*ON*	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*	*ON***	***3.06***
Neutral	*ON*	*ON*	*OFF*	*OFF*	*OFF*	*ON*	*OFF*	*ON***	
"D"-1st	*OFF*	*ON*	*ON*	*OFF*	*ON*	*ON*	*OFF*	*ON***	***4.03***
"D"-2nd	*OFF*	*ON*	*ON*	*ON*	*ON*	*ON*	*ON**	*ON***	***2.36***
"D"-3rd	*OFF*	*ON*	*ON*	*OFF*	*OFF*	*ON*	*ON**	*ON***	***1.53***
"D"-4th	*OFF*	*ON*	*ON*	*OFF*	*ON*	*OFF*	*ON**	*ON***	***1.15***
"D"-5th	*OFF*	*ON*	*OFF*	*OFF*	*OFF*	*OFF*	*ON**	*ON***	***0.85***
"D"-6th	*OFF*	*ON*	*OFF*	*ON*	*ON*	*OFF*	*ON**	*ON***	***0.67***
"M"-2nd	*OFF*	*ON*	*ON*	*ON*	*ON*	*ON*	*ON**	*ON***	***2.36***
"M"-1st	*OFF*	*ON*	*ON*	*OFF*	*ON*	*ON*	*OFF*	*ON***	***4.03***

FOR SHIFT SOLENOIDS 1 AND 2: "ON" = ENERGIZED (PRESSURIZED), "OFF" = DE-ENERGIZED (NO PRESSURE).
FOR CPC SOLENOIDS 2, 3: "OFF = PRESSURIZED, "ON" = NO PRESSURE.
FOR CPC SOLENOIDS 4,5: "ON = PRESSURIZED, "OFF" = NO PRESSURE.
**** TCC IS AVAILABLE IN 2ND THRU 6TH GEAR, BASED ON THROTTLE POSITION, FLUID TEMP AND VEHICLE SPEED.***
***** CONSTANTLY VARIES LINE PRESSURE BASED ON THROTTLE POSITION, FLUID TEMP, AND GEAR STATE.***

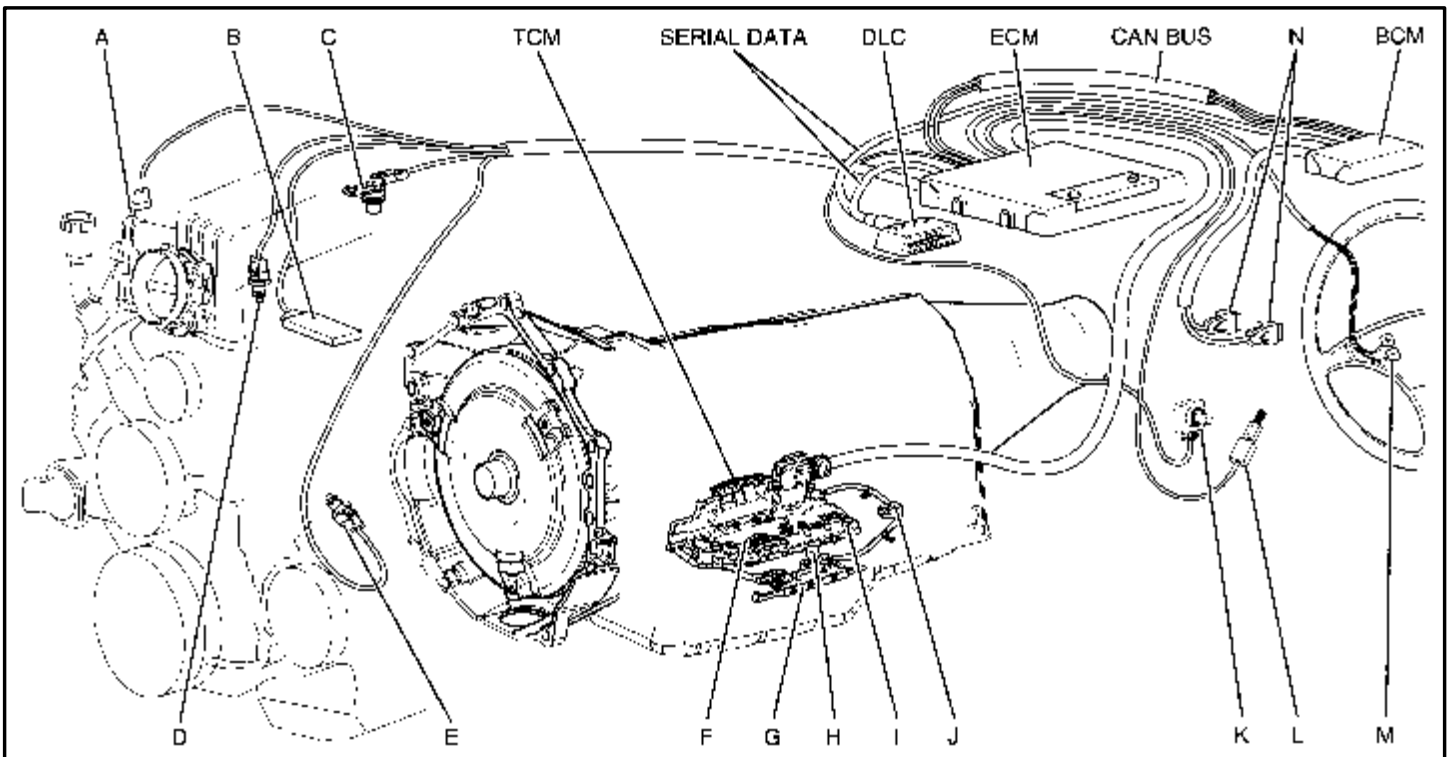
Figure 5

ELECTRONIC COMPONENTS

In the 6L80 transmission, the TCM, both shift solenoids, all 6 of the pressure control solenoids, the TFT sensor and fluid pressure switches are contained in one unit, the Control Solenoid Body and TCM Assembly, which is located in the bottom pan, as shown in Figure 6.

Electrical signals from various sensors provide information to the TCM about vehicle speed, throttle position, engine coolant temp, fluid temp, range selector position, engine speed, turbine speed and operating mode. The TCM uses this information to determine the precise moment to upshift or downshift, apply or release the TCC, and what pressure is needed to apply the clutches. This type of control provides consistent and precise shift points and shift quality based on the actual operating conditions of the vehicle.

Adaptive shift control technology enables the TCM to continually monitor and compare shift performance to the optimum shift, and make adjustments to the factory settings to continually deliver excellent shift quality.



INFORMATION SENSORS

A MULTI-PORT ELECTRONIC INJECTION
B MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
C ENGINE SPEED SENSOR
D MANIFOLD AIR TEMP (MAT) SENSOR
E ENGINE COOLANT TEMP (ECT) SENSOR
F TRANSMISSION FLUID TEMP (TFT) SENSOR
G TRANSMISSION MANUAL SHIFT SHAFT POSITION SWITCH ASSEMBLY
H INPUT SPEED SENSOR (ISS)
I TRANSMISSION FLUID PRESSURE SWITCHES
J OUTPUT SPEED SENSOR (OSS)
K ACCELERATOR PEDAL POSITION (APP) SENSOR
L BRAKE SWITCH
M DRIVER SHIFT CONTROL (DSC) SWITCHES
N OPERATING MODE SELECTION SWITCHES

ELECTRONIC CONTROLLERS

TRANSMISSION CONTROL MODULE (TCM)

ENGINE CONTROL MODULE (ECM)

BODY CONTROL MODULE (BCM)

DIAGNOSTIC LINK CONNECTOR (DLC)

ELECTRONICALLY CONTROLLED TRANSMISSION COMPONENTS

LINE PRRESSURE CONTROL SOLENOID

CLUTCH PRES CONTROL SOLENOID 2

CLUTCH PRES CONTROL SOLENOID 3

CLUTCH PRES CONTROL SOLENOID 4

CLUTCH PRES CONTROL SOLENOID 5

TCC PRESSURE CONTROL SOLENOID

SHIFT SOLENOID 1

SHIFT SOLENOID 2

Figure 6

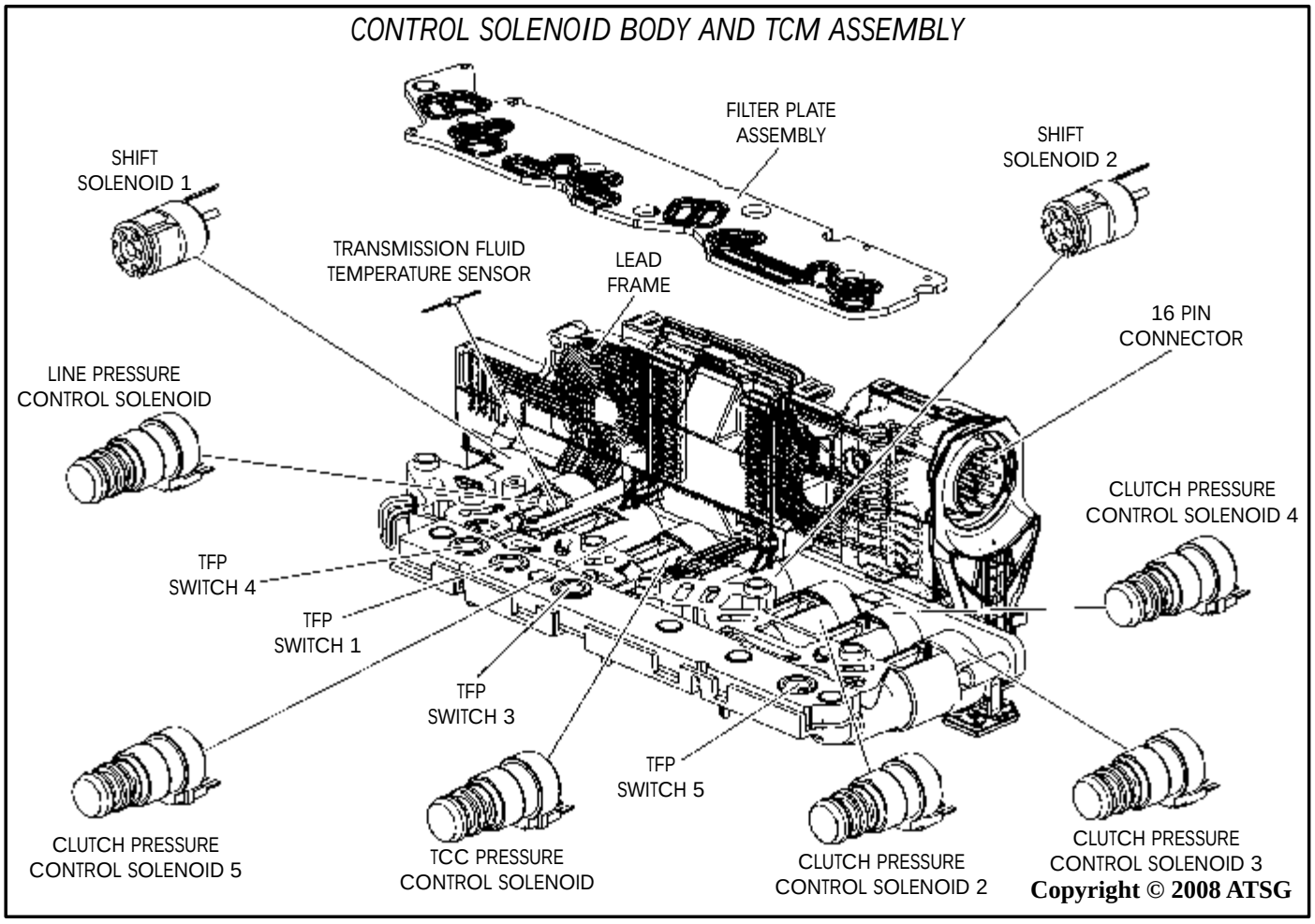


Figure 7

ELECTRONIC COMPONENTS (CONT'D)

Control Solenoid Body And TCM Assembly

The Control Solenoid Body and TCM Assembly bolts directly to the lower and upper valve body assemblies inside the transmission. The solenoid assembly utilizes a lead frame system to connect the components to the TCM, as shown in Figure 7. There are no wires used for these components. The Control Solenoid Body and TCM Assembly connect to the external harness 16 way connector using a pass-thru sleeve. All fluid passages to the switches and solenoids are protected from debris by a serviceable filter plate assembly, as shown in Figure 7. In addition to the components shown in Figure 7, there are two temperature sensors located ***inside*** the TCM that are not shown, the TCM Temperature Sensor and the Power Up Temperature Sensor.

The components shown in Figure 7 are diagnosed seperately, but serviced as an assembly.

Transmission Fluid Temperature (TFT) Sensor

The TFT sensor is part of the control solenoid body and TCM assembly, and is not serviced separately, as shown in Figure 7 and 8. The TFT sensor is a resistor, or thermister, which changes value based on temperature. The sensor has a negative-temperature coefficient, which means as the temp increases, the resistance decreases, and as the temp decreases, the resistance increases. The TCM supplies a voltage reference signal to the sensor and measures the voltage drop in the circuit. The TCM uses this information to maintain shift quality and torque converter clutch apply quality over the entire operating temperature range. If the TCM detects an improper signal from the TFT sensor, a DTC will be activated.

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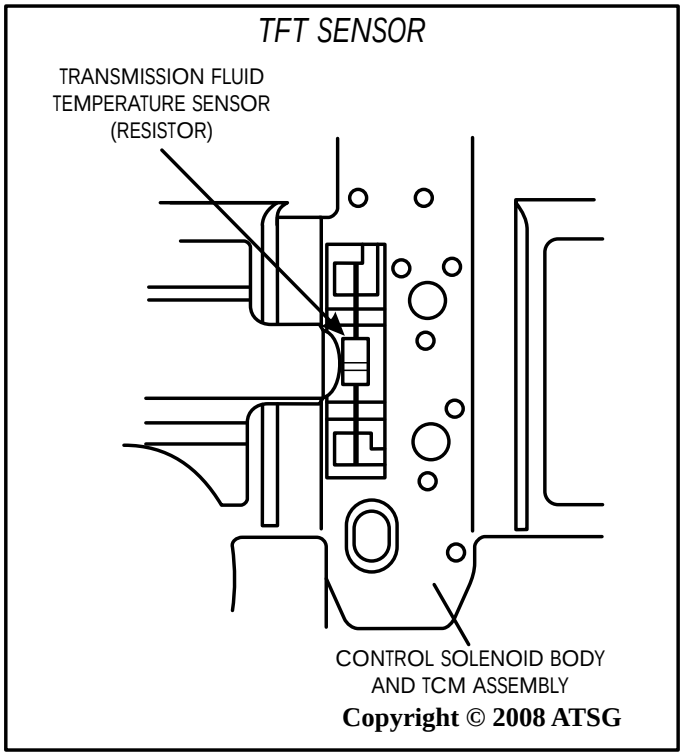


Figure 8

ELECTRONIC COMPONENTS (CONT'D)

Fluid Pressure Switches

The transmission fluid pressure switches located in the control solenoid body and TCM assembly are normally closed. When closed, these switches allow current flow through the switch. When fluid pressure is routed to the switch, pressure moves the diaphragm, piston and disk such that the circuit opens and there is no current flow. See Figure 9 for a cut-away view and a pressure switch logic chart.

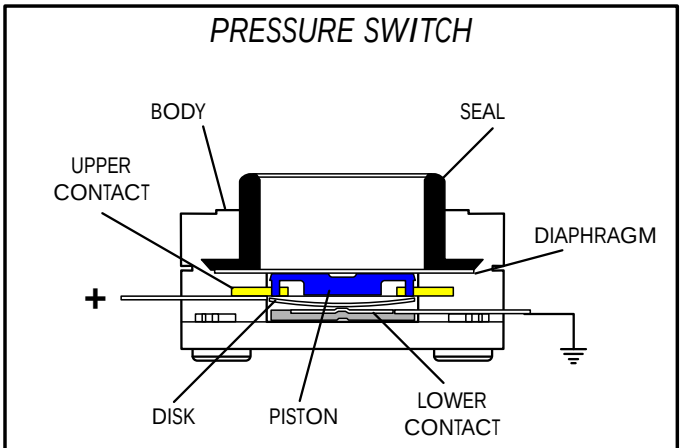
TFP switch 1 sends a signal to the TCM to indicate the state of the 3-5 and reverse clutch regulator valve.

TFP switch 3 sends a signal to the TCM to indicate the state of the 2-6 clutch regulator valve.

TFP switch 4 sends a signal to the TCM to indicate the state of the 1-2-3-4 clutch regulator valve.

TFP switch 5 sends a signal to the TCM to indicate the state of CBR1/4-5-6 clutch regulator valve. (CBR1 = Clutch Braking 1st)

The fluid pressure switches are part of the Control Solenoid Body and TCM Assembly, and are not serviced separately.



Pressure Switch Logic				
Selector Position	***Switch 1***	***Switch 3***	***Switch 4***	***Switch 5***
Park	***1***	***0***	***0***	***0***
Reverse	***0***	***0***	***0***	***0***
Neutral	***1***	***0***	***0***	***0***
"D"-1st	***1***	***1***	***0***	***1***
"D"-2nd	***1***	***0***	***0***	***1***
"D"-3rd	***0***	***1***	***0***	***1***
"D"-4th	***1***	***1***	***0***	***0***
"D"-5th	***0***	***1***	***1***	***0***
"D"-6th	***1***	***0***	***1***	***0***
"M"-1st	***1***	***1***	***0***	***0***
1 = Pressurized 0 = Exhausted				

Figure 9

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ELECTRONIC COMPONENTS (CONT'D)

SHIFT SOLENOIDS 1 AND 2

Shift solenoids 1 and 2 are both identical, normally closed, 3 port, ON/OFF type solenoids controlled by the TCM. These shift solenoids work in combination with the clutch pressure control solenoids to control the various shift and clutch regulator valves in the valve body.

When the TCM provides a path to ground for the electrical circuit to energize (Turn ON) the solenoid, current flows through the coil assembly in the solenoid and creates a magnetic field. The magnetic field moves the plunger and metering ball assembly to the right, as shown in Figure 10, against the exhaust seat, thereby blocking the exhaust passage and creating solenoid control pressure.

Shift solenoids are de-energized (Turned OFF) when the TCM opens the path to ground for the solenoid's electrical circuit. With the solenoid OFF, solenoid spring force moves the plunger and metering ball assembly to the left, as shown in Figure 10, away from the exhaust seat and against the feed seat. This blocks actuator feed limit fluid from entering the solenoid and allows any existing solenoid control pressure to exhaust through the solenoid.

Shift Solenoids 1 and 2 are part of the Control Solenoid Body and TCM Assembly, and are not serviced separately.

Shift Solenoid 1

Actuator feed limit fluid feeds the shift solenoid 1 fluid circuit to control clutch select valve 2. When shift solenoid 1 is energized (ON), actuator feed limit fluid is allowed to pass through the solenoid, thereby creating solenoid 1 control pressure, as shown in Figure 10. Solenoid 1 control pressure acts against clutch select valve 2 spring force, to move the valve to the apply position.

When shift solenoid 1 is de-energized (OFF), actuator feed limit fluid is blocked from feeding the solenoid 1 circuit, and any existing solenoid 1 control pressure exhausts through the solenoid, as shown in Figure 10.

SHIFT SOLENOID 1 AND 2

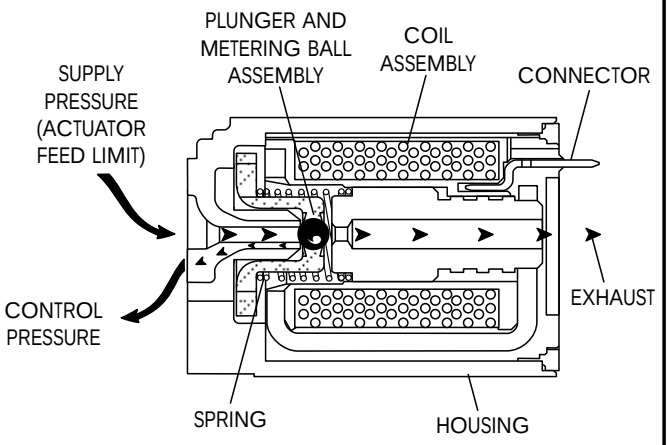


Figure 10

Shift Solenoid 2

Actuator feed limit fluid feeds the shift solenoid 2 fluid circuit to control clutch select valve 3. When shift solenoid 2 is energized (ON), actuator feed limit fluid is allowed to pass through the solenoid, thereby creating solenoid 2 control pressure, as shown in Figure 10. Solenoid 2 control pressure acts against clutch select valve 3 spring force, to move the valve to the apply position.

When shift solenoid 2 is de-energized (OFF), actuator feed limit fluid is blocked from feeding the solenoid 2 circuit, and any existing solenoid 2 control pressure exhausts through the solenoid, as shown in Figure 10.

Fail-Safe or Protection Mode

If for any reason, the entire electronic control system of the transmission, or any one of the electrical components within the Control Solenoid Body and TCM Assembly becomes disabled, the transmission will default to fail-safe mode. If the transmission is in 1st, 2nd or 3rd gear during an electrical failure, the transmission will default to 3rd gear. If the transmission is in 4th, 5th or 6th gear during an electrical failure, the transmission will default to 5th gear.

ELECTRONIC COMPONENTS (CONT'D)

PRESSURE CONTROL SOLENOIDS

Line Pressure Control (PC) Solenoid

The line pressure (PC) solenoid is a precision electronic pressure regulator that controls line pressure based on current flow through its coil windings. The TCM varies current to the ***"normally-high"*** amperage line pressure control (PC) solenoid from approximately 0.1 amp (maximum line pressure), to 1.0 amps (minimum line pressure). As current flow is increased, the magnetic field produced by the coil moves the solenoid's variable restriction further away from the exhaust port, as shown in Figure 11. Opening the exhaust port decreases the control pressure, which is routed to the isolator (boost) valve, as shown in Figure 11, which ultimately decreases line pressure. As the current flow is decreased, the reduced magnetic field allows the spring force to move the variable restriction to the left, as shown in Figure 11, closer to the exhaust port, increasing control pressure from the solenoid, which ultimately increases line pressure.

As the throttle position (engine torque) increases, the current flow is decreased by the TCM, which increases the pressure output of the line pressure (PC) solenoid. If the TCM detects a line pressure control solenoid electrical malfunction, a DTC will be activated.

NORMALLY-HIGH PRESSURE CONTROL SOLENOID

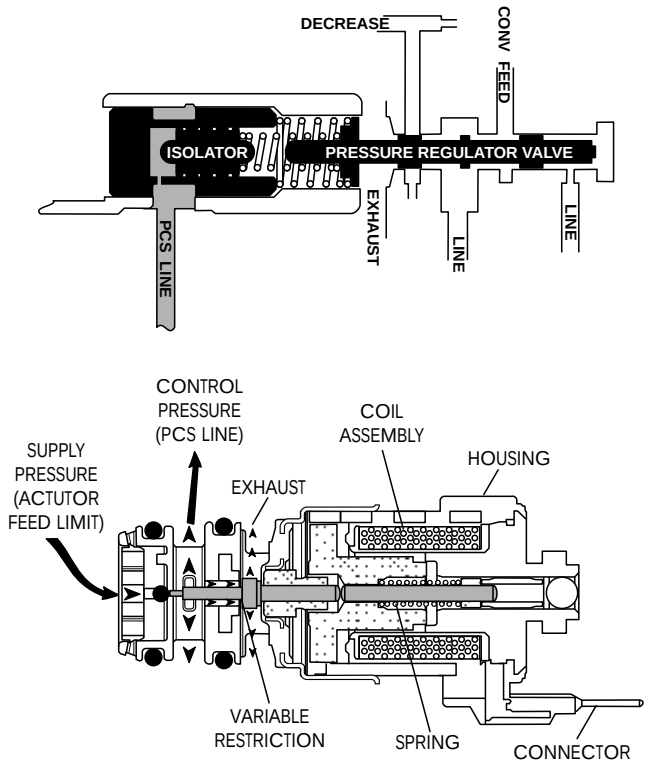


Figure 11

The line pressure control (PC) solenoid is part of the Control Solenoid Body And TCM Assembly and is not serviced separately.

If for any reason, the entire electronic control system of the transmission fails, the line pressure control solenoid will be OFF, and maximum line pressure will be the result. This will create harsh engagements and/or failsafe operation.

If the transmission is in 1st, 2nd or 3rd during an electrical failure, the transmission will default to 3rd gear. All solenoids will default to their normal state. If the torque converter clutch was applied, it will release.

If the transmission is in 4th, 5th or 6th during an electrical failure, the transmission will default to 5th gear. All solenoids will default to their normal state. If the torque converter clutch was applied, it will release.

The transmission will stay in 5th gear default range until the ignition has been turned off or the transmission has been shifted to Reverse. When the vehicle is restarted and shifted back into Drive, the transmission will then operate in the 3rd gear default range.

ELECTRONIC COMPONENTS (CONT'D)

TORQUE CONVERTER CLUTCH (TCC) SOLENOID

The Torque Converter Clutch (TCC) PC Solenoid is a ***"normally-low"amperage***, electronic pressure regulator used to control the apply and release of the torque converter clutch based on current flow through its coil windings. The TCC PC solenoid regulates actuator feed limit fluid pressure to the TCC regulator valve, located in the lower valve body, and provides a signal pressure to shift the TCC control valve, located in the pump, to the apply position, as shown in Figure 12. When the TCM determines to apply the TCC, the TCC PC solenoid is commanded to specific pressures, dependent on vehicle operating conditions, resulting in a smooth apply or release of the TCC. The solenoid's ability to "Ramp" the TCC apply and release pressures results in a smoother TCC operation.

When vehicle operating conditions are appropriate to apply the TCC, the TCM increases current flow to allow the TCC PC solenoid to increase PCS TCC fluid pressure, to move the TCC control valve to the apply position, as shown in Figure 12, and move the TCC regulator valve to the regulating position to regulate fluid pressure proportional to solenoid pressure. Release pressure is directed to exhaust, and regulated apply pressure is directed to the apply side of the converter clutch plate/damper assembly. The TCM then increases the pressure to control a slippage of 20-80 RPM between the clutch plate and converter cover. This "Ramping" procedure for improved dampening of engine vibrations and allows the TCC to apply at low engine speeds in 2nd, 3rd, 4th, 5th and 6th gear.

Release of the TCC is achieved by decreasing TCC solenoid pressure to a level low enough to allow spring force to move the TCC control valve and TCC regulating valve to the release position.

There are also some operating conditions that may prevent or enable TCC apply, such as engine temp, transmission temperature, brake switch activation.

If the TCM detects that the TCC system is stuck ON or OFF, a DTC will be activated.

The TCC PC Solenoid is part of the Control Solenoid Body And TCM Assembly and is not serviced separately.

NORMALLY-LOW PRESSURE CONTROL SOLENOID

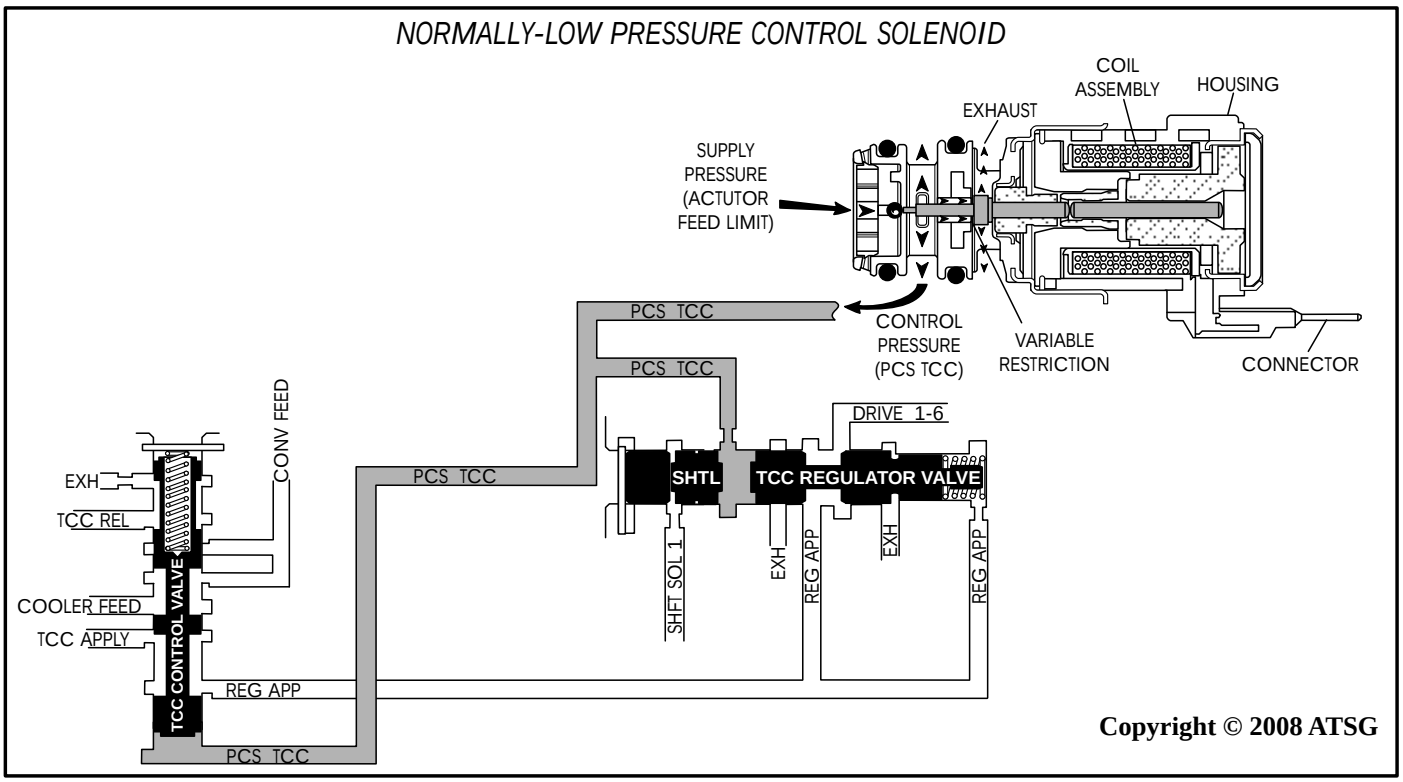


Figure 12

ELECTRONIC COMPONENTS (CONT'D)

CLUTCH PRESSURE CONTROL (CPC) SOLENOIDS 2,3,4 AND 5

There are two different types of clutch pressure control solenoids. Clutch pressure control (PC) solenoids 2 and 3 are ***"normally-high"*** amperage pressure control solenoids, as shown in Figure 14, and are identical to the line pressure control solenoid. Clutch pressure control (PC) solenoids 4 and 5 are ***"normally-low"*** amperage pressure control solenoids, as shown in Figure 13, and are identical to the TCC PC solenoid.

The Clutch Pressure Control PC Solenoids are part of the Control Solenoid Body And TCM Assembly and are not serviced separately.

Clutch Pressure Control Solenoid 2

Clutch pressure control (PC) solenoid 2 controls fluid flow to the 3-5/reverse clutch regulator valve and the 3-5/reverse boost valve. When commanded the solenoid controls the flow of exhaust fluid out of the solenoid to maintain a specific commanded control pressure. This allows the TCM to control the apply and release of the 3-5 and reverse clutch.

Clutch Pressure Control Solenoid 3

Clutch pressure control (PC) solenoid 3 controls fluid flow to the 4-5-6 clutch regulator valve and the 4-5-6 boost valve. When commanded the solenoid controls the flow of exhaust fluid out of the solenoid to maintain a specific commanded control pressure. This allows the TCM to control the apply and release of the 4-5-6 clutch.

Clutch Pressure Control Solenoid 4

Clutch pressure control (PC) solenoid 4 controls fluid flow to the 2-6 clutch regulator valve. When commanded the solenoid controls the flow of exhaust fluid out of the solenoid to maintain a specific commanded control pressure. This allows the TCM to control the apply and release of the 2-6 clutch.

Clutch Pressure Control Solenoid 5

Clutch pressure control (PC) solenoid 5 controls fluid flow to the 1-2-3-4 clutch regulator valve and the 1-2-3-4 boost valve. When commanded the solenoid controls the flow of exhaust fluid out of the solenoid to maintain a specific commanded control pressure. This allows the TCM to control the apply and release of the 1-2-3-4 clutch.

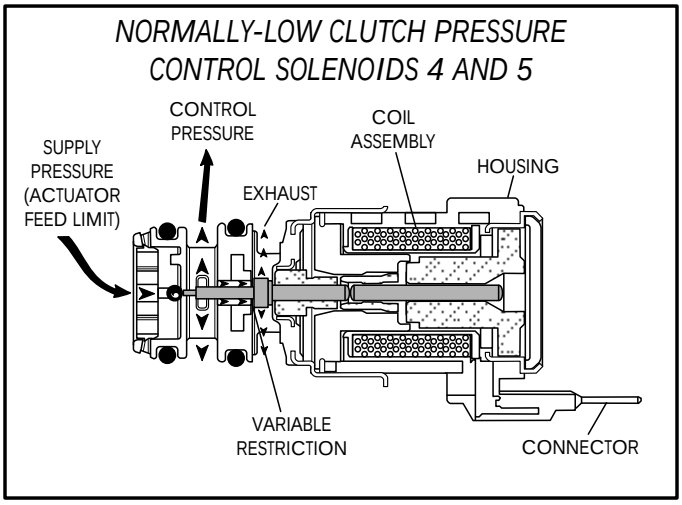


Figure 13

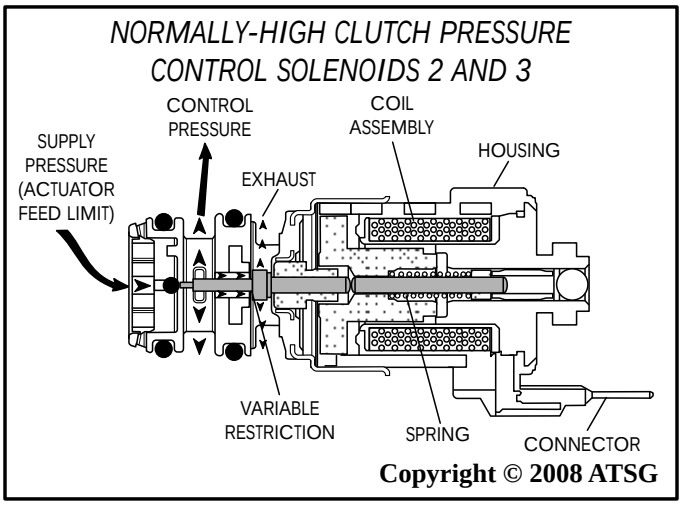


Figure 14

Transmission Adapt Function

Programming within the TCM also allows for automatic adjustments in shift pressure that are based on the changing characteristics of the transmission components. As the apply components within the transmission wear or change over time, the time required to apply a clutch increases or decreases. In order to compensate for these changes, the TCM adjusts the pressure commands to the various pressure control solenoids, to maintain the original calibrations. The automatic adjusting process is referred to as "Adaptive Learning" and is used to ensure consistent shift feel and increase the transmission's durability.

ELECTRONIC COMPONENTS (CONT'D)

TRANSMISSION MANUAL SHIFT POSITION SWITCH ASSEMBLY

The Transmission Manual Shift Position Switch Assembly, sometimes referred to as Internal Mode Switch (IMS), is a sliding contact switch that connects to the manual valve, with a connector that plugs into the control solenoid body and TCM assembly, and is shown in Figure 16.

There are four inputs to the TCM from the position switch assembly, that indicate which transmission gear range has been selected. The state of each input is available for display on the scan tool. The four input parameters represented are Signal A, Signal B, Signal C, and Signal P (Parity).

A fifth input signal "N" (P/N Start), does not input to the TCM, but goes directly to the ECM to determine a Park/Neutral state and allow the engine to be started. Routing Signal N to the ECM will allow the engine to be started, even with a dead TCM. Signal N is not a signal used by the TCM for manual shift selector position logic. A logic chart has been provided for you in Figure 15, and a partial wire schematic in Figure 17.

The Transmission Manual Shift Position Switch assembly is serviced separately.

If the TCM detects an improper signal from the transmission manual shift position switch (IMS) assembly, a DTC will be activated.

INTERNAL MODE SWITCH LOGIC				
Gear Selector Position	***Signal A***	***Signal B***	***Signal C***	***Signal P***
Park	***LOW***	***HI***	***HI***	***LOW***
Park/Reverse	***LOW***	***LOW***	***HI***	***LOW***
Reverse	***LOW***	***LOW***	***HI***	***HI***
Reverse/Neutral	***HI***	***LOW***	***HI***	***HI***
Neutral	***HI***	***LOW***	***HI***	***LOW***
Neutral/Drive 6	***HI***	***LOW***	***LOW***	***LOW***
Drive 6	***HI***	***LOW***	***LOW***	***HI***
Drive 6/Drive 4	***LOW***	***LOW***	***LOW***	***HI***
Drive 4	***LOW***	***LOW***	***LOW***	***LOW***
Drive 4/Drive 3	***LOW***	***HI***	***LOW***	***LOW***
Drive 3	***LOW***	***HI***	***LOW***	***HI***
Drive 3/Drive 2	***HI***	***HI***	***LOW***	***HI***
Drive 2	***HI***	***HI***	***LOW***	***LOW***
Open	***HI***	***HI***	***HI***	***HI***
Invalid	***HI***	***HI***	***HI***	***LOW***
Invalid	***LOW***	***LOW***	***LOW***	***HI***

HI = 12 Volts
LOW = 0 Volts

Internal Mode Switch Terminal Identification	
Terminal	***Function***
A	***Park/Neutral Start Signal "N" (Direct to ECM)***
B	***Mode Switch Switch Signal "A"***
C	***Mode Switch Switch Signal "B"***
D	***Mode Switch Switch Signal "C"***
E	***Mode Switch Switch Signal "P"***
F	***12 Volt Feed From TCM***

Figure 15

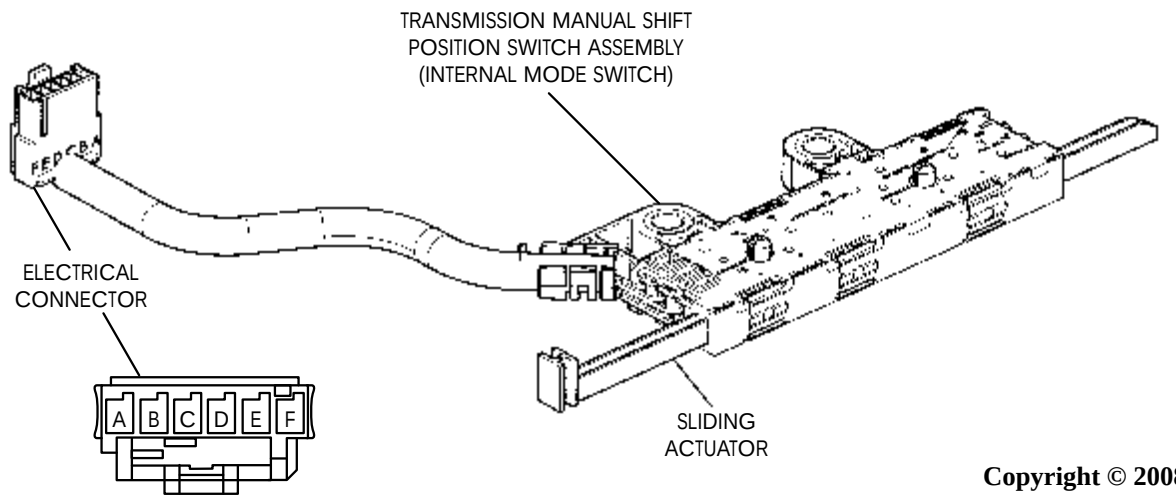


Figure 16

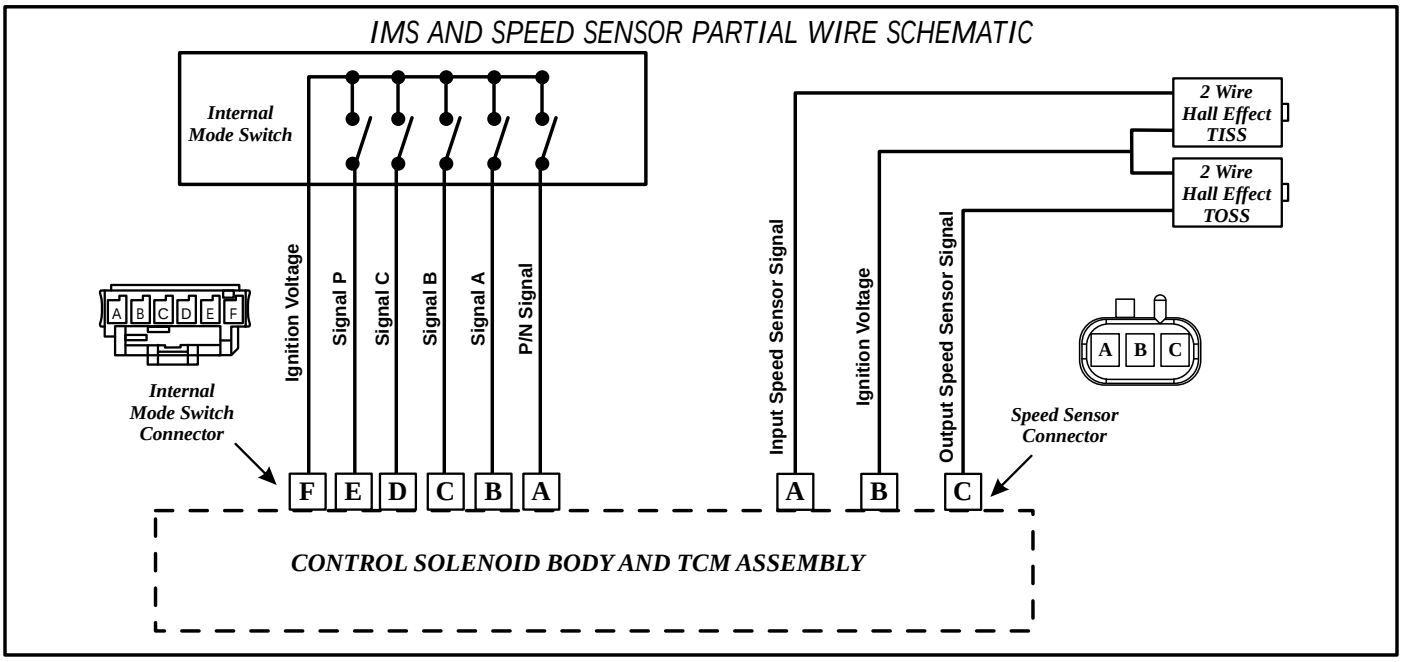


Figure 17

ELECTRONIC COMPOMENTS (CONT'D)

TRANSMISSION SPEED SENSORS

The speed sensors are both 2 wire hall-effect type sensors which bolt to the valve body assembly and connects to the control solenoid body and TCM assembly through a wire harness and connector, as shown in Figure 17 and 18.

If the TCM detects an improper signal from the input or output speed sensors, a DTC will be activated.

SPEED SENSOR TERMINAL IDENTIFICATION	
Terminal Number	***Function***
A	***Input Speed Sensor Signal***
B	***Ignition Voltage***
C	***Output Speed Sensor Signal***

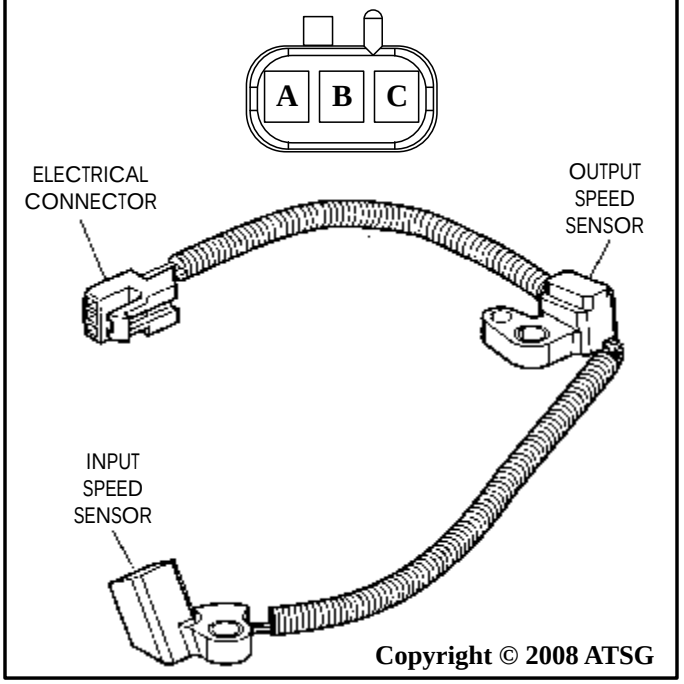


Figure 18

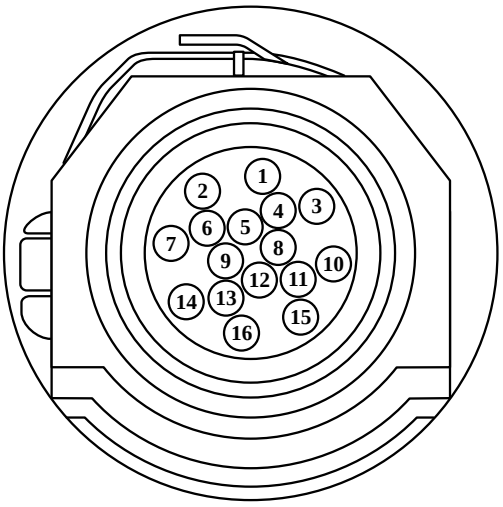
Input Speed Sensor Assembly

The input speed sensor faces the 1-2-3-4 and 3-5-R clutch housing and is triggered by splines on the housing outside diameter. The sensor receives 8.3-9.3 volts from the TCM, and produces a signal frequency based on the spline profile and speed of the 1-2-3-4 clutch housing. The TCM uses this signal to determine line pressure, shift timing, TCC slip speed and gear ratio.

Output Speed Sensor Assembly

The output speed sensor faces the output shaft housing and is triggered by slots in the housing outside diameter. The sensor receives 8.3-9.3 volts from the TCM, and produces a signal frequency based on the machined slots and speed of the output shaft housing. The TCM uses this signal to determine line pressure, shift timing, vehicle speed and gear ratio.

16-WAY CASE CONNECTOR TERMINAL IDENTIFICATION



View Looking Into 16-Way Case Connector

Pin No.	*Function*
1	*Not Used*
2	*Not Used*
3	*Park/Neutral Signal*
4	*Battery Voltage Feed*
5	*Ground*
6	*Brake Pedal Apply Signal*
7	*Tap Up/Tap Down Switch*
8	*Not Used*
9	*Accessory Voltage Power*
10	*CAN Hi*
11	*CAN Lo*
12	*Run/Crank Voltage Power*
13	*CAN Lo 2*
14	*CAN Hi 2*
15	*Replicated OSS Signal*
16	*Not Used*

Figure 19

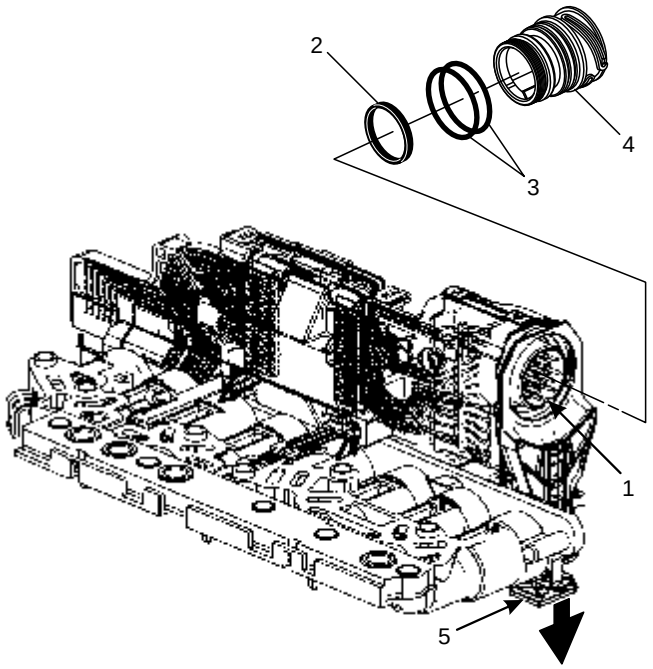
ELECTRONIC COMPOMENTS (CONT'D)

16-Way Case Connector

The 16-way transmission case connector is also part of the control solenoid body and TCM assembly, as shown in Figure 20, and ***is not*** serviced seperately. The case connector and the terminal identification chart are both illustrated in Figure 19, for diagnostic purposes. We have also provided a full wiring schematic in Figure 20.

Since the case connector is part of the TCM and is located internally, there is an additional sleeve with "O" rings and a seal required to seal the passage in the case, as shown in Figure 19. Once the control solenoid body and TCM assembly has been installed onto the valve body, you must pull the retaining tab down, as shown in Figure 20, install the pass through sleeve with the "O" rings and seal, and then press the retaining tab back up engaging the tab into the pass through sleeve.

TRANSMISSION CASE TO TCM SLEEVE ASSEMBLY



1 16-WAY TRANSMISSION CASE CONNECTOR.
2 TCM ASSEMBLY TO TRANSMISSION CASE SLEEVE SEAL.
3 CASE SLEEVE TO TRANSMISSION CASE "O" RING SEALS (2).
4 TRANSMISSION CASE SLEEVE ASSEMBLY.
5 TRANSMISSION CASE SLEEVE RETAINING TAB.

Figure 20

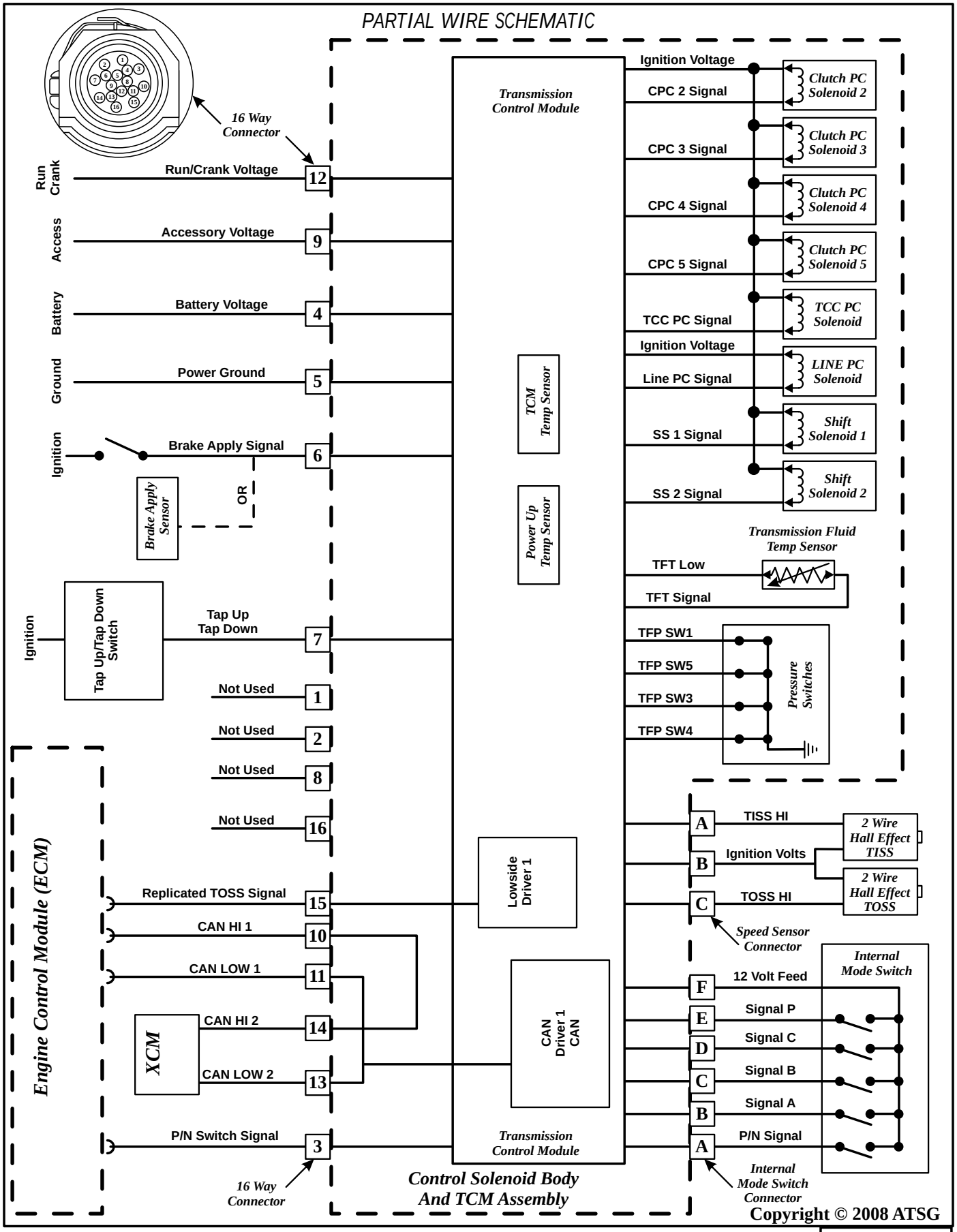


Figure 21

DIAGNOSTIC TROUBLE CODE (DTC) IDENTIFICATION		
DTC	DESCRIPTION	DTC TYPE*
P0218	***Transmission Fluid Overtemperature, Over 270°F for 10 minutes.***	**A**
P0562	***System Voltage Low, 11 volts or less for 10 seconds.***	**A**
P0563	***System Voltage High, Greater than 18 volts for 12 seconds.***	**A**
P0601	***TCM (Internal), Read Only Memory (ROM).***	**A**
P0602	***TCM, Not Programmed.***	**A**
P0603	***TCM (Internal), Long term memory reset.***	**A**
P0604	***TCM (Internal), Random Access Memory (RAM).***	**A**
P0634	***TCM (Internal), Overtemperature.***	**A**
P0667	***TCM (Internal), Temperature Sensor Performance.***	**A**
P0668	***TCM (Internal), Temperature Sensor circuit voltage low.***	**A**
P0669	***TCM (Internal), Temperature Sensor circuit voltage high.***	**A**
P0703	***Brake Switch Circuit, signal is invalid for 4 seconds.***	**A**
P0711	***Transmission Fluid Temperature (TFT), Sensor performance.***	**C**
P0712	***Transmission Fluid Temperature (TFT), Sensor circuit voltage low.***	**A**
P0713	***Transmission Fluid Temperature (TFT), Sensor circuit voltage high.***	**A**
P0716	***Input Speed Sensor (ISS), Sensor performance.***	**A**
P0717	***Input Speed Sensor (ISS), Sensor circuit voltage low.***	**A**
P0719	***Brake Switch Circuit, Circuit voltage low.***	**A**
P0722	***Output Speed Sensor (OSS), Sensor circuit voltage low.***	**C**
P0723	***Output Speed Sensor (OSS), Sensor intermittent.***	**B**
P0724	***Brake Switch Circuit, Circuit voltage high.***	**A**
P0729	***Incorrect 6th Gear Ratio.***	**C**
P0731	***Incorrect 1st Gear Ratio.***	**A**
P0732	***Incorrect 2nd Gear Ratio.***	**A**
P0733	***Incorrect 3rd Gear Ratio.***	**A**
P0734	***Incorrect 4th Gear Ratio.***	**A**
P0735	***Incorrect 5th Gear Ratio.***	**A**
P0736	***Incorrect Reverse Gear Ratio.***	**A**
P0741	***Torque Converter Clutch (TCC), System Stuck OFF.***	**A**
P0742	***Torque Converter Clutch (TCC), System Stuck ON.***	**B**
P0751	***Shift Solenoid (SS) 1 Valve Performance, Stuck OFF.***	**B**
P0752	***Shift Solenoid (SS) 1 Valve Performance, Stuck ON.***	**A**

***DTC TYPES**

A - Emission-related, turns the MIL "ON" immediately after the 1st failure.

B - Emission-related, turns the MIL "ON" after two consecutive drive cycles with failure.

C - Non-emission-related, no lamps and may display message on driver information center.

Figure 22

DIAGNOSTIC TROUBLE CODE (DTC) IDENTIFICATION		
DTC	DESCRIPTION	DTC TYPE*
P0776	*Clutch Pressure Control (PC) Solenoid 2, Stuck OFF.*	A
P0777	*Clutch Pressure Control (PC) Solenoid 2, Stuck ON.*	A
P0796	*Clutch Pressure Control (PC) Solenoid 3, Stuck OFF.*	A
P0797	*Clutch Pressure Control (PC) Solenoid 3, Stuck ON.*	A
P0815	*Upshift Switch Circuit Error.*	C
P0816	*Downshift Switch Circuit Error.*	C
P0826	*Upshift and Downshift Switch Circuit Error.*	C
P0842	*Transmission Fluid Pressure (TFP) Switch 1, Circuit Voltage Low.*	C
P0843	*Transmission Fluid Pressure (TFP) Switch 1, Circuit Voltage High.*	C
P0851	*Park/Neutral Position (PNP) Switch, Circuit Voltage Low.*	C
P0852	*Park/Neutral Position (PNP) Switch, Circuit Voltage High.*	C
P0872	*Transmission Fluid Pressure (TFP) Switch 3, Circuit Voltage Low.*	C
P0873	*Transmission Fluid Pressure (TFP) Switch 3, Circuit Voltage High.*	C
P0877	*Transmission Fluid Pressure (TFP) Switch 4, Circuit Voltage Low.*	C
P0878	*Transmission Fluid Pressure (TFP) Switch 4, Circuit Voltage High.*	C
P0961	*Line Pressure Control (PC) Solenoid, System Performance.*	A
P0962	*Line Pressure Control (PC) Solenoid, Circuit Voltage Low.*	A
P0963	*Line Pressure Control (PC) Solenoid, Circuit Voltage High.*	A
P0965	*Clutch Pressure Control (PC) Solenoid 2, System Performance.*	A
P0966	*Clutch Pressure Control (PC) Solenoid 2, Circuit Voltage Low.*	A
P0967	*Clutch Pressure Control (PC) Solenoid 2, Circuit Voltage High.*	A
P0969	*Clutch Pressure Control (PC) Solenoid 3, System Performance.*	A
P0970	*Clutch Pressure Control (PC) Solenoid 3, Circuit Voltage Low.*	A
P0971	*Clutch Pressure Control (PC) Solenoid 3, Circuit Voltage High.*	A
P0973	*Shift Solenoid 1 (SS), Control Circuit Voltage Low.*	A
P0974	*Shift Solenoid 1 (SS), Control Circuit Voltage High.*	A
P0976	*Shift Solenoid 2 (SS), Control Circuit Voltage Low.*	A
P0977	*Shift Solenoid 2 (SS), Control Circuit Voltage High.*	A
P0989	*Transmission Fluid Pressure (TFP) Switch 5, Circuit Voltage Low.*	C
P0990	*Transmission Fluid Pressure (TFP) Switch 5, Circuit Voltage High.*	C
P1621	*TCM (Internal), Long Term Memory Performance.*	A
P1684	*TCM (Internal), Power Up Temperature Sensor Performance.*	A

***DTC TYPES**

A - Emission-related, turns the MIL "ON" immediately after the 1st failure.

B - Emission-related, turns the MIL "ON" after two consecutive drive cycles with failure.

C - Non-emission-related, no lamps and may display message on driver information center.

Figure 23

DIAGNOSTIC TROUBLE CODE (DTC) IDENTIFICATION		
DTC	DESCRIPTION	DTC TYPE*
P1685	***TCM (Internal), Power Up Temperature Sensor, Circuit Voltage Low.***	**A**
P1686	***TCM (Internal), Power Up Temperature Sensor, Circuit Voltage High.***	**A**
P1751	***Shift Valve 1, Performance of Clutch Select Valve 2.***	**A**
P1825	***Internal Mode Switch, Invalid Range***	**A**
P1831	***TCM (Internal), Driver No. 2, (Controls Line Pressure & Shift Lock Solenoids).***	**A**
P1832	***TCM (Internal), Driver No. 2, (Controls Line Pressure & Shift Lock Solenoids).***	**C**
P1876	***Up and Down Shift Switch Performance, Range Switch Not In D3.***	**C**
P1915	***Internal Mode Switch, Start In Wrong Range.***	**A**
P2534	***Ignition Switch, Start Circuit Voltage Low.***	**A**
P2714	***Clutch Pressure Control (PC) Solenoid 4, Stuck OFF.***	**A**
P2715	***Clutch Pressure Control (PC) Solenoid 4, Stuck ON.***	**A**
P2719	***Clutch Pressure Control (PC) Solenoid 4, System Performance.***	**A**
P2720	***Clutch Pressure Control (PC) Solenoid 4, Circuit Voltage Low.***	**A**
P2721	***Clutch Pressure Control (PC) Solenoid 4, Circuit Voltage High.***	**A**
P2723	***Clutch Pressure Control (PC) Solenoid 5, Stuck OFF.***	**A**
P2724	***Clutch Pressure Control (PC) Solenoid 5, Stuck ON.***	**A**
P2728	***Clutch Pressure Control (PC) Solenoid 5, System Performance.***	**A**
P2729	***Clutch Pressure Control (PC) Solenoid 5, Circuit Voltage Low.***	**A**
P2730	***Clutch Pressure Control (PC) Solenoid 5, Circuit Voltage High.***	**A**
P2762	***TCC Pressure Control (PC) Solenoid, System Performance.***	**A**
P2763	***TCC Pressure Control (PC) Solenoid, Circuit Voltage High.***	**A**
P2764	***TCC Pressure Control (PC) Solenoid, Circuit Voltage Low.***	**A**

***DTC TYPES**

A - Emission-related, turns the MIL "ON" immediately after the 1st failure.

B - Emission-related, turns the MIL "ON" after two consecutive drive cycles with failure.

C - Non-emission-related, no lamps and may display message on driver information center.

Figure 24

FAIL-SAFE OR PROTECTION MODE

If for any reason, the entire electronic control system of the transmission, or any one of the electrical components within the Control Solenoid Body and TCM Assembly becomes disabled, the transmission will default to fail-safe mode. If the transmission is in 1st, 2nd or 3rd gear during an electrical failure, the transmission will default to 3rd gear. If the transmission is in 4th, 5th or 6th gear during an electrical failure, the transmission will default to 5th gear.

If for any reason, the entire electronic control system of the transmission fails, the line pressure control solenoid will be OFF, and maximum line pressure will be the result. This will create harsh engagements and garage shifts. The TCC PC solenoid would also be OFF, resulting in no torque converter clutch apply.

6L80 CHECKBALL LOCATION AND FUNCTION

Number 1 Checkball

The number one checkball is located in the upper valve body, as shown in Figure 25. When the transmission is operating in Drive 1st, 2nd, 3rd, 4th, 5th or 6th gear, drive 1-6 fluid seats the checkball against the drive braking passage and enters the 2-6 clutch/1-2-3-4 clutch feed circuit to apply the 1-2-3-4 clutch.

Number 2 Checkball

The number two checkball is located in the upper valve body, as shown in Figure 25. This shuttle type checkball is seated against the reverse passage while the transmission is operating in Park, Neutral and Drive 1st. With the checkball in this position, shift solenoid 1 fluid enters the CSV2 enable circuit to the "clutch select valve 2". When the transmission is operating in Reverse, the checkball seats against shift solenoid 1 passage to allow reverse fluid to enter the CSV2 enable circuit and hold the "clutch select valve 2" in the applied position.

Number 3 Checkball

The number three checkball is located in the upper valve body, as shown in Figure 25. This shuttle type checkball is seated against the 4-5-6 clutch passage while the transmission is operating in Park, Reverse, Neutral, Drive 1st, 2nd and 3rd gear. With the checkball in this position, shift solenoid 2 fluid enters the CSV3 enable circuit to apply the "clutch select valve 3". When the transmission is operating in Drive 4th, 5th or 6th gear, the checkball seats against the shift solenoid 2 passage to allow 4-5-6 clutch fluid to enter the CSV3 enable circuit and hold the "clutch select valve 3" in the applied position.

Number 4 Checkball

The number four checkball is located in the upper valve body, as shown in Figure 25. This shuttle type checkball is seated against the 4-5-6 clutch passage by Pressure Solenoid 5 fluid, while the transmission is operating in Park, Reverse, Neutral, Drive 1st, 2nd and 3rd gear. With the checkball in this position, PS 5 fluid enters the CSV2 latch circuit to hold the "clutch select valve 2" in the released position. When the transmission is operating in Drive 4th, 5th or 6th gear, 4-5-6 clutch fluid seats the checkball against the PS 5 passage to allow 4-5-6 clutch fluid to enter the CSV2 latch circuit to hold the "clutch select valve 2" in released the position.

Number 5 Checkball

The number five checkball is located in the upper valve body, as shown in Figure 25. This shuttle type checkball is seated against the Drive 1-6 passage by 3-5/Reverse Feed fluid while the transmission is operating in Reverse. With the checkball in this position, 3-5/Reverse Feed fluid enters the 3-5/Reverse Supply circuit and is routed to the number 7 checkball. When the transmission is operating in Drive 1st, 2nd, 3rd, 4th, 5th or 6th gear, Drive 1-6 fluid seats the ball against the 3-5/Reverse Feed passage to allow Drive 1-6 fluid to enter the 3-5/Reverse Supply circuit.

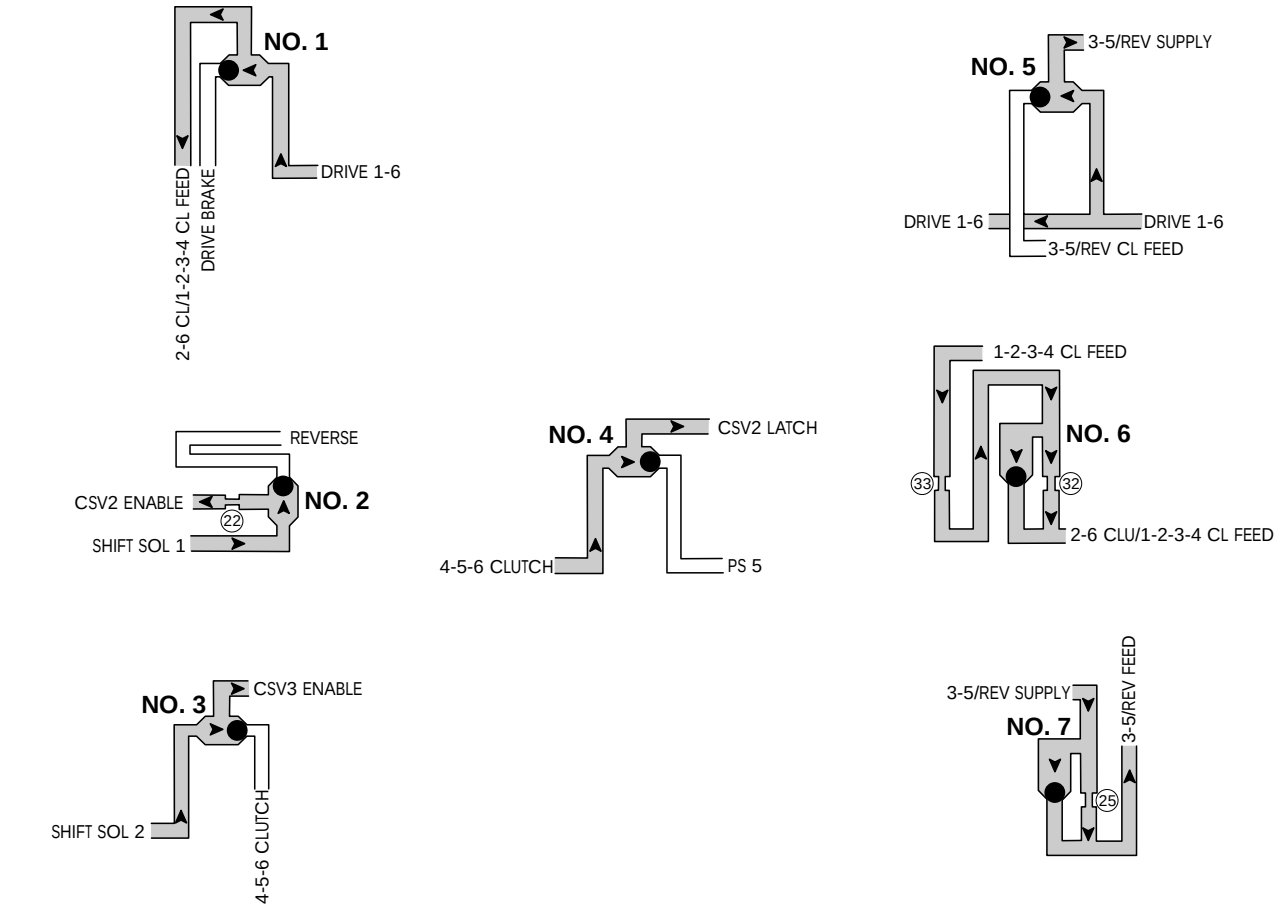
Number 6 Checkball

The number six checkball is located in the upper valve body, as shown in Figure 25. This "one way orifice control" type checkball is used to differentiate the flow rate of fluid between applying and releasing the 1-2-3-4 clutch. 2-6 clutch/1-2-3-4 clutch feed fluid opens the checkball, while the transmission is operating in Drive 1st, 2nd, 3rd, 4th, 5th or 6th gear. With the ball in this position, 2-6 clutch/1-2-3-4 clutch feed fluid flows freely into the 1-2-3-4 clutch feed passage. When Park, Reverse or Neutral is selected after the transmission was operating in Drive, exhausting 1-2-3-4 clutch feed fluid seats the checkball, and forces exhausting fluid through orifice number 32, which allows for a controlled exhaust of the 1-2-3-4 clutch.

Number 7 Checkball

The number seven checkball is located in the upper valve body, as shown in Figure 25. This "one way orifice control" type checkball is used to differentiate the flow rate of fluid between applying and releasing the 3-5/Reverse clutch. 3-5/Reverse Supply fluid pressure seats the checkball against the 3-5/Reverse Feed passage, while the transmission is operating in Reverse, Drive 1st, 2nd, 3rd, 4th, 5th or 6th gear. With the checkball in this position, 3-5/Reverse Supply fluid is forced through orifice number 25 before entering the 3-5/Reverse Feed passage. The orifice helps control the apply rate of the 3-5/Reverse clutch when the transmission shifts into Reverse, 3rd or 5th gear. When Park or Neutral is selected after the transmission was operating in Drive, or Reverse, exhausting 3-5/Reverse Feed fluid unseats the checkball. This allows for a faster exhaust of 3-5/Reverse Feed fluid and a quick release of the 3-5/Reverse clutch.

6L80 CHECKBALL LOCATION AND FUNCTION



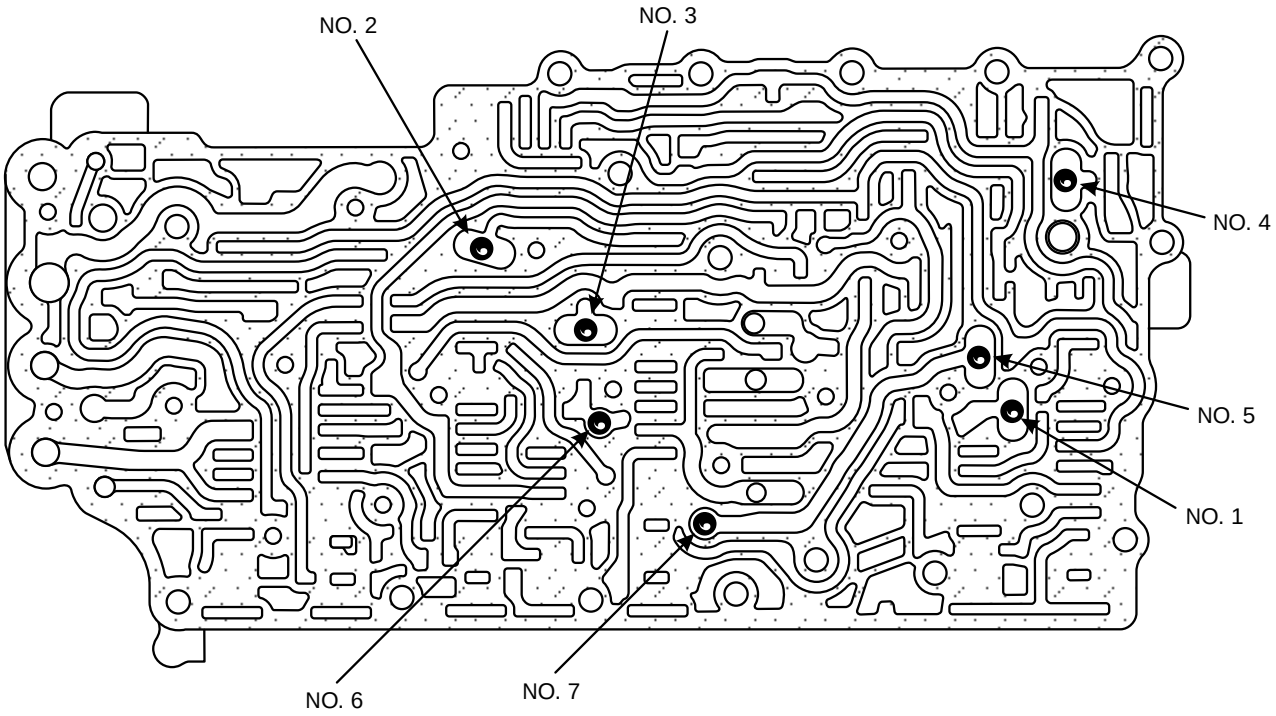
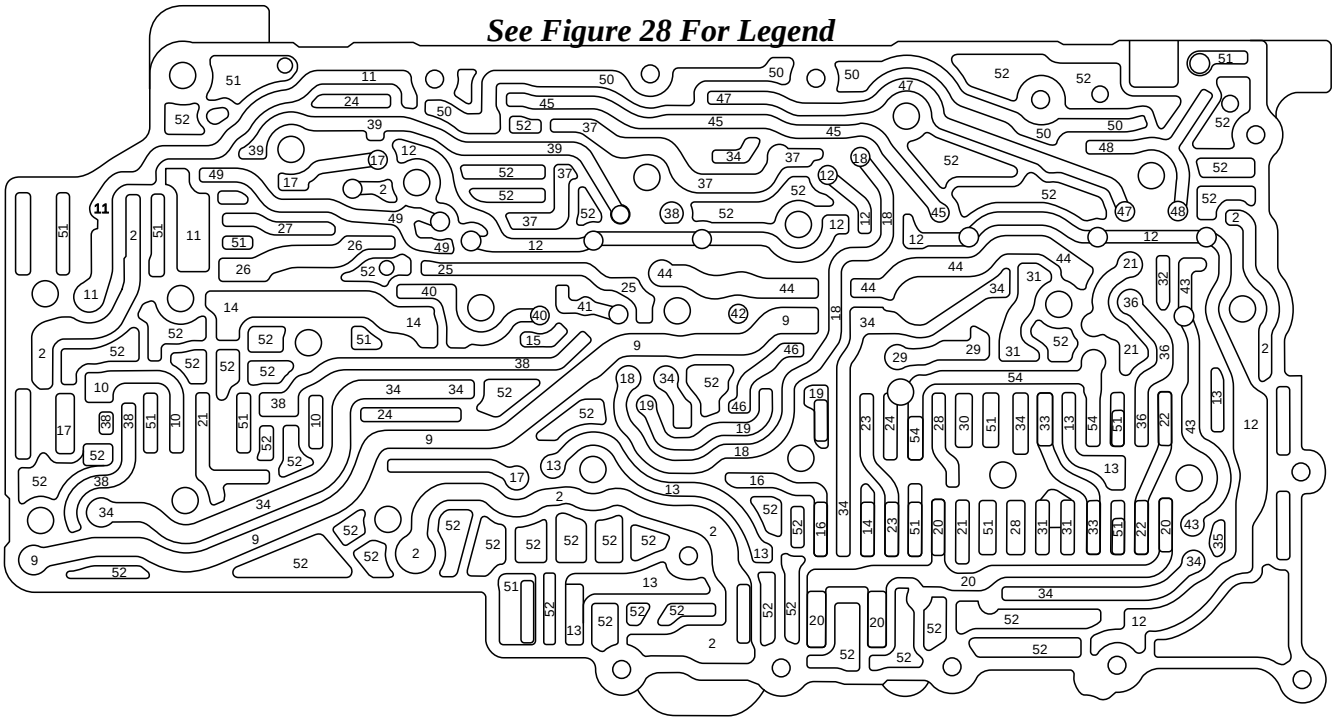


Figure 25

LOWER VALVE BODY, SPACER PLATE SIDE

See Figure 28 For Legend



LOWER VALVE BODY, TCM/SOLENOID BODY SIDE

See Figure 28 For Legend

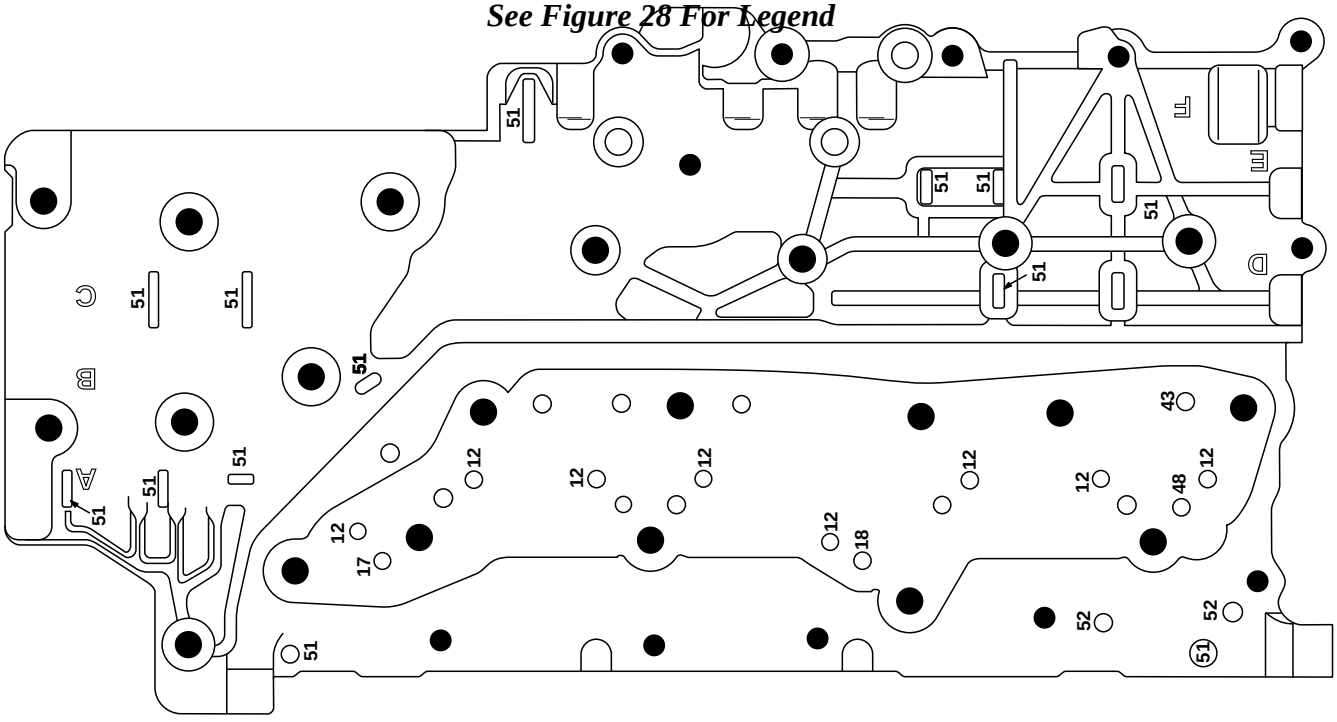
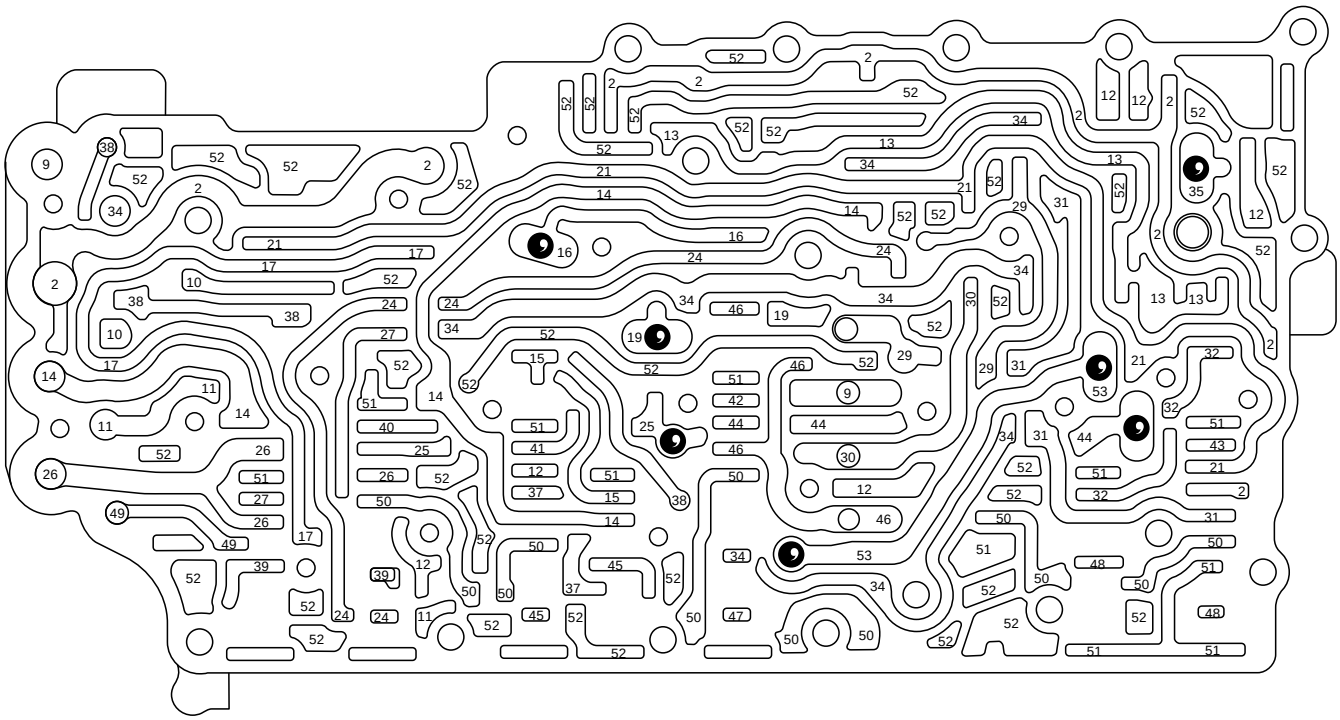


Figure 26

UPPER VALVE BODY, SPACER PLATE SIDE

See Figure 28 For Legend



UPPER VALVE BODY, CASE SIDE

See Figure 28 For Legend

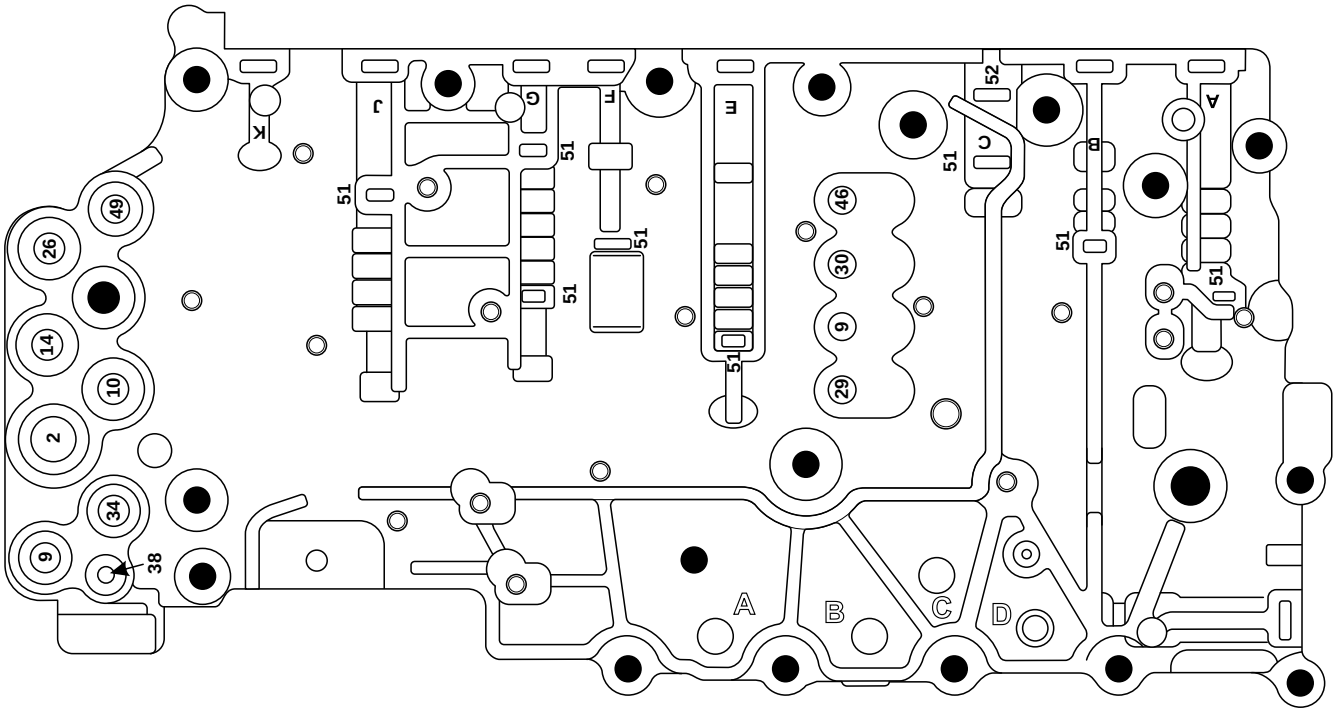


Figure 27

PASSAGE IDENTIFICATION LEGEND

1 SUCTION
2 LINE
3 DECREASE
4 CONVERTER FEED
5 CONVERTER FEED LIMIT
6 TCC RELEASE
7 TCC APPLY
8 COOLER FEED
9 CENTER LUBE
10 REGULATOR APPLY
11 COMPENSATOR FEED
12 ACTUATOR FEED LIMIT
13 REVERSE
14 3-5/REVERSE CLUTCH
15 3-5/REVERSE CLUTCH FEEDBACK
16 CSV2 ENABLE (Clutch Select Valve 2)
17 SHIFT SOLENOID 1
18 SHIFT SOLENOID 2
19 CSV3 ENABLE (Clutch Select Valve 3)
20 DRIVE
21 DRIVE 1-6
22 DRIVE BRAKE
23 1-2-3-4 CLUTCH DEFAULT FEED
24 1-2-3-4 CLUTCH DEFAULT
25 1-2-3-4 CLUTCH FEED
26 1-2-3-4 CLUTCH
27 1-2-3-4 CLUTCH FEEDBACK
28 CBR1/CBR FEED (Clutch Braking 1st)
29 CBR1 (Clutch Braking 1st)
30 CBR (Clutch Braking)
31 CBR1/4-5-6 CLUTCH FEED
32 CBR1 FEEDBACK
33 4-5-6 CLUTCH FEED
34 4-5-6 CLUTCH
35 CSV2 LATCH
36 DRIVE B
37 3-5/REVERSE FEED
38 PCS TCC (Pressure Control Solenoid)
39 PCS 1234 CLUTCH (Pressure Control Solenoid)
40 PCS 4 (Pressure Conrol Solenoid)
41 PCS 2
42 PCS 3
43 PCS 5
44 2-6 CLUTCH/1-2-3-4 CLUTCH FEED
45 PCS 3-5/REVERSE CLUTCH
46 2-6 CLUTCH
47 PCS 2-6 CLUTCH
48 PCS CBR1/4-5-6 CLUTCH
49 PCS LINE
50 EXHAUST BACKFILL
51 EXHAUST
52 VOID
53 3-5/REVERSE SUPPLY
54 3-5/REVERSE CLUTCH FEED
55 VENT
56 CONVERTER SEAL DRAINBACK
57 FRONT LUBE

Figure 28

TYPICAL SPACER PLATE
See Figure 28 For Legend

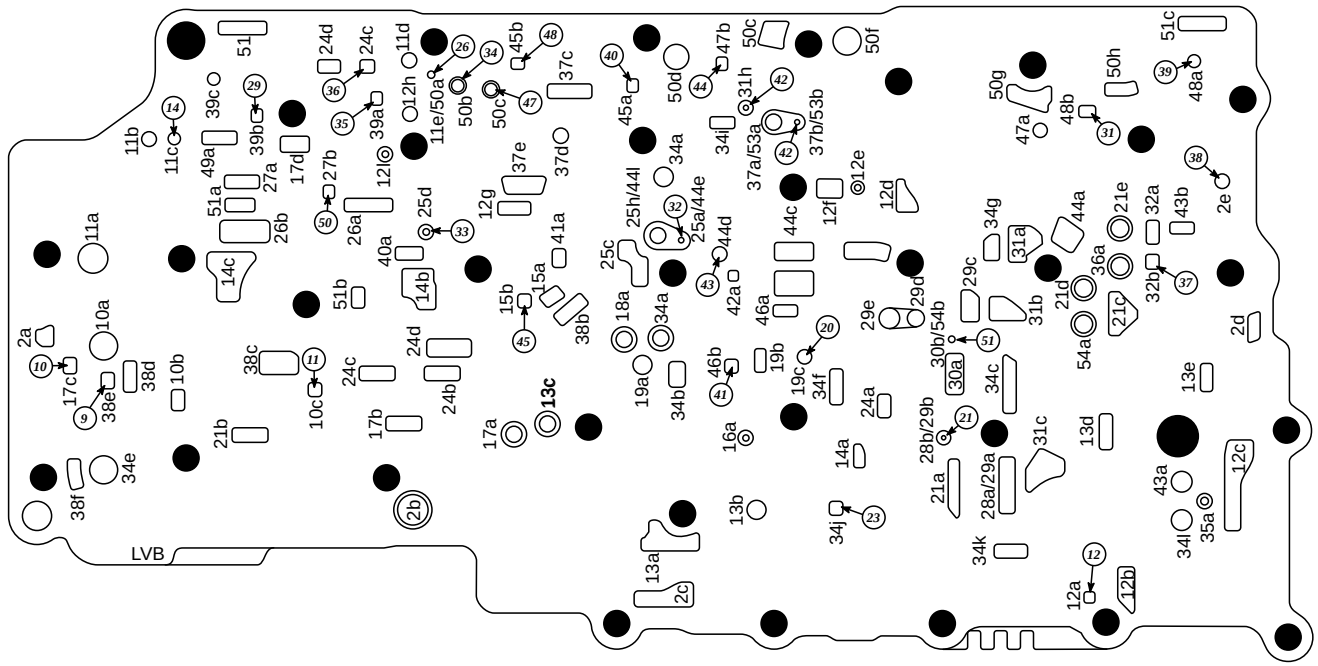


Figure 29

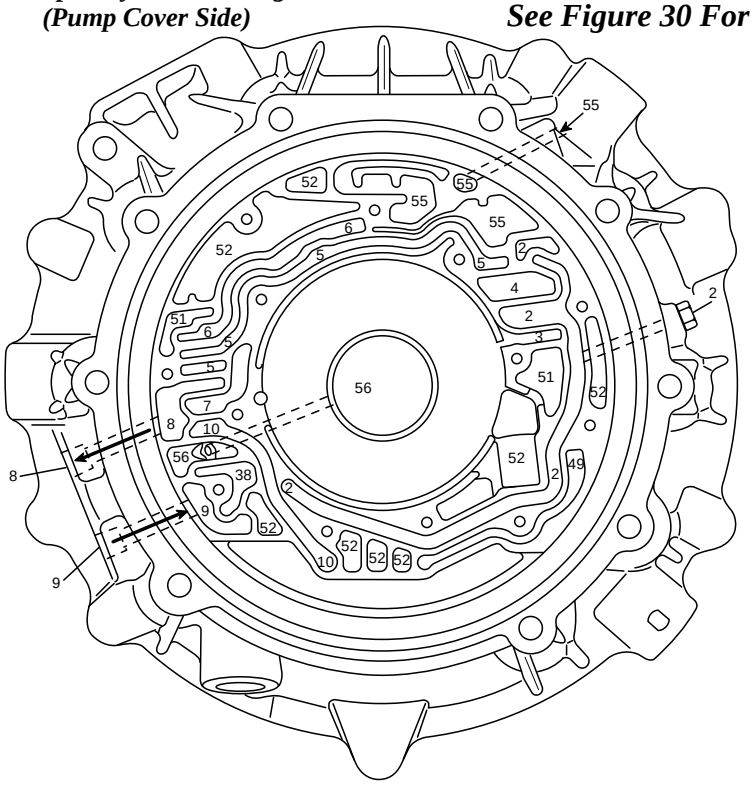
PASSAGE IDENTIFICATION LEGEND

1 SUCTION
2 LINE
3 DECREASE
4 CONVERTER FEED
5 CONVERTER FEED LIMIT
6 TCC RELEASE
7 TCC APPLY
8 COOLER FEED
9 CENTER LUBE
10 REGULATOR APPLY
11 COMPENSATOR FEED
12 ACTUATOR FEED LIMIT
13 REVERSE
14 3-5/REVERSE CLUTCH
15 3-5/REVERSE CLUTCH FEEDBACK
16 CSV2 ENABLE (Clutch Select Valve 2)
17 SHIFT SOLENOID 1
18 SHIFT SOLENOID 2
19 CSV3 ENABLE (Clutch Select Valve 3)
20 DRIVE
21 DRIVE 1-6
22 DRIVE BRAKE
23 1-2-3-4 CLUTCH DEFAULT FEED
24 1-2-3-4 CLUTCH DEFAULT
25 1-2-3-4 CLUTCH FEED
26 1-2-3-4 CLUTCH
27 1-2-3-4 CLUTCH FEEDBACK
28 CBR1/CBR FEED (Clutch Braking 1st)
29 CBR1 (Clutch Braking 1st)
30 CBR (Clutch Braking)
31 CBR1/4-5-6 CLUTCH FEED
32 CBR1 FEEDBACK
33 4-5-6 CLUTCH FEED
34 4-5-6 CLUTCH
35 CSV2 LATCH
36 DRIVE B
37 3-5/REVERSE FEED
38 PCS TCC (Pressure Control Solenoid)
39 PCS 1234 CLUTCH (Pressure Control Solenoid)
40 PCS 4 (Pressure Conrol Solenoid)
41 PCS 2
42 PCS 3
43 PCS 5
44 2-6 CLUTCH/1-2-3-4 CLUTCH FEED
45 PCS 3-5/REVERSE CLUTCH
46 2-6 CLUTCH
47 PCS 2-6 CLUTCH
48 PCS CBR1/4-5-6 CLUTCH
49 PCS LINE
50 EXHAUST BACKFILL
51 EXHAUST
52 VOID
53 3-5/REVERSE SUPPLY
54 3-5/REVERSE CLUTCH FEED
55 VENT
56 CONVERTER SEAL DRAINBACK
57 FRONT LUBE

Figure 30

PUMP BODY AND PUMP COVER
See Figure 30 For Legend

Pump Body/Bell Housing (Pump Cover Side)



Pump Cover (Bell Housing Side)

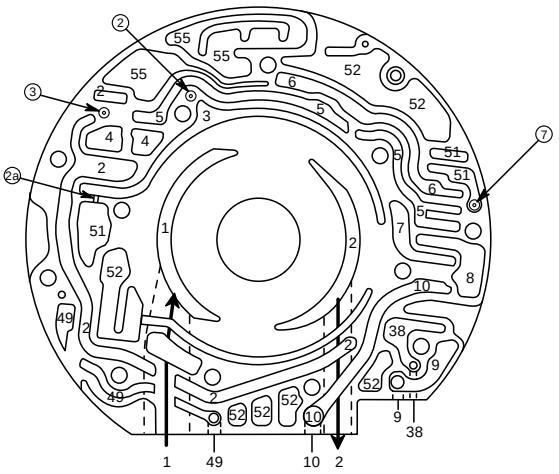


Figure 31

TRANSMISSION CASE

See Figure 30 For Legend

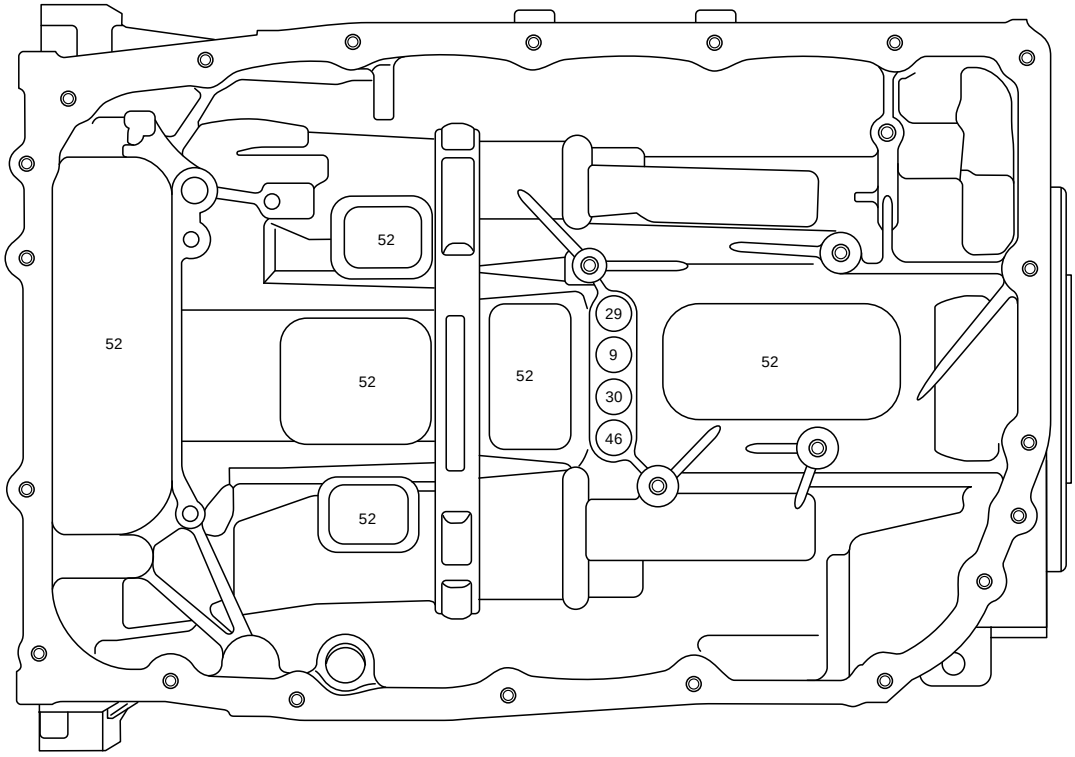
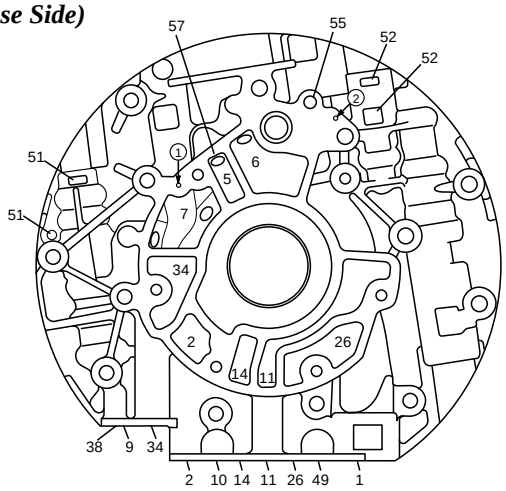


Figure 32

PUMP COVER AND CLUTCH SUPPORT

See Figure 30 For Legend

Pump Cover (Case Side)



Clutch Support (Pump Cover Side)

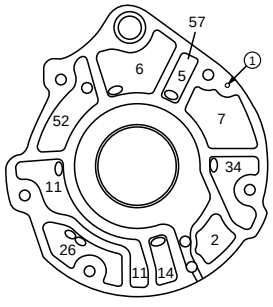
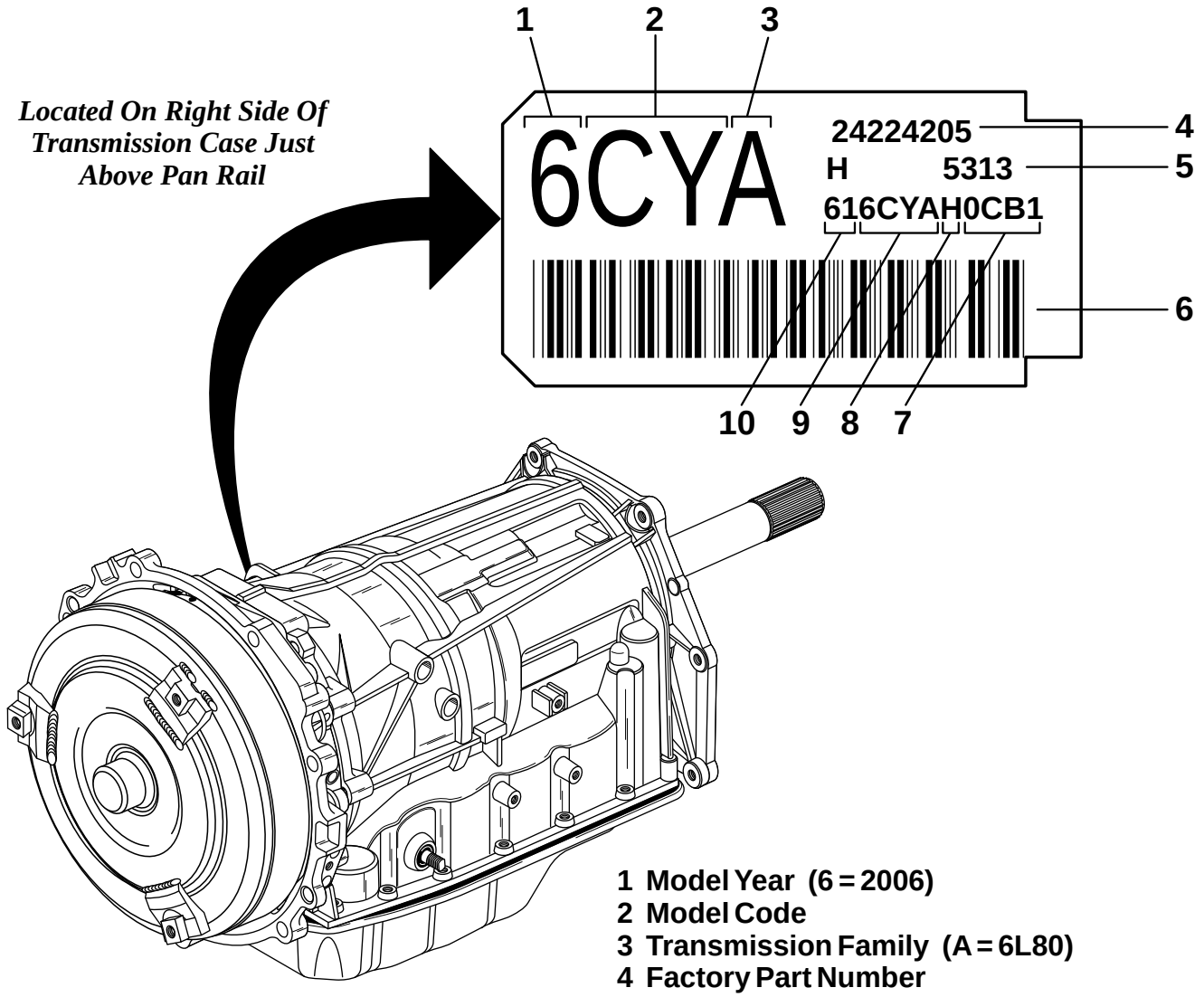


Figure 33

IDENTIFICATION TAG LOCATION AND INFORMATION



1 Model Year (6 = 2006)
2 Model Code
3 Transmission Family (A = 6L80)
4 Factory Part Number
5 Julian Date 5 = Year, 313 = Day Of Year
6 Bar Code
7 Sequential Serial Number
8 Assembly Plant Code
9 Broadcast Code
10 Transmission I.D.

Figure 34

DEXRON VI®	*TRANSMISSION FLUID REQUIREMENTS*	*DEXRON VI®*
Pan Removal - Approximate Capacity		**6.5 Quarts**
Overhaul - Approximate Capacity (Cadillac STSV/XLRV)		**10 Quarts**
Overhaul - Approximate Capacity (Corvette)		**12.5 Quarts**

Figure 35