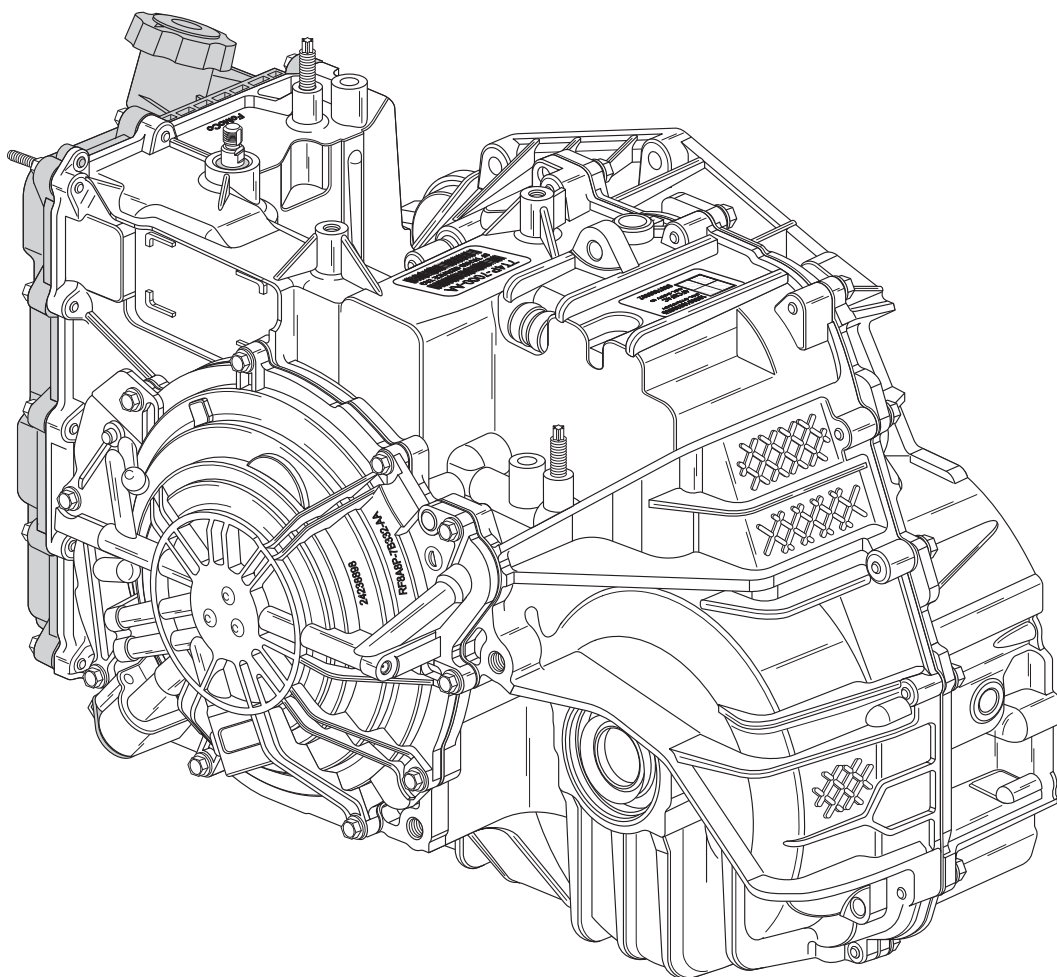




## FORD/LINCOLN/MERCURY 6F50N PRELIMINARY INFORMATION

The Ford 6F50N automatic transaxle is a 6 speed transaxle with electronic shifting control. It is designed for operation in a transverse mounted powertrain for front wheel drive (FWD) and all wheel drive (AWD) vehicle applications. The transaxle has a 4 element torque converter design which includes a torque converter clutch (TCC) for increased performance and fuel economy. There are 2 drive friction components and 4 brake components. The direct (3, 5, R) clutch, and the overdrive (4, 5, 6) clutch are the drive components and the brake components are the forward (1, 2, 3, 4) brake, the low/reverse brake, the intermediate (2, 6) brake and also a low one-way clutch (OWC) brake. The transaxle also contains 3 planetary gearsets (front, middle and rear) as well as a main control valve body and solenoid body assembly. The transaxle was first introduced in 2007 in the Ford Edge and Lincoln MKX, and is now used in other product lines from Ford/Lincoln/Mercury as well, such as the Taurus and Sable.



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Figure 1



### ***Range Selection***

The 6F50N automatic tranaxle has 5 range positions: P, R, N, D, L.

#### **Park:**

In the park position there is no powerflow through the transmission, the final drive is held by the parking pawl, the ignition key may be removed and the vehicle may be started.

#### **Reverse:**

In the reverse position the vehicle may be operated in a reverse motion, engine braking will occur.

#### **Neutral:**

In the neutral position there is no powerflow through the transmission the final drive is not held and can be rotated, the engine may be started.

#### **Drive:**

In the drive position the vehicle may be operated in a forward motion. The PCM will provide automatic upshifting in gear ranges 1 through 6 and the PCM will provide apply and release of the torque converter clutch for maximum fuel economy during normal operation.

#### **Low:**

In the low position gears 1 through 4 are available automatically with an extended shift scheduling. Engine braking is available in each gear 1 through 4 in this range as well.

### ***Transaxle Electronic Control System***

Transaxle control strategy while commanded by the PCM, is separate from engine control strategy, even though some input signals from various engine sensors are shared. The PCM determines optimum operational requirements based on input from various engine-related sensors and switches, transaxle related sensors and switches as well as those which are controlled by the vehicle operator. Using this variety of input signals, the PCM will determine shift scheduling, line pressure control and torque converter clutch (TCC) operation to maximize fuel economy and performance during various operating conditions.

### ***Electronic Ignition System***

The electronic ignition system is made up of the ignition coils, the PCM and the crankshaft position sensor (CKP). The crankshaft position sensor sends an input signal to the PCM, the PCM uses this information to control the ignition coils as well as torque converter clutch operation, line pressure control and wide open throttle (WOT) shift control.

### ***Accelerator Pedal Position Sensor (APP)***

The accelerator pedal position sensor is fitted to the accelerator pedal assembly and detects the position of the accelerator pedal then inputs this information to the PCM to aid in determining line pressure control, shift scheduling and torque converter clutch operation. Loss of this sensor input signal will result in the transmission operating in a higher line pressure to avoid damage to the transmission. This higher pressure will result in harsh garage shifting and upshifting feel.

### ***Throttle Position Sensor (TP)***

The throttle position sensor is a potentiometer that is fitted on the throttle body. This sensor detects the position of the throttle plate in the throttle body and inputs this information via electronic signal to the PCM to assist in determining line pressure control, shift scheduling and torque converter clutch operation. If a defect in the signal from the throttle position occurs, the transmission will operate in a higher line pressure to avoid damage. This higher pressure will result in harsh garage and upshifting feel.

### ***Digital Transmission Range Sensor (TR)***

The digital transmission range sensor is located inside the transmission and is mounted on the manual selector lever. The digital transmission range sensor sends a signal to the PCM via 4 switches that will either open or close in a monitored pattern to allow the computer to determine the position of the manual selector lever. The PCM uses this input signal to determine shifting operation as well as starting function in park and neutral. Refer to Figure 8 for scan tool PID chart for checking the range sensor.

### ***Brake Pedal Position Switch (BPP)***

The brake pedal position switch is mounted on the brake pedal. The switch closes when the brake pedal has been depressed and opens when the brake pedal is released. The brake pedal position switch input is used for brake shift interlock actuation.

### ***Turbine Shaft Speed Sensor (TSS)***

The turbine shaft speed sensor is a hall effect sensor fitted into the rear cover of the transmission and gets its input signal from the direct/overdrive clutch housing that sends a signal to the PCM indicating turbine shaft rotational speed. The PCM uses this input information to assist in determining line pressure control and torque converter clutch operation.

### ***Output Shaft Speed Sensor (OSS)***

The output shaft speed sensor is a hall effect sensor fitted into the case and reads off the output shaft ring gear and sends a signal to the PCM indicating output shaft rotational speed. The output shaft speed sensor input is used by the PCM to help determine shift scheduling and torque converter clutch operation.

### ***Solenoid Body/Shift Solenoids***

The solenoid body comprises of 7 total solenoids. There are 5 shift solenoids, (SSA, SSB, SSC, SSD, SSE), a torque converter clutch (TCC) solenoid a line pressure control (LPC) solenoid and a transmission fluid temperature (TFT) sensor. The solenoids are not serviced separately, the body is serviced as an assembly. The solenoid body has a programmed data file that is unique to the solenoid body and this information must be downloaded to the PCM. There is a 7 digit solenoid body ID and a 13 digit solenoid body strategy for each solenoid body. Refer to Figure 2 for the location of the solenoid body and solenoid body strategy ID numbers on the transaxle case and the solenoid body assembly. If solenoid body or transaxle replacement becomes necessary, a scan tool (PDS or IDS) must be used to obtain the solenoid body strategy data file and download it to the PCM. If the PCM requires replacement and the PCM data cannot be obtained within the new module, the solenoid body ID and solenoid body strategy must be downloaded to the PCM.

#### ***NOTE:***

***If the solenoid body ID and strategy does not match the downloaded ID and strategy in the PCM, transaxle damage or other driveability concerns may result.***

### ***Shift Solenoids (SSA, SSB, SSC, SSD, SSE)***

There are 5 solenoids used in this transmission for shift scheduling. Shift solenoids SSA, SSB, SSC, SSD, SSE are controlled by the PCM and turned off or on to provide gear changes between gears 1 through 6 as well as reverse. SSA, and SSC are variable force solenoids and are both normally low (NL) solenoids. SSB and SSD are variable force solenoids as well and are normally high (NH). SSE is a normally closed on/off solenoid. Refer to the shift solenoid apply chart in Figure 4, the solenoid malfunction chart in Figure 5, as well as a solenoid resistance chart in Figure 7.

### ***Transmission Fluid Temp Sensor (TFT)***

The transmission fluid temperature sensor is located in the solenoid body. This sensor, known as a thermistor has a resistance value that changes according to the temperature of the transmission fluid. The PCM monitors the voltage across the sensor to determine the actual temperature of the transmission fluid. This signal is used to help determine cold start shift scheduling which delays the upshifting until warm up occurs. This signal is also used for torque converter clutch scheduling or inhibition as well as adjusting line pressure appropriately according to temperature. Refer to Figure 7 for a TFT sensor resistance chart.

### ***Line Pressure Solenoid (LPC)***

The line pressure solenoid is a variable force solenoid. This solenoid combines a solenoid and a regulating valve and supplies pressure which regulates overall transmission line pressure. The PCM has an adaptive learning strategy which electronically controls transaxle shift feel. After repair, the vehicle may have abrupt shifting feel for the first few hundred miles. If the battery has been disconnected for any reason, it will be necessary to keep the battery disconnected for a period of at least 20 minutes in order to clear and reset the shift pressure strategy adapts, or a scan tool can be used to reset the keep alive memory (KAM).

### ***Torque Converter Clutch (TCC) Solenoid***

The torque converter clutch solenoid is used by the PCM to control the apply, release and modulation of the torque converter clutch.

## ***Mass Air Flow Sensor (MAF)***

The mass air flow sensor detects the amount or mass of air flowing into the engine. The sensor output is a DC analog signal that can range from approximately .5 to 5 volts. The PCM uses this input for line pressure control, shift scheduling and torque converter clutch operation.

## ***Intake Air Temp Sensor (IAT)***

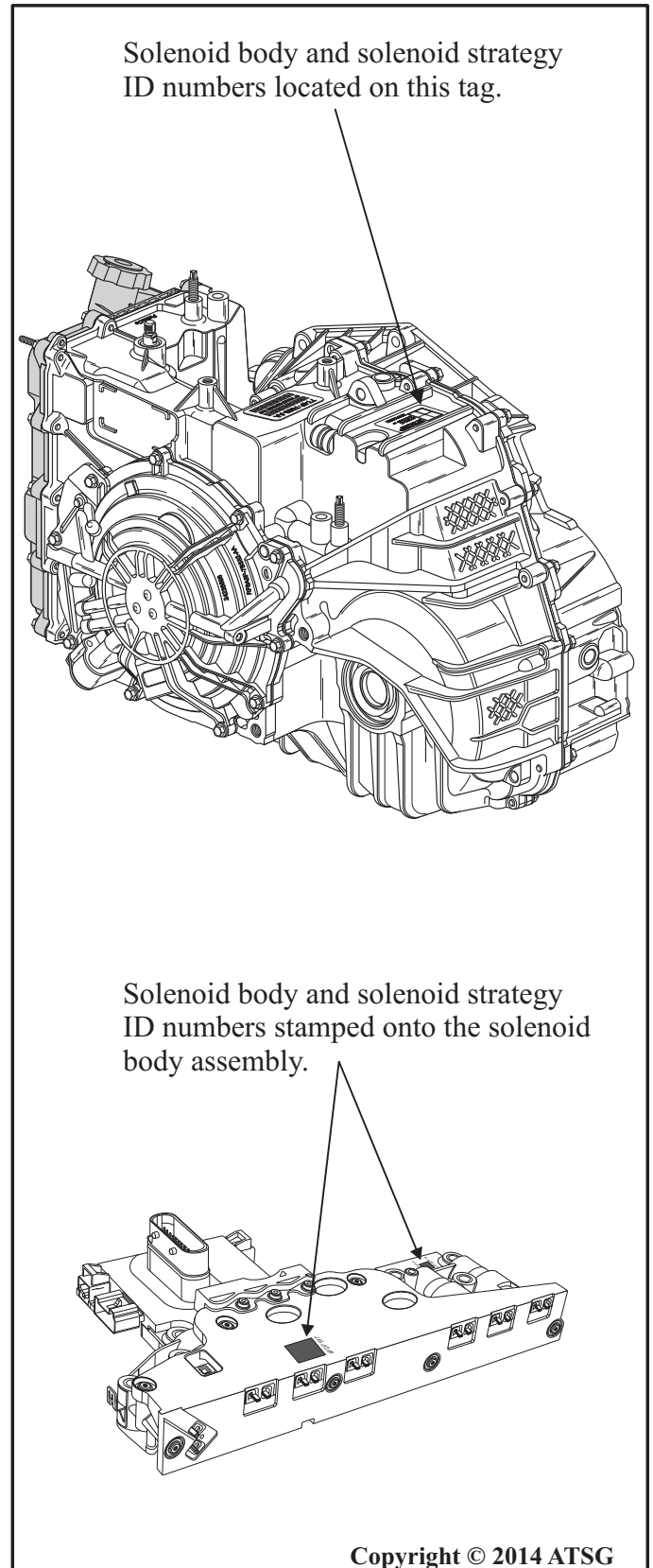
The intake air temperature sensor provides the sequential fuel injection (SFI) system mixture air temperature input. The intake air temperature sensor is located in the air cleaner outlet tube and is used to assist the PCM in line pressure control.

## ***Air Conditioning Clutch (A/C)***

The air conditioning clutch switch is located on the a/c suction accumulator/drier. When the a/c is switched on and the clutch is engaged, the PCM will adjust line pressure accordingly to accommodate the additional increase in engine load.

## ***Engine Coolant Temp Sensor (ECT)***

The engine coolant temperature sensor is located in the heater outlet fitting or cooling passage on the engine and detects the temperature of the engine coolant then provides this input to the PCM. This sensor signal input is used by the PCM to control torque converter clutch operation.

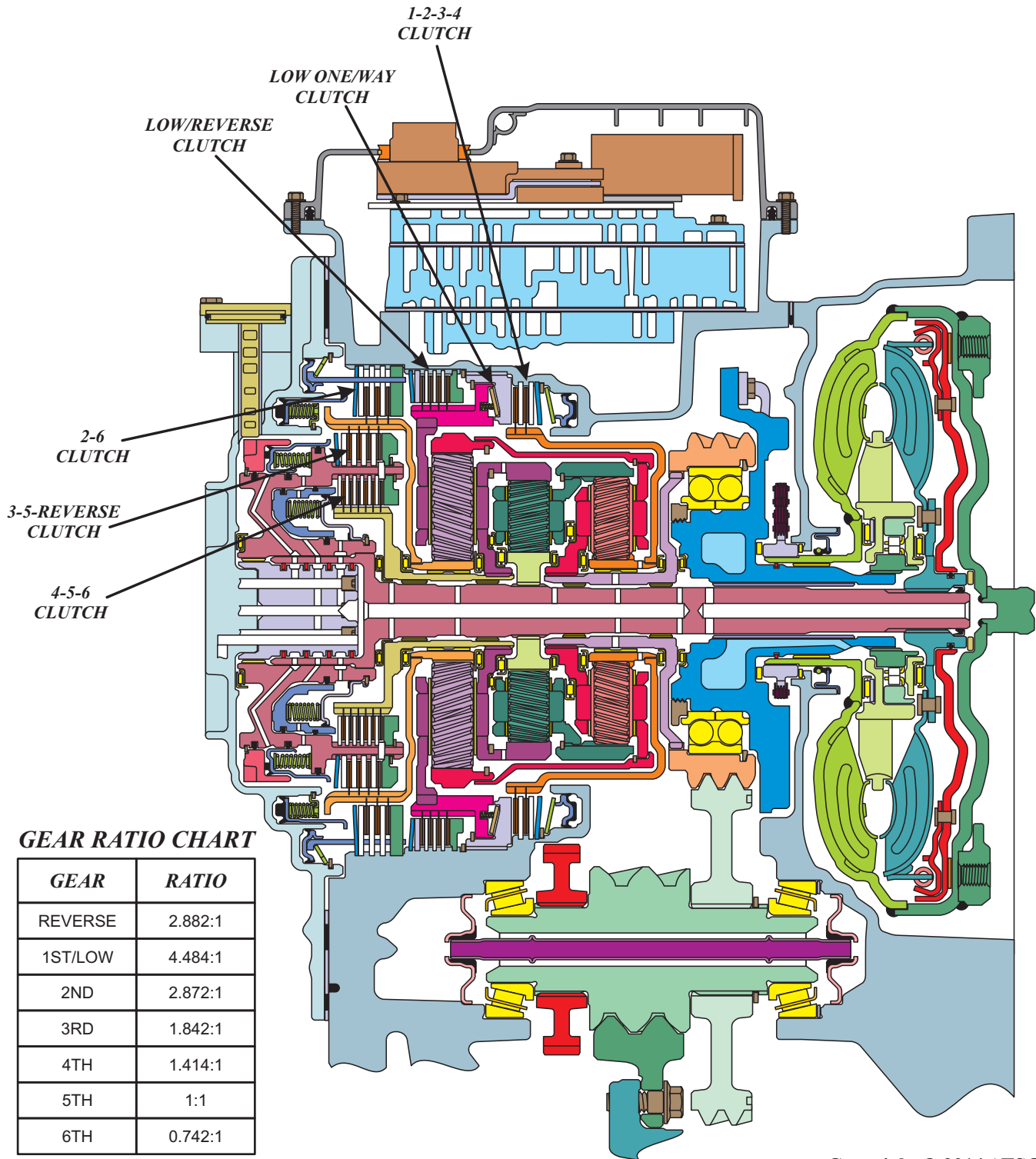


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Figure 2



## 6F50N PARTIAL CUT-AWAY VIEW AND GEAR RATIO CHART



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Figure 3

## 6F50N COMPONENT AND SOLENOID APPLY CHART

<b>Gear</b>	<b>Direct (3, 5, R) Clutch</b>	<b>Overdrive (4, 5, 6) Clutch</b>	<b>Forward (1, 2, 3, 4) Brake</b>	<b>Low/Rev Brake</b>	<b>Intermediate (2, 6) Brake</b>	<b>Low One Way Clutch</b>
<i>Reverse</i>	ON			ON		
<i>1st. Gear</i>			ON	ON		HOLD
<i>2nd. Gear</i>			ON		ON	O/R
<i>3rd. Gear</i>	ON		ON			O/R
<i>4th. Gear</i>		ON	ON			O/R
<i>5th. Gear</i>	ON	ON				O/R
<i>6th. Gear</i>		ON			ON	O/R

<b>Selector Lever Position</b>	<b>PCM Gear Command</b>	<b>SSA (VFS) NL For. Brake (1,2,3,4)</b>	<b>SSB (VFS) NH Dir. Clutch (3, 5, R)</b>	<b>SSC (VFS) NL Int. Brake (2, 6)</b>	<b>SSD (VFS) NH L/R &amp; OD (LR/4,5,6)</b>	<b>SSE On/Off NC</b>	<b>TCC (VFS) NL</b>
<i>P</i>	<i>P</i>	OFF	ON	OFF	OFF	ON	OFF
<i>R</i>	<i>R</i>	OFF	OFF	OFF	OFF	ON	OFF
<i>N</i>	<i>N</i>	OFF	ON	OFF	OFF <sup>a</sup>	ON <sup>a</sup>	OFF
<i>D</i>	<i>1</i>	ON	ON	OFF	OFF <sup>b</sup>	ON <sup>c</sup>	OFF
	<i>2</i>	ON	ON	ON	ON	OFF	OFF
	<i>3</i>	ON	OFF	OFF	ON	OFF	OFF
	<i>4</i>	ON	ON	OFF	OFF	OFF	ON/OFF
	<i>5</i>	OFF	OFF	OFF	OFF	OFF	ON/OFF
	<i>6</i>	OFF	ON	ON	OFF	OFF	ON/OFF
<i>L</i>	<i>L</i>	ON	ON	OFF	OFF <sup>b</sup>	ON <sup>c</sup>	OFF

a Solenoid state will change if vehicle is moving forward with the selector lever in the NEUTRAL position.

b Turns ON above 5 km/h (3 mph)

c Turns OFF above 5 km/h (3 mph)

NC = Normally Closed

NH = Normally High

NL = Normally Low

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Figure 4

## SHIFT SOLENOID FAILURE MODE CHART WITH SOLENOIDS FAILED "ON" OR "OFF"

### SSA

<i>Gear Commanded</i>	<i>Actual Gears Obtained</i>	
	<i>Failed ON (High Pressure)</i>	<i>Failed OFF (Low Pressure)</i>
R	R	R
D	1, 2, 3, 4	5, 6

### SSB

<i>Gear Commanded</i>	<i>Actual Gears Obtained</i>	
	<i>Failed ON (High Pressure)</i>	<i>Failed OFF (Low Pressure)</i>
R	N <sup>a</sup>	R
D	1, 2, 4, 6	3, 5

<sup>a</sup> Reverse is available if the solenoid circuit failed causing transaxle solenoid power control (TSPC) to remove voltage to all solenoids.

### SSC

<i>Gear Commanded</i>	<i>Actual Gears Obtained</i>	
	<i>Failed ON (High Pressure)</i>	<i>Failed OFF (Low Pressure)</i>
R	R	R
D	2, 6	1, 3, 4, 5

### SSD

<i>Gear Commanded</i>	<i>Actual Gears Obtained</i>	
	<i>Failed ON (High Pressure)</i>	<i>Failed OFF (Low Pressure)</i>
R	N <sup>a</sup>	R
D	1, 2, 3 <sup>b</sup>	4, 5, 6

<sup>a</sup> Reverse is available if the solenoid circuit failed causing transaxle solenoid power control (TSPC) to remove voltage to all solenoids.

<sup>b</sup> No engine braking effect

### SSE

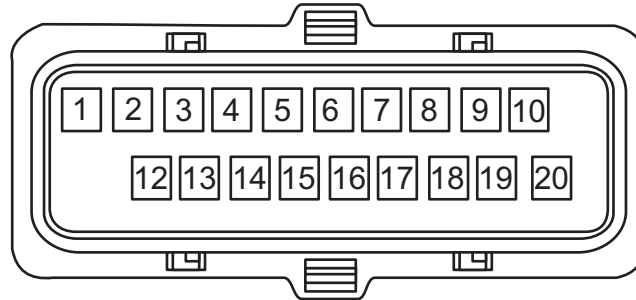
<i>Gear Commanded</i>	<i>Actual Gears Obtained</i>	
	<i>Failed ON (High Pressure)</i>	<i>Failed OFF (Low Pressure)</i>
R	R	R
D	1, 2	1 <sup>a</sup> , 2, 3, 4, 5, 6

<sup>b</sup> No engine braking effect

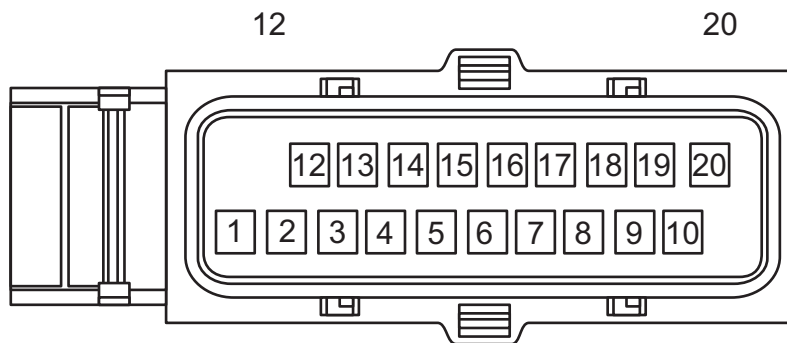
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Figure 5

## **TRANSMISSION HARNESS CONNECTOR VALVE BODY SIDE**



## **TRANSMISSION CASE HARNESS CONNECTOR**



### **TERMINAL NUMBER AND WIRE COLOR**

### **TERMINAL/WIRE DESCRIPTION**

1 (VIOLET/GREY)	SHIFT SOLENOID E (SSE)
2 (BROWN/YELLOW)	TRANSMISSION FLUID TEMPERATURE SENSOR (TFT)
3 (GREY/VIOLET)	TRANSMISSION FLUID TEMPERATURE SENSOR SIGNAL RETURN (GROUND)
4 (VIOLET/WHITE)	TRANSMISSION RANGE SENSOR (TR1)
5 (YELLOW)	TRANSMISSION RANGE SENSOR (TR2)
6 (BLUE/ORANGE)	TRANSMISSION RANGE SENSOR (TR3)
7 (VIOLET)	TRANSMISSION RANGE SENSOR (TR4)
8 (BROWN/BLUE)	TRANSMISSION RANGE SENSOR SIGNAL RETURN (GROUND)
9 (BROWN/BLUE)	INPUT/OUTPUT SENSOR ISS/OSS SIGNAL RETURN (ISS/OSS GROUND)
10 (BROWN/GREEN)	OUTPUT SHAFT SPEED SENSOR (OSS)
11 (NOT USED)	
12 (BROWN/WHITE)	SHIFT SOLENOID D (SSD)
13 (BLUE/GREEN)	SHIFT SOLENOID A (SSA)
14 (BLUE/GREY)	TORQUE CONVERTER CLUTCH SOLENOID (TCC)
15 (BLUE/GREEN)	TRANSAXLE SOLENOID POWER CONTROL (TSPC)
16 (GREEN/BROWN)	SHIFT SOLENOID B (SSB)
17 (GREY/ORANGE)	SHIFT SOLENOID C (SSC)
18 (YELLOW/VIOLET)	LINE PRESSURE CONTROL SOLENOID (LPC)
19 (WHITE/ORANGE)	TURBINE SHAFT SPEED SENSOR (TSS)
20 (VIOLET/GREEN)	TURBINE/OUTPUT SENSOR ISS/OSS POWER SUPPLY

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Figure 6



## *Solenoid and Transmission Fluid Temperature Sensor Resistance Charts*

<i>Shift Solenoid</i>	<i>Positive Meter Lead Terminal Number</i>	<i>Negative Meter Lead Terminal Number</i>	<i>Approximate Resistance 50° - 68° F</i>	<i>Approximate Resistance 104° - 122° F</i>	<i>Approximate Resistance 176° - 194° F</i>
SSA	15	13	3 - 6 Ω	4 - 6 Ω	5 - 7 Ω
SSB	15	16	3 - 6 Ω	4 - 6 Ω	5 - 7 Ω
SSC	15	17	3 - 6 Ω	4 - 6 Ω	5 - 7 Ω
SSD	15	12	3 - 6 Ω	4 - 6 Ω	5 - 7 Ω
SSE	15	1	18 - 27 Ω	20 - 29 Ω	24.5 - 33.5 Ω
TCC	15	14	3 - 6 Ω	4 - 6 Ω	5 - 7 Ω
LPC	15	18	3 - 6 Ω	4 - 6 Ω	5 - 7 Ω

<i>Temperature</i>		<b>Resistance (ohms)</b>
<b>°C</b>	<b>°F</b>	
-40 to -20	-40 to -4	1076K - 269K
-19 to -1	-3 to 31	309K - 91K
0 to 20	32 to 68	104K - 35K
21 to 40	69 to 104	40K - 15K
41 to 70	105 to 158	17K - 4.9K
71 to 90	159 to 194	5.6K - 2.5K
91 to 110	195 to 230	2.4K - 1.4K
111 to 130	231 to 266	1.7K - 0.8K
131 to 150	267 to 302	0.97K - 0.56K

Check resistance using terminals 2 and 3 at the transmission case harness connector

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Figure 7

## Solenoid and Transmission Fluid Temperature Sensor Resistance Charts

### Digital Transmission Range (TR) Sensor Diagnosis Chart

Selector Position	PID: TR	PID: TR_D			
		TR1	TR2	TR3	TR4
<b>PARK</b>	<b>P/N</b>	0	1	1	0
<b>In Between</b>	<b>REV</b>	0	0	1	0
<b>REVERSE</b>	<b>REV</b>	0	0	1	1
<b>In Between</b>	<b>REV</b>	1	0	1	1
<b>NEUTRAL</b>	<b>NTRL</b>	1	0	1	0
<b>In Between</b>	<b>NTRL</b>	1	0	0	0
<b>DRIVE</b>	<b>DRIVE</b>	1	0	0	1
<b>In Between</b>	<b>DRIVE</b>	0	0	0	1
<b>LOW</b>	<b>LOW</b>	0	0	0	0

PID: TR\_D may be viewed on a capable scan tool.

1 indicates switch is open

0 indicates switch is closed

In Between readings could be caused by a misadjusted TR sensor  
a shifter cable out of adjustment, or a faulty TR sensor

### Digital Transmission Range (TR) Sensor Diagnosis Chart

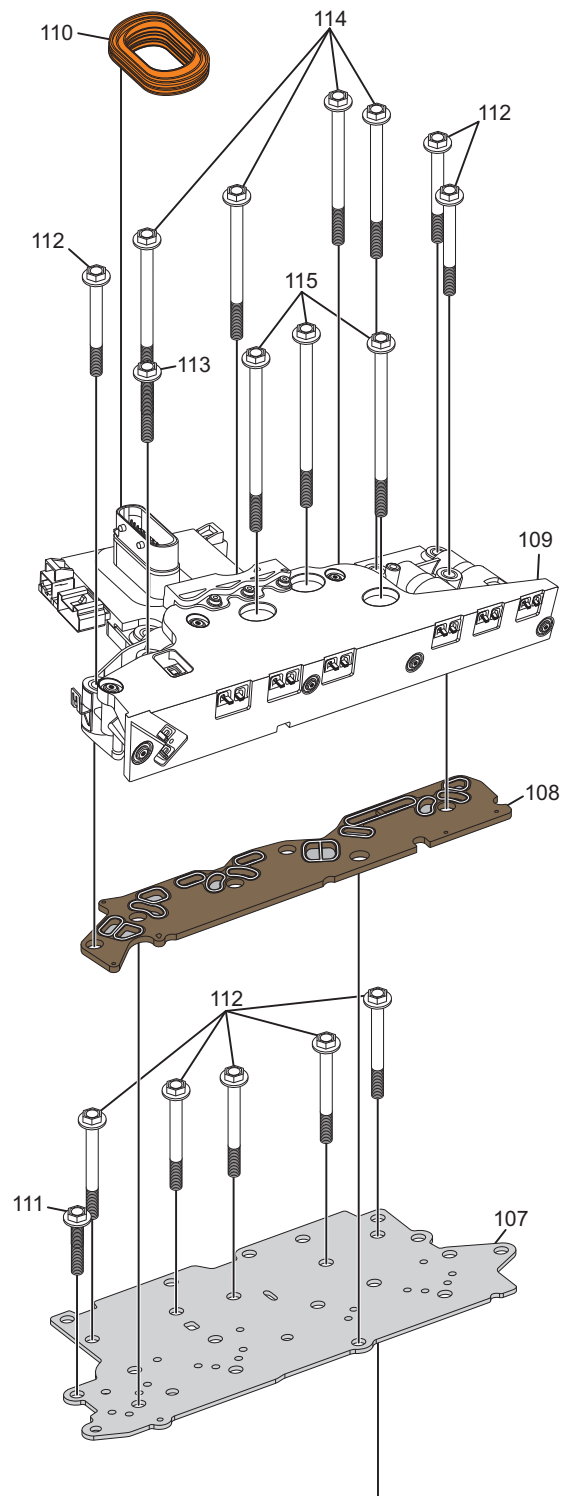
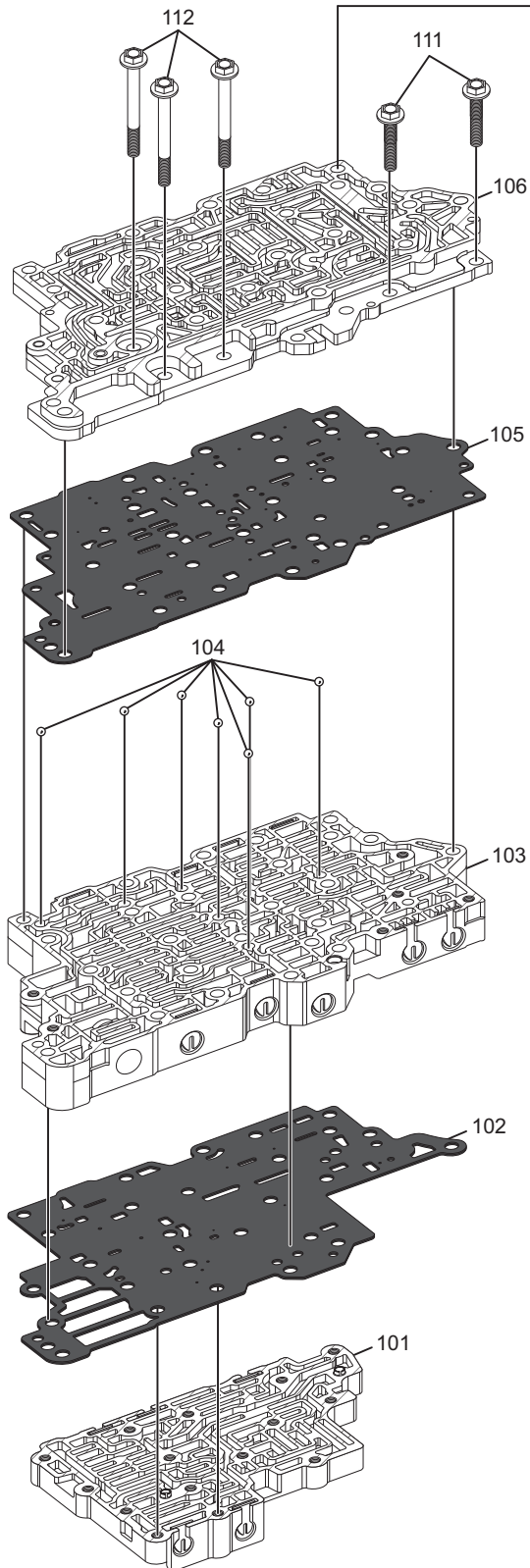
Selector Position	Transmission Case Harness Connector Pins			
	Pin 4	Pin 5	Pin 6	Pin 7
<b>PARK</b>	Closed	Open	Open	Closed
<b>In Between</b>	Closed	Closed	Open	Closed
<b>REVERSE</b>	Closed	Closed	Open	Open
<b>In Between</b>	Open	Closed	Open	Open
<b>NEUTRAL</b>	Open	Closed	Open	Closed
<b>In Between</b>	Open	Closed	Closed	Closed
<b>DRIVE</b>	Open	Closed	Closed	Open
<b>In Between</b>	Closed	Closed	Closed	Open
<b>LOW</b>	Closed	Closed	Closed	Closed

Sensor may be checked using pins in this chart with an ohmmeter between each terminal number and ground checking for continuity or resistance.

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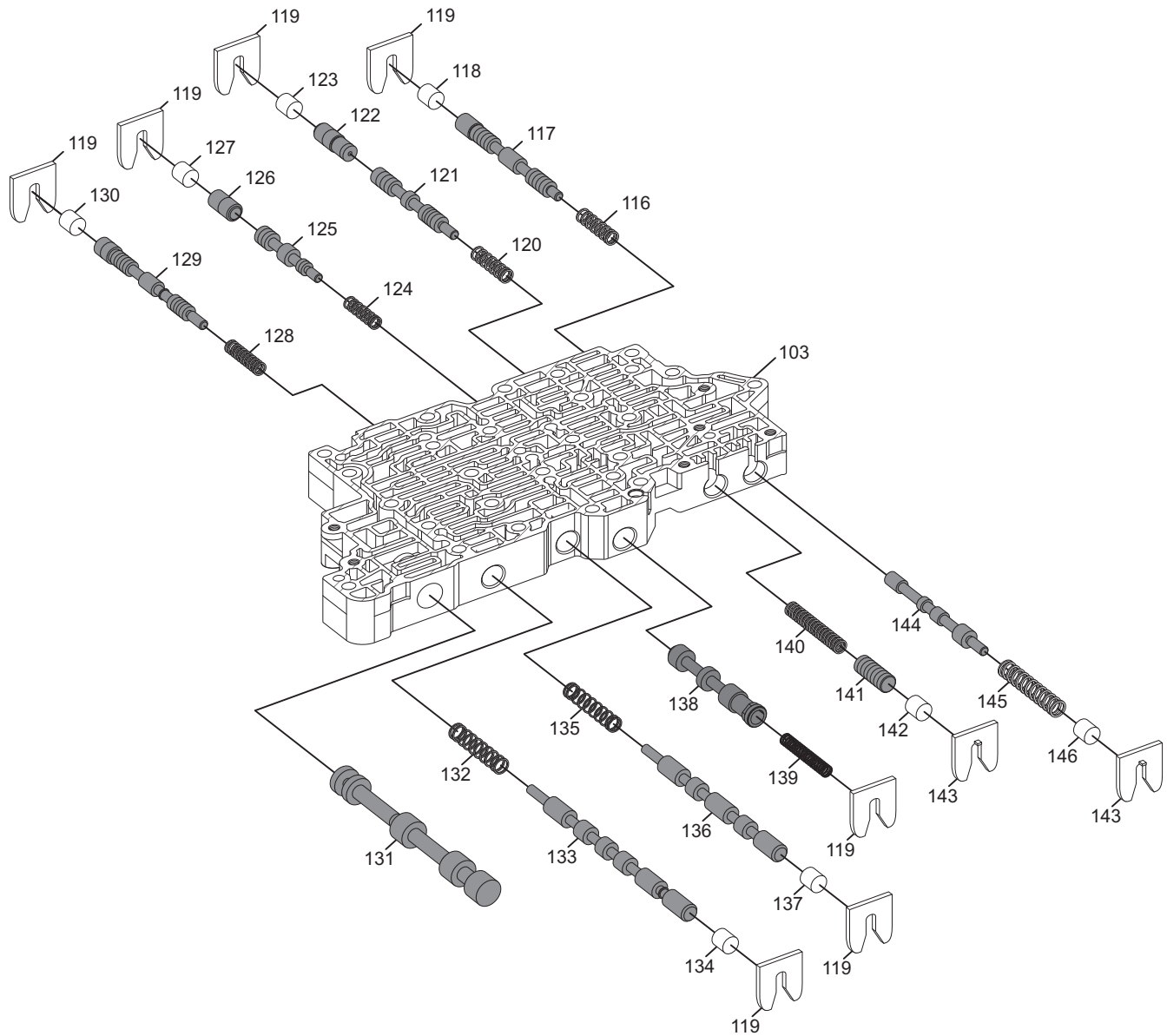
Figure 8

## 6F50N VALVE BODY EXPLODED VIEW



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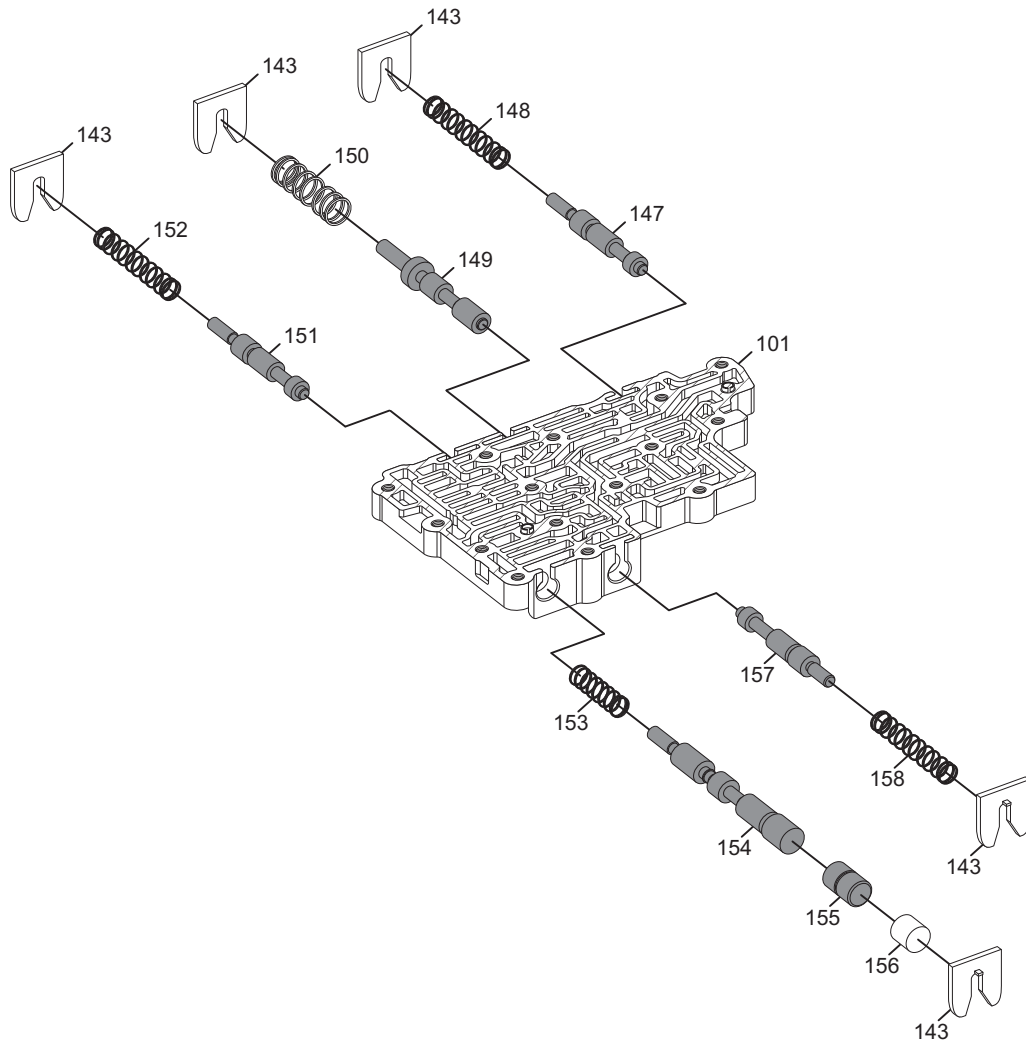
Figure 9



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Figure 10

## 6F50N LOWER VALVE BODY EXPLODED VIEW



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Figure 11



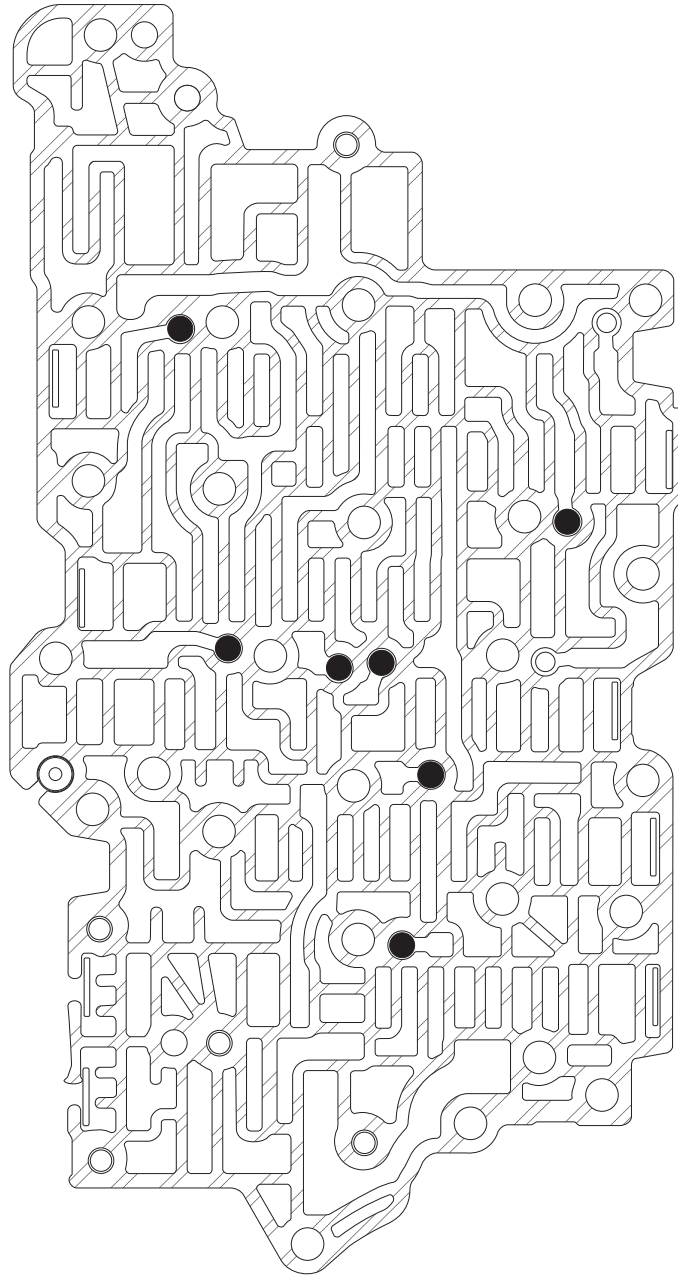
## ***6F50N CONTROL VALVE BODY LEGEND***

- 101. LOWER VALVE BODY ASSEMBLY
- 102. MAIN CONTROL VALVE BODY TO LOWER VALVE BODY SEPARATOR PLATE
- 103. MAIN CONTROL VALVE BODY ASSEMBLY
- 104. MAIN CONTROL VALVE BODY CHECK BALLS (7 REQUIRED)
- 105. MAIN CONTROL VALVE BODY TO TRANSFER PLATE SEPARATOR PLATE
- 106. CASE TO VALVE BODY TRANSFER PLATE
- 107. TRANSFER PLATE COVER
- 108. SOLENOID BODY FILTER
- 109. SOLENOID BODY ASSEMBLY
- 110. SOLENOID BODY ELECTRICAL CONNECTOR SEAL
- 111. VALVE BODY ATTACHING BOLTS M6 X 35MM (3 REQUIRED)
- 112. VALVE BODY ATTACHING BOLTS M6 X 63MM (11 REQUIRED)
- 113. VALVE BODY ATTACHING BOLT M6 X 42MM (1 REQUIRED)
- 114. VALVE BODY ATTACHING BOLTS M6 X 80MM (4 REQUIRED)
- 115. VALVE BODY ATTACHING BOLTS M6 X 95MM (3 REQUIRED)
- 116. DIRECT (3, 5, R) CLUTCH REGULATOR VALVE SPRING
- 117. DIRECT (3, 5, R) CLUTCH REGULATOR VALVE
- 118. DIRECT (3, 5, R) CLUTCH REGULATOR VALVE BORE PLUG
- 119. VALVE BODY VALVE ASSEMBLY RETAINING PLATE (7 REQUIRED)
- 120. INTERMEDIATE (2, 6) BRAKE REGULATOR VALVE SPRING
- 121. INTERMEDIATE (2, 6) BRAKE REGULATOR VALVE
- 122. INTERMEDIATE (2, 6) BRAKE REGULATOR VALVE PLUG
- 123. INTERMEDIATE (2, 6) BRAKE REGULATOR VALVE BORE PLUG
- 124. TORQUE CONVERTER CLUTCH (TCC) REGULATOR APPLY VALVE SPRING
- 125. TORQUE CONVERTER CLUTCH (TCC) REGULATOR APPLY VALVE
- 126. TORQUE CONVERTER CLUTCH (TCC) REGULATOR APPLY VALVE PLUG
- 127. TORQUE CONVERTER CLUTCH (TCC) REGULATOR APPLY VALVE BORE PLUG
- 128. LOW/REVERSE BRAKE AND OVERDRIVE (4,5,6) CLUTCH REGULATOR VALVE SPRING
- 129. LOW/REVERSE BRAKE AND OVERDRIVE (4,5,6) CLUTCH REGULATOR VALVE
- 130. LOW/REVERSE BRAKE AND OVERDRIVE (4,5,6) CLUTCH REGULATOR VALVE BORE PLUG
- 131. MANUAL VALVE
- 132. MULTIPLEX SHIFT VALVE SPRING
- 133. MULTIPLEX SHIFT VALVE
- 134. MULTIPLEX SHIFT VALVE BORE PLUG
- 135. MULTIPLEX MANUAL VALVE SPRING
- 136. MULTIPLEX MANUAL VALVE
- 137. MULTIPLEX MANUAL VALVE BORE PLUG
- 138. TORQUE CONVERTER CLUTCH (TCC) CONTROL VALVE
- 139. TORQUE CONVERTER CLUTCH (TCC) CONTROL VALVE SPRING
- 140. ISOLATOR VALVE SPRING
- 141. ISOLATOR VALVE
- 142. ISOLATOR VALVE BORE PLUG
- 143. VALVE BODY VALVE ASSEMBLY RETAINING PLATE (7 REQUIRED)
- 144. PRESSURE REGULATOR VALVE
- 145. PRESSURE REGULATOR VALVE SPRING
- 146. PRESSURE REGULATOR VALVE BORE PLUG
- 147. DIRECT (3, 5, R) CLUTCH BOOST VALVE
- 148. DIRECT (3, 5, R) CLUTCH BOOST VALVE SPRING
- 149. SOLENOID REGULATOR VALVE
- 150. SOLENOID REGULATOR VALVE SPRING
- 151. LOW/REVERSE AND OVERDRIVE (4,5,6) BOOST VALVE
- 152. LOW/REVERSE AND OVERDRIVE (4,5,6) BOOST VALVE SPRING
- 153. FORWARD (1, 2, 3, 4) CLUTCH REGULATOR VALVE SPRING
- 154. FORWARD (1, 2, 3, 4) CLUTCH REGULATOR VALVE
- 155. FORWARD (1, 2, 3, 4) CLUTCH REGULATOR VALVE PLUG
- 156. FORWARD (1, 2, 3, 4) CLUTCH REGULATOR VALVE BORE PLUG
- 157. FORWARD (1, 2, 3, 4) CLUTCH BOOST VALVE
- 158. FORWARD (1, 2, 3, 4) CLUTCH BOOST VALVE SPRING

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Figure 12

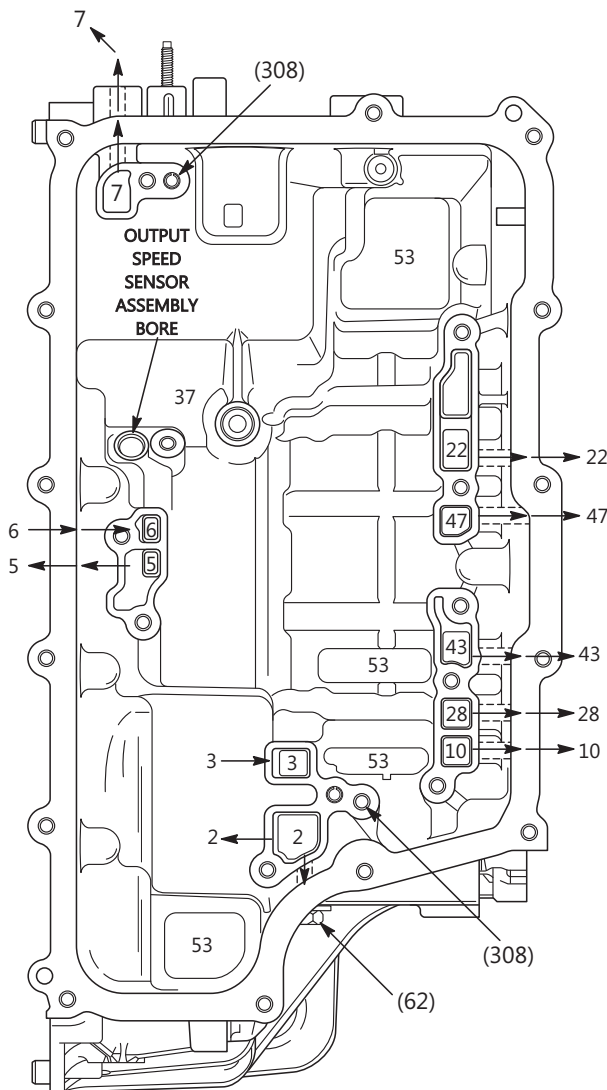
## ***6F50N CONTROL VALVE BODY CHECKBALL LOCATIONS***



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Figure 13

## CASE PASSAGE IDENTIFICATION



**Transmission Case Assembly  
(Valve Body Side)**

- 1 SUCTION.
- 2 LINE.
- 3 DECREASE.
- 4 CONVERTER FEED.
- 5 TCC RELEASE.
- 6 TCC APPLY.
- 7 COOLER FEED.
- 8 LUBE.
- 9 REGULATED APPLY.
- 10 COMPENSATOR FEED.
- 11 ACTUATOR FEED LIMIT.
- 12 PRESSURE SWITCH 2.
- 13 PC SOLENOID (LINE).
- 14 PC SOLENOID 3 (R1/4-5-6 CLUTCH).
- 15 SHIFT SOLENOID 1.
- 16 SHIFT SOLENOID 2.
- 17 CSV2 ENABLE.
- 18 CSV3 ENABLE.
- 19 R1/4-5-6 CLUTCH FEED.
- 20 R1 FEEDBACK.
- 21 R1 SUPPLY.
- 22 R1.
- 23 PC SOLENOID 2 (3-5-REV CLUTCH).
- 24 REVERSE.
- 25 3-5-REV CLUTCH FEED.
- 26 3-5-REV SUPPLY.
- 27 3-5-REV FEED.
- 28 3-5-REV CLUTCH.
- 29 3-5-REV CLUTCH FEEDBACK.
- 30 PC SOLENOID 5 (1-2-3-4 CLUTCH).
- 31 DRIVE.
- 32 DRIVE BRAKE.
- 33 DRIVE B.
- 34 2-6 CLUTCH/1-2-3-4 CLUTCH FEED.
- 35 PRESSURE SWITCH 3.
- 36 1-2-3-4 CLUTCH FEED.
- 37 1-2-3-4 CLUTCH.
- 38 1-2-3-4 CLUTCH FEEDBACK.
- 39 DRIVE 1-6.
- 40 PRESSURE SWITCH 4.
- 41 CSV2 LATCH.
- 42 PC SOLENOID 4 (2-6 CLUTCH).
- 43 2-6 CLUTCH.
- 44 1-2-3-4 CLUTCH DEFAULT FEED.
- 45 1-2-3-4 CLUTCH DEFAULT.
- 46 4-5-6 CLUTCH FEED.
- 47 4-5-6 CLUTCH.
- 48 PC SOLENOID (TCC).
- 49 PRESSURE SWITCH 1.
- 50 EXHAUST BACKFILL.
- 51 EXHAUST.
- 52 TORQUE CONVERTER SEAL DRAIN-BACK.
- 53 VOID.

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Figure 14



## ***DIAGNOSTIC TROUBLE CODES***

### ***PXXXX - POWERTRAIN CODES***

P0657 - TSPC electrical circuit failure. Loss of battery voltage to the transaxle  
P0705 - Transmission Range Sensor (TR) circuit failure  
P0706 - Transmission Range Sensor (TR) range failure  
P0708 - Transmission Range Sensor (TR) circuit failure (switches detected open)  
P0709 - Transmission Range Sensor (TR) range failure (range/performance TR sensor stuck in transitional zone)  
P0710 - Transmission Fluid Temperature Sensor (TFT) input too low or too high  
P0711 - Transmission Fluid Temperature Sensor (TFT) no change in TFT sensor input  
P0712 - Transmission Fluid Temperature Sensor (TFT) TFT sensor voltage input too low  
P0713 - Transmission Fluid Temperature Sensor (TFT) TFT sensor voltage input too high  
P0715 - Turbine Shaft Speed Sensor (TSS) Insufficient input from TSS  
P0717 - Turbine Shaft Speed Sensor (TSS) Insufficient input from TSS  
P0718 - Turbine Shaft Speed Sensor (TSS) Signal intermittent  
P0720 - Output Shaft Speed Sensor (OSS) Insufficient input from OSS  
P0721 - Output Shaft Speed Sensor (OSS) Sensor signal noise detected in OSS  
P0722 - Output Shaft Speed Sensor (OSS) Insufficient input from OSS  
P0729 - Overdrive (4, 5, 6) Clutch System Fault (includes non-electrical SSD fault, control valve body or clutch fault)  
P072C - Low/Reverse and One-Way Clutch (OWC) Fault (Low/Reverse or OWC failed ON)  
P072E - Direct (3, 5, R) Clutch System Fault (includes non-electrical failure of valve body, or SSB failed ON)  
P072F - Overdrive (4,5,6) Clutch System Fault (includes non-electrical SSD fault, control valve body or clutch fault)  
P0733 - Ratio Error in Third Gear (includes non-electrical failure of valve body, SSB malfunction or clutch fault)  
P0734 - Ratio Error in Fourth Gear (includes non-electrical SSD fault, control valve body or OD (4, 5, 6) clutch fault)  
P0735 - Ratio Error in Fifth Gear (includes non-electrical SSD fault, control valve body or OD (4, 5, 6) clutch fault)  
P073A - Overdrive (4, 5, 6) Clutch System Fault (clutch stuck on, SSD or valve body fault)  
P073A - Overdrive (4, 5, 6) Clutch System Fault (if code is stored with P072E, indication is SSB failed ON)  
P073B - Overdrive (4,5,6) Clutch System Fault (includes non-electrical SSD fault, control valve body or clutch fault)  
P0740 - Torque Converter Clutch Solenoid (TCC) Circuit Fault  
P0741 - Torque Converter Clutch Solenoid (TCC) Stuck Off  
P0742 - Torque Converter Clutch Solenoid (TCC) Circuit Shorted to Ground  
P0743 - Torque Converter Clutch Solenoid (TCC) Circuit (circuit open, shorted to ground, or shorted to power)  
P0743 - Torque Converter Clutch Solenoid (TCC) Circuit (if code is stored with P0740, indication is circuit open)  
P0743 - Torque Converter Clutch Solenoid (TCC) Circuit (if code is stored with P0742, indication is circuit shorted)  
P0743 - Torque Converter Clutch Solenoid (TCC) Circuit (if code is stored with P0744, indication is circuit shorted to power)  
P0744 - Torque Converter Clutch Solenoid (TCC) Circuit Shorted to Power  
P0748 - Line Pressure Control Solenoid (LPC) Circuit Fault (check for companion codes P0960, P0962, P0963)  
P0748 - Line Pressure Control Solenoid (LPC) Circuit (if code is stored with P0960, indication is circuit open)  
P0748 - Line Pressure Control Solenoid (LPC) Circuit (if code is stored with P0962, indication is circuit shorted)  
P0748 - Line Pressure Control Solenoid (LPC) Circuit (if code is stored with P0963, indication is circuit shorted to power)  
P0750 - SSA Circuit Fault  
P0751 - Forward (1, 2, 3, 4) Clutch Failed OFF (includes non-electrical SSA faults, control valve body or clutch fault)  
P0752 - Forward (1, 2, 3, 4) Clutch Failed ON (includes non-electrical SSA faults, control valve body or clutch fault)  
P0753 - SSA Circuit Fault  
P0753 - SSA Circuit Fault (if stored with code P0750, indication is circuit open)  
P0753 - SSA Circuit Fault (if stored with code P0973, indication is circuit shorted to ground)  
P0753 - SSA Circuit Fault (if stored with code P0974, indication is circuit shorted to power)  
P0755 - SSB Circuit Fault  
P0756 - Direct (3, 5, R) Clutch Failed OFF (includes non-electrical SSB faults, control valve body or clutch fault)  
P0757 - Direct (3, 5, R) Clutch System Fault (includes non-electrical SSB faults, control valve body or clutch fault)  
P0758 - SSB Circuit Fault  
P0758 - SSB Circuit Fault (if stored with code P0755, indication is circuit open)  
P0758 - SSB Circuit Fault (if stored with code P0976, indication is circuit shorted to ground)  
P0758 - SSB Circuit Fault (if stored with code P0977, indication is circuit shorted to power)  
P0760 - SSC Circuit Fault  
P0761 - Intermediate (2, 6) Clutch Failed OFF (includes non-electrical SSC faults, control valve body or clutch fault)

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Figure 14



## ***DIAGNOSTIC TROUBLE CODES***

P0762 - Intermediate (2, 6) Clutch Failed ON (includes non-electrical SSC faults, control valve body or clutch fault)  
P0763 - SSC Circuit Fault  
P0763 - SSC Circuit Fault (if stored with code P0760, indication is circuit open)  
P0763 - SSC Circuit Fault (if stored with code P0797, indication is circuit shorted to ground)  
P0763 - SSC Circuit Fault (if stored with code P0980, indication is circuit is shorted to power)  
P0765 - SSD Circuit Fault  
P0766 - Overdrive (4, 5, 6) Clutch System Fault (includes non-electrical SSD faults, control valve body or clutch fault)  
P0767 - Overdrive (4, 5, 6) Clutch failed ON (includes non-electrical SSD faults, control valve body or clutch fault)  
P0768 - SSD Circuit Fault  
P0768 - SSD Circuit Fault (if stored with code P0765, indication is circuit open)  
P0768 - SSD Circuit Fault (if stored with code P0982, indication is circuit shorted to ground)  
P0768 - SSD Circuit Fault (if stored with code P0983, indication is circuit shorted to power)  
P0770 - SSE Circuit Fault  
P0771 - SSE Stuck OFF (includes non-electrical SSE faults or control valve body)  
P0772 - SSE Stuck ON (includes non-electrical SSE faults or control valve body)  
P0773 - SSE Circuit Failure  
P0774 - SSE Stuck ON or Stuck OFF (refer to codes P0771, P0772)  
P0774 - SSE Stuck OFF (refer to code P0771, non-electrical faults, SSE faults or control valve body)  
P0774 - SSE Stuck ON (refer to code P0772, non-electrical faults, SSE faults or control valve body)  
P0960 - Line Pressure Control Solenoid (LPC) (stored with code P0748, indication is circuit open)  
P0962 - Line Pressure Control Solenoid (LPC) (stored with code P0748, indication is circuit shorted to ground)  
P0963 - Line Pressure Control Solenoid (LPC) (stored with code P0748, indication is circuit is shorted to power)  
P0973 - SSA Circuit Fault (stored with code P0753, indication is circuit is shorted to ground)  
P0974 - SSA Circuit Fault (stored with code P0753, indication is circuit is shorted to power)  
P0976 - SSB Circuit Fault (stored with code P0758, indication is circuit is shorted to ground)  
P0977 - SSB Circuit Fault (stored with code P0758, indication is circuit is shorted to power)  
P0979 - SSC Circuit Fault (stored with code P0763, indication is circuit is shorted to ground)  
P0980 - SSC Circuit Fault (stored with code P0763, indication is circuit is shorted to power)  
P0982 - SSD Circuit Fault (stored with code P0768, indication is circuit is shorted to ground)  
P0983 - SSD Circuit Fault (stored with code P0768, indication is circuit is shorted to power)  
P1636 - ADLR Fault (ADLR chip communication error)  
P163E - TRID block (solenoid strategy data programmed into the PCM, version incorrect)  
P163F - TRID block (solenoid characterization data programmed into the PCM, corrupted or not programmed)  
P1700 - Main Control Valve Body Fault (valves stuck in control valve body)  
P1702 - Transmission Range Sensor (TR) Circuit Fault (stored with code P0705, indication is invalid combination)  
P1702 - Transmission Range Sensor (TR) Circuit Fault (stored with code P0708, indication is all circuits open)  
P1705 - Transmission Range Sensor (TR) Circuit Fault (sensor not indicating P or N during KOEO or KOER self-test)  
P1711 - Transmission Fluid Temperature Sensor (TFT) (sensor out of self-test range, less than 30°F or greater than 220°F)  
P1744 - Torque Converter Clutch System Fault (TCC stuck OFF)  
P1780 - Transmission Control Switch (TCS) No State Change  
P1783 - Transmission Over Temp (transmission temperature indicated greater than 275°F for more than 5 seconds)  
P1910 - Reverse Lamp Control Circuit Fault  
P2700 - Forward (1, 2, 3, 4) Clutch System Fault (non-electrical SSA faults, control valve body or clutch fault)  
P2700 - Forward (1, 2, 3, 4) Clutch System Fault (stored with P0751, clutch failed OFF)  
P2700 - Forward (1, 2, 3, 4) Clutch System Fault (stored with P0752, clutch failed ON)  
P2701 - Direct (3, 5, R) Clutch Failed ON (includes non-electrical SSB faults, control valve body or clutch fault)  
P2702 - Intermediate (2, 6) Clutch Failed ON or OFF  
P2702 - Intermediate (2, 6) Clutch System Fault (stored with code P0761, indication is clutch failed OFF)  
P2702 - Intermediate (2, 6) Clutch System Fault (stored with code P0762, indication is clutch failed ON)  
P2703 - Low/Reverse Brake and One Way Clutch Fault, Clutch Failed OFF  
P2704 - Overdrive (4, 5, 6) Clutch Failed OFF (includes non-electrical SSD faults, control valve body or clutch fault)  
P2705 - One Way Clutch (OWC) Failed OFF  
P2783 - Control Valve Body Fault (stuck valves)

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Figure 14