



Technical Service Information

2006 ALLISON 1000/2000 "6 SPEED"

Beginning at start of production for the 2006 model year, General Motors revised the Allison 1000/2000 automatic transmissions by converting them into "6 Speed" units for light duty (8600-19850 GVW) and medium duty (19850-30000 GVW) commercial trucks.

The 1000 and 2000 Series transmissions both have helical cut planetary gear systems to minimize noise concerns and come in two different gear ratio configurations. The 1000 Series uses closer steps to improve the shift quality that we now expect from an automatic transmission. The 2000 Series uses wider steps to accommodate the greater vehicle weights associated with the 2000 Series. The gear ratios for both of the units are shown in Figure 1

The 6 Speed transmissions have a Park position, Reverse, Neutral and six forward speeds with 5th & 6th gear being overdrive ratios, and are completely electronic shift controlled. The 6 Speed is the same basic transmission with revised names for the clutch packs. They are 1-2-3-4 clutch and 4-5-6 clutch for the two rotating clutch packs. The three stationary clutch packs are 3-5-Reverse clutch, 2-6 clutch and Low/Reverse clutch. The 5 clutch packs direct the flow of torque through the transmission using 3 constant mesh planetary gear sets in various combinations. The clutches and planetary sets act singly or together to provide 6 forward ranges, Neutral and Reverse. A combination of two clutches are required to be engaged, in order to attain a torque path from the input shaft to the output shaft of the transmission. Refer to the chart in Figure 1 for the component locations and applications.

The vehicle is equipped with a column type shift selector that incorporates a driver shift request switch with "+/-" buttons, and a "Tow/Haul" button located on the end of the shift lever. Although specific installations vary, typical positions for the manual shift selector are as follows:

P - Park position allows the engine to be started and engages the parking pawl to prevent the vehicle from moving. For safety reasons, the vehicle's parking brake should always be used in addition to the "Park" position.

R - Reverse allows the vehicle to be moved in a rearward direction.

N - Neutral position allows 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 enables the transmission to upshift and downshift in each of the six forward gear ratios, according to the normal shift pattern that is programmed into the TCM.

M - Manual selection of ranges is provided when the selector is moved to the "M" position. By using the plus/minus (+/-) buttons on the gear selector lever, the driver can select the range of gears desired for the current driving conditions.

1 - Manual Low has the same starting ratio as Drive range but prevents the transmission from shifting above first gear.

Electrical Components

Several internal components have also changed with the introduction of the 6 speed transmission. The solenoids have changed, as well as their names, and the internal wire harness and case connector have changed as well, to accommodate the solenoid connector changes and the new Internal Mode Switch (IMS). Refer to Figure 2 for the solenoid locations, part numbers, and new names. Notice also in Figure 2, that there has been a new oil feed pipe added from the main valve body to the main modulated pressure solenoid body. The new case connector pins are now flat, instead of round, and the new pin assignments are illustrated in Figure 7 along with a solenoid resistance chart.

Pressure Switch Assembly (PSA)

The Pressure Switch Assembly (PSA) for the six speed is shown in Figure 3, 4, 5, and 6. The TFT sensor is still located in the PSA and the resistance chart for the TFT is also found in Figure 7.

ELECTRICAL OPERATION

The electronic control of the transmission is performed by the Transmission Control Module (TCM). The TCM processes signals from various switches and sensors, to determine shift sequences, shift timing, and clutch apply and release pressures. The TCM also uses this information to control solenoids and valves, supply system status, and provide diagnostic information for service technicians.

EXTERNAL COMPONENTS

SPEED SENSORS

The speed sensors are variable reluctance devices which convert mechanical motion to an AC voltage. Each sensor consists of a wire coil wrapped around a pole piece that is adjacent to a permanent magnet. These elements are contained in a housing which is mounted adjacent to a rotating ferrous member, such as a gear tooth. Two signal wires extend from one end of the housing and an exposed end of the pole piece is at the opposite end of the housing. As a ferrous object, such as a gear tooth approaches and passes through the gap at the end of the pole piece, an AC voltage pulse is induced in the wire coil. The TCM calculates the frequency of these AC pulses and converts it to a speed value. The AC voltage generated varies from 150mV at low speed to 15V at high speed. The signal wires from the sensor are formed as twisted pairs to cancel magnetically induced fields. The cable is also shielded to protect from voltage-related fields. The typical speed sensor is shown to the right. Noise from other sources is eliminated by using two-wire differential inputs at the TCM.

Input Speed Sensor

The Input Speed Sensor is externally mounted in the torque converter housing, and directed at the ribs protruding from the torque converter as shown in Figure 1.

Turbine Speed Sensor

The Turbine Speed Sensor is externally mounted in the main transmission case, and directed at the tone wheel or the PTO drive gear attached to the 1-2-3-4 clutch housing as shown in Figure 1.

Output Speed Sensor

The Output Speed Sensor is externally mounted in the extension housing, on the 2WD models, and directed at the teeth of a tone wheel splined to and rotating with the output shaft as shown in Figure 1. The 4WD models are mounted in the transfer case.

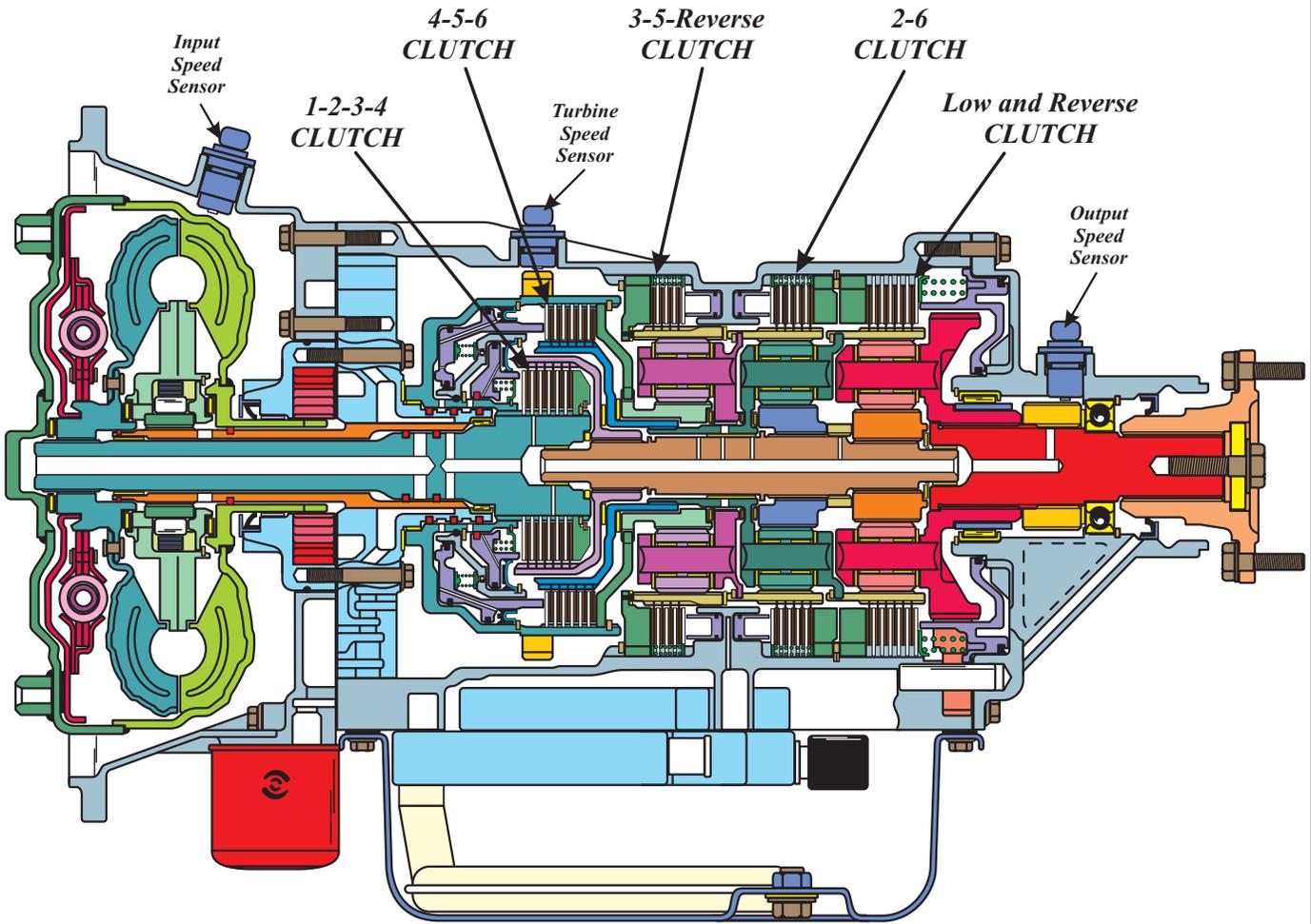
TYPICAL SPEED SENSOR



<i>Turbine Speed Sensor ALL</i>	<i>Output Speed Sensor 2WD</i>	<i>Output Speed Sensor 4WD</i>
<i>2600 Ohms @ 77 °F</i>	<i>2600-3160 Ohms @ 77 °F</i>	<i>1420-2140 Ohms @ 77 °F</i>

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ALLISON 1000/2000 SERIES "6 SPEED" TRANSMISSION



Range	1-2-3-4 Clutch	4-5-6 Clutch	3-5-Rev Clutch	2-6 Clutch	Lo/Rev Clutch	PCS 1	PCS 2	SS1	SS2	SS3	TCC PCS	Ratios		
												1000	2000	
<i>Park</i>					<i>ON</i>			X	X	X				
<i>Reverse</i>			<i>ON</i>		<i>ON</i>		X	X	X	X			4.49	5.09
<i>Neutral</i>					<i>ON</i>			X	X	X				
<i>OD-1st</i>	<i>ON</i>				<i>ON</i>				X				3.10	3.51
<i>OD-2nd</i>	<i>ON</i>			<i>ON</i>		X	X						1.81	1.90
<i>OD-3rd</i>	<i>ON</i>		<i>ON</i>					X					1.41	1.44
<i>OD-4th</i>	<i>ON</i>	<i>ON</i>				X	X	X		X	*		1.00	1.00
<i>OD-5th</i>		<i>ON</i>	<i>ON</i>							X	*		0.71	0.74
<i>OD-6th</i>		<i>ON</i>		<i>ON</i>		X	X			X	*		0.61	0.64

X = Electrical Power Applied To Solenoid.

** = TCC PCS Solenoid, To Apply Converter Clutch At Appropriate Speed.*

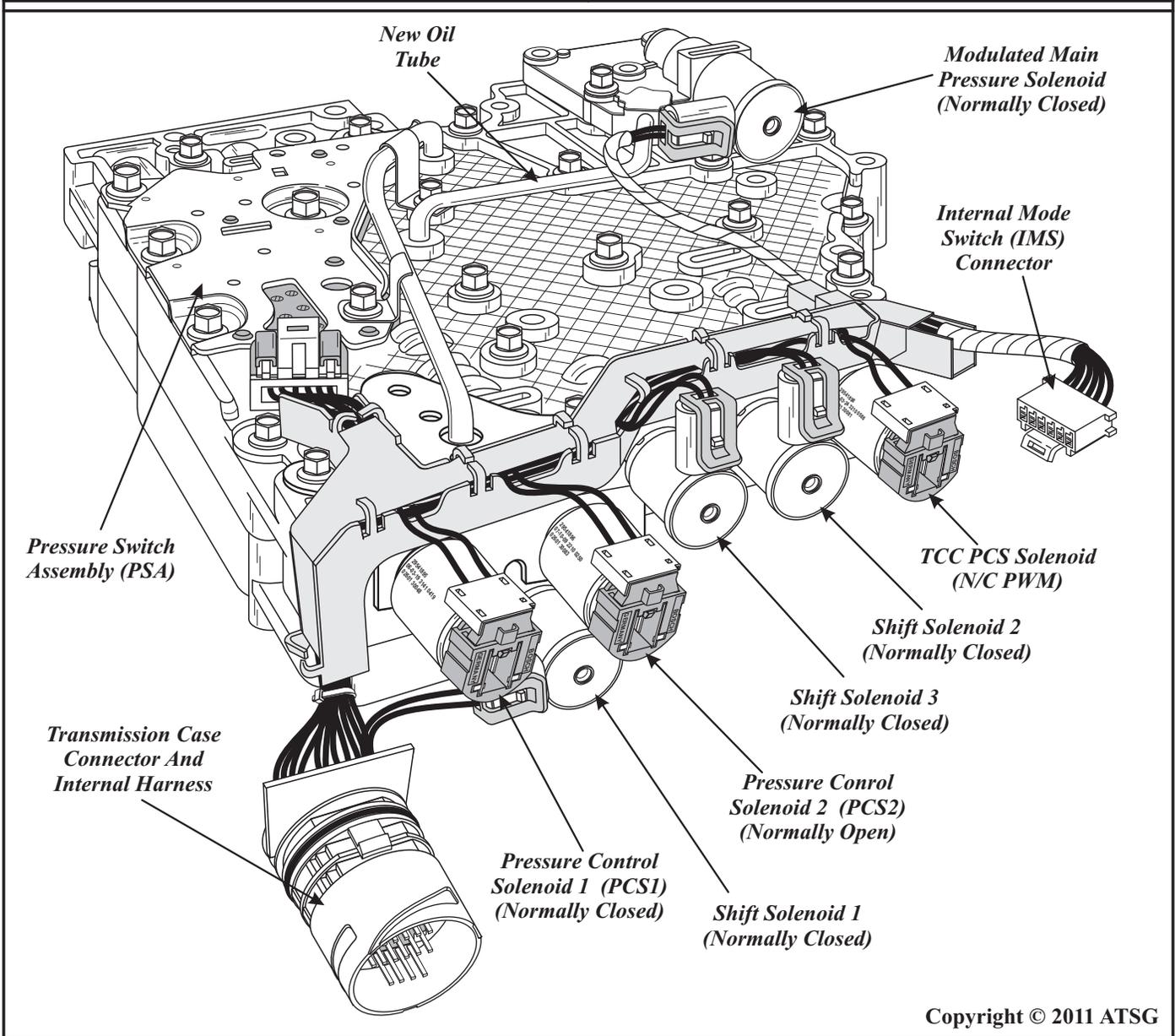
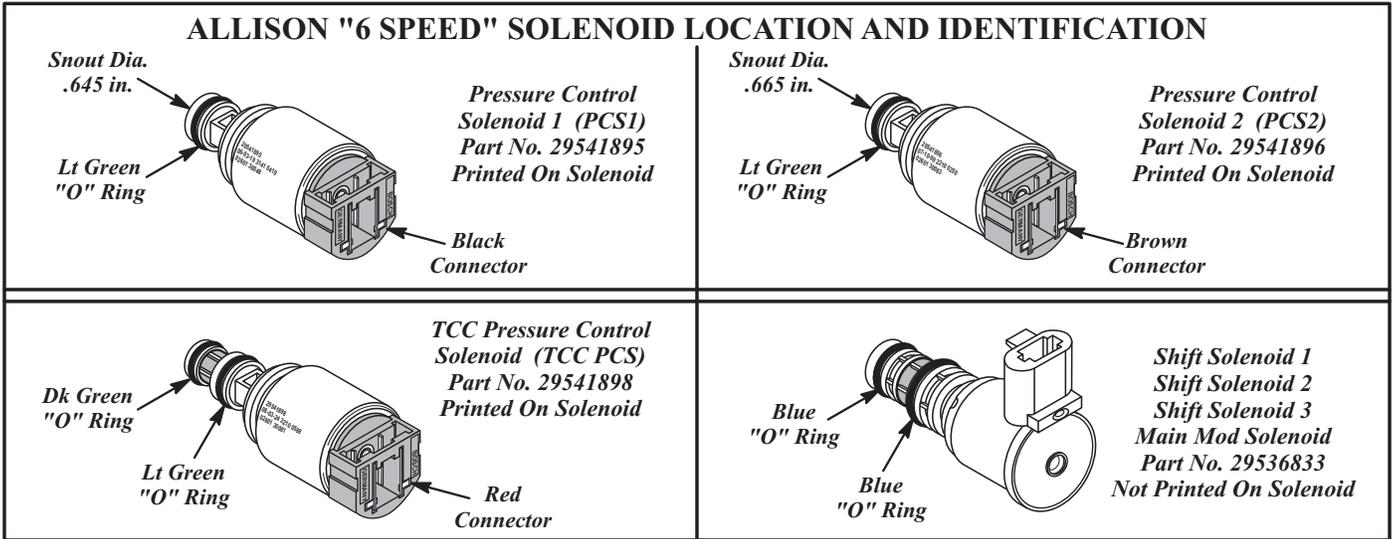
NOTE: Solenoid chart above is for "Steady State" parameters, NOT Transitions.

Not listed here are failsafe strategies because they are too numerous. They can range from a failsafe to neutral to a no vehicle start failsafe all determined by the fault present. If the case connector is unplugged, the transmission will have 3rd and reverse gears.

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Figure 1

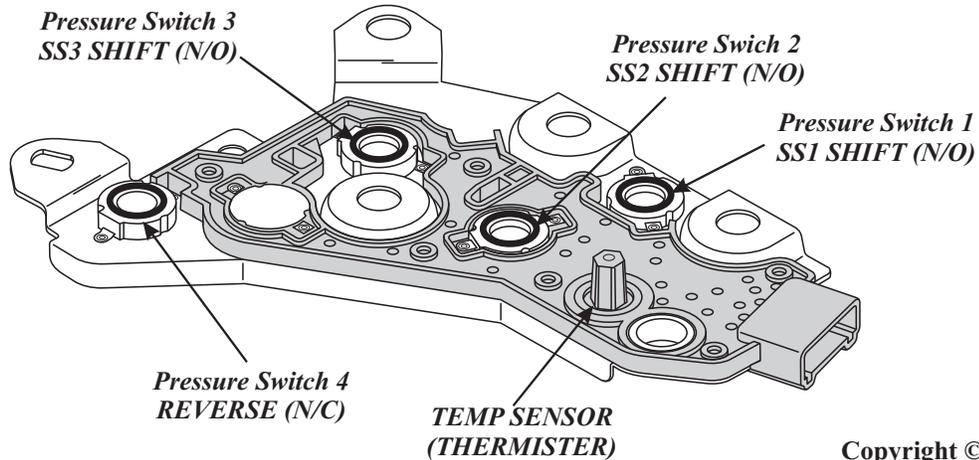
ALLISON "6 SPEED" SOLENOID LOCATION AND IDENTIFICATION



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Figure 2

PRESSURE SWITCH ASSEMBLY

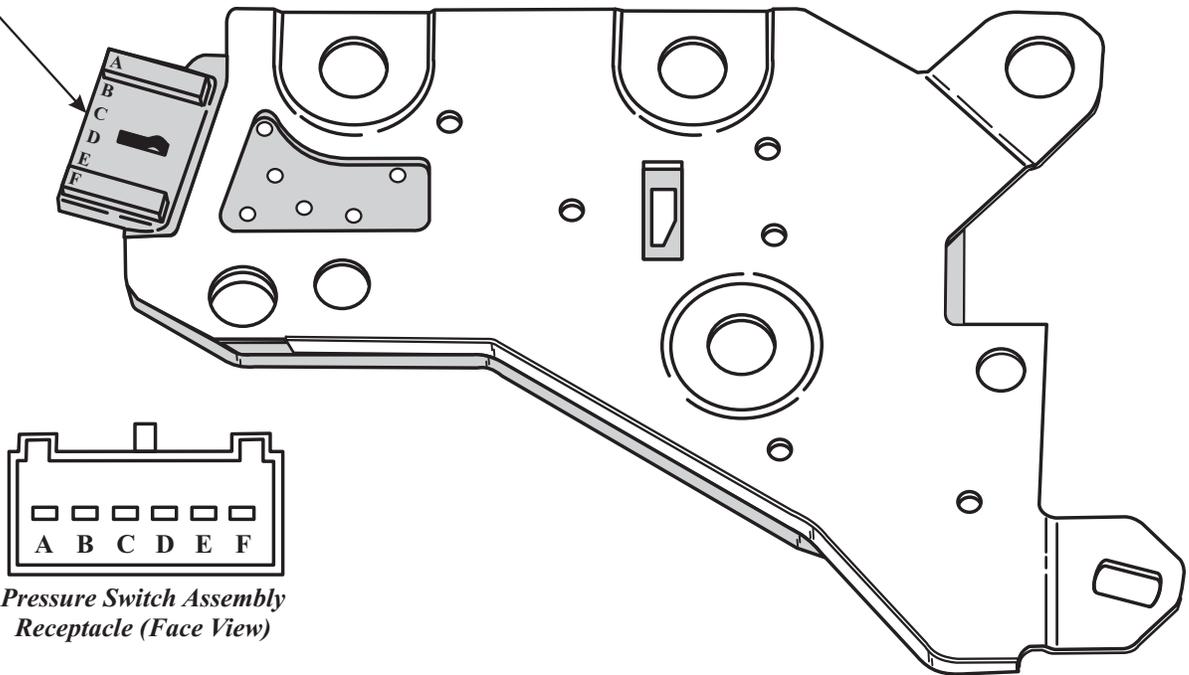


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Figure 3

PRESSURE SWITCH CONNECTOR PIN FUNCTION AND IDENTIFICATION

*Terminal Identification
Cast In Connector Here*



- (A) SS1 SHIFT SIGNAL TO PCM (CASE CONNECTOR TERMINAL "D")
- (B) SS2 SHIFT SIGNAL TO PCM (CASE CONNECTOR TERMINAL "F")
- (C) SS3 SHIFT SIGNAL TO PCM (CASE CONNECTOR TERMINAL "E")
- (D) REVERSE SWITCH TO PCM (CASE CONNECTOR TERMINAL "K")
- (E) TEMP SENSOR HIGH (CASE CONNECTOR TERMINAL "G")
- (F) TEMP SENSOR LOW (CASE CONNECTOR TERMINAL "H")

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Figure 4

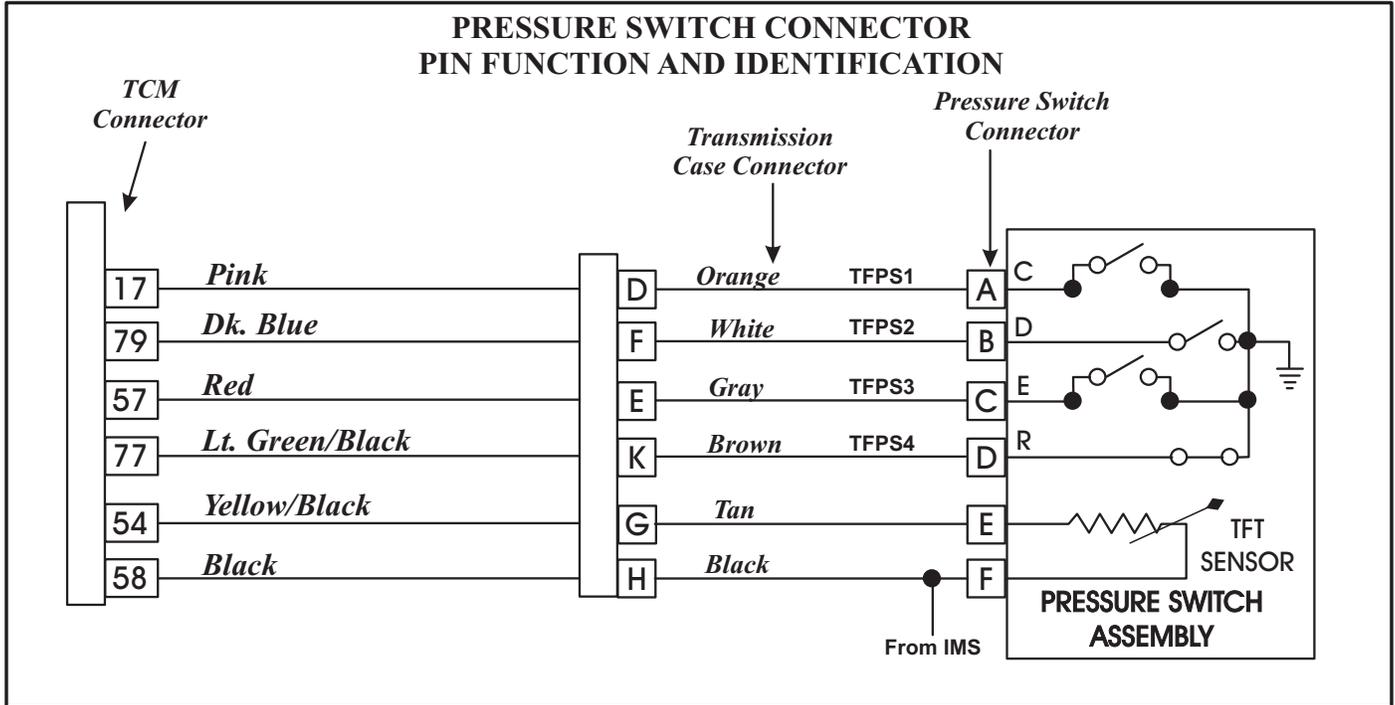


Figure 5

PRESSURE SWITCH ASSEMBLY

The Pressure Switch Assembly (PSA) is made up of three normally open switches and one normally closed switch. All switches and their locations are identified in Figure 3. Fluid pressure is fed from shift valves 1, 2, and 3 to 1, 2, and 3 switches, and from the manual valve to the TFPS4 switch. This logic indicates the current transmission operating range to the TCM.

The three pressure switches corresponding to the shift valves are normally open (N/O) when there is no pressure to the switch, so that electrical current is stopped at the switch. When pressure is routed to the switch from the shift valves, the switch closes and allows current to flow from the positive contact and through the switch. Refer to Figure 4.

The pressure switch corresponding to reverse is a normally closed (N/C) switch, and pressure is fed to the switch except when the transmission is placed into the reverse position.

The Pressure Switch Assembly also contains the temperature sensor (thermister) to notify the TCM of the current sump temperature. Changes in fluid temperature are indicated by changes in sensor resistance. Increasing temperature will create decreased sensor resistance (See Figure 7).

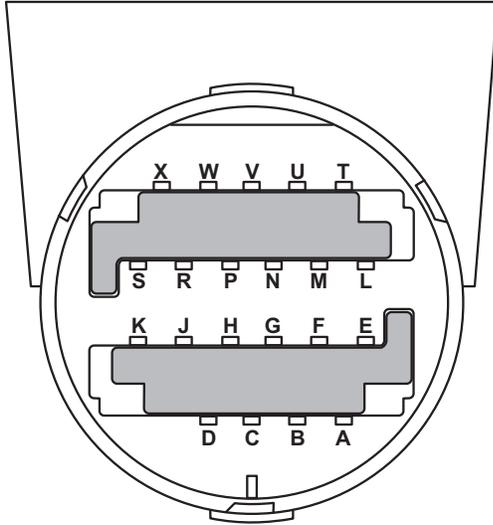
The PSA terminal identification and functions are illustrated in Figure 4 to assist in switch diagnosis. There is also a complete wiring schematic from the Pressure Switch Assembly through the transmission case connector and to the TCM shown in Figure 5, and complete wire schematic in Figure 11.

We have also provided a pressure switch logic state chart in Figure 6.

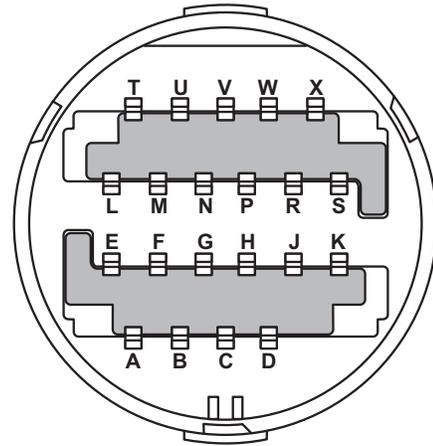
<i>Pressure Switch Logic State Chart</i>				
<i>Range</i>	<i>TFPS1</i>	<i>TFPS2</i>	<i>TFPS3</i>	<i>TFPS4</i>
<i>Park</i>	<i>Closed</i>	<i>Closed</i>	<i>Closed</i>	<i>Open</i>
<i>Rev</i>	<i>Open</i>	<i>Closed</i>	<i>Closed</i>	<i>Closed</i>
<i>Neut</i>	<i>Closed</i>	<i>Closed</i>	<i>Closed</i>	<i>Open</i>
<i>1</i>	<i>Open</i>	<i>Closed</i>	<i>Open</i>	<i>Open</i>
<i>2</i>	<i>Open</i>	<i>Open</i>	<i>Open</i>	<i>Open</i>
<i>3</i>	<i>Closed</i>	<i>Open</i>	<i>Open</i>	<i>Open</i>
<i>4</i>	<i>Closed</i>	<i>Open</i>	<i>Closed</i>	<i>Open</i>
<i>5</i>	<i>Open</i>	<i>Open</i>	<i>Closed</i>	<i>Open</i>
<i>6</i>	<i>Open</i>	<i>Open</i>	<i>Closed</i>	<i>Open</i>

Figure 6

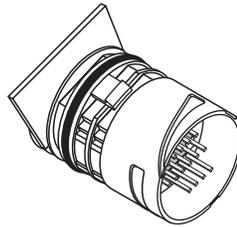
ALLISON "6 SPEED" CASE CONNECTOR TERMINAL IDENTIFICATION



View Looking Into Case Connector



View Looking Into Vehicle Harness Connector



PIN	WIRE COLOR	CIRCUIT	PIN DESIGNATION
A	Grn	1222	Solenoid 1 Ground
B	Lt Grn	1223	Solenoid 2 Ground
C	Violet	2527	Solenoid 3 Ground
D	Org	1224	PSA Signal C
E	Grey	1226	PSA Signal E
F	Wht	1225	PSA Signal D
G	Tan	1227	TFT Sensor, 5 Volt Reference
H	Blk	2762	TFT/Internal Mode Switch, Gnd
J	Pink	418	TCC PCS Solenoid, Low
K	Brn	2529	PSA Signal Reverse
L	Red	1228	EPC/TCC/PCS 1 Solenoids, 12V
M	Dk Blue	1229	Pressure Control Solenoid 1 Low
N	Red/Blk	323	SS1, SS2, SS3, PCS 2, 12V
P	Blue	2469	Pressure Control Solenoid 2 Low
R	Violet/Blk	1786	Internal Mode Switch P/N Signal
S	Yellow	1530	EPC Solenoid, Low
T	Blk/White	773	Internal Mode Switch C Signal
U	Tan/White	772	Internal Mode Switch B Signal
V	Yellow/Blk	771	Internal Mode Switch A Signal
W	Pink/Blk	776	Internal Mode Switch P Signal
X	Red	1228	EPC/TCC/PCS 1 Solenoids, 12V

Note: Pin L and X both feed the same solenoids.

Resistance Chart @ 20 °C (68 °F)		
Pins	Solenoid	Resistance
L & M	PCS1	5.1 - 5.9 Ohms
N & P	PCS2	5.1 - 5.9 Ohms
L & J	TCC PCS	5.1 - 5.9 Ohms
N & A	SS1	21 - 23 Ohms
N & B	SS2	21 - 23 Ohms
N & C	SS3	21 - 23 Ohms
L & S	Main Mod	21 - 23 Ohms

TFT Resistance Chart Pins G & H	
Fluid Temp	Resistance
0 °C (32 °F)	9045-9646
20 °C (68 °F)	3398-3542
40 °C (104 °F)	1424-1493
60 °C (140 °F)	654.7-683.9
80 °C (176 °F)	326.6-340.1
100 °C (212 °F)	173.8-182.0
120 °C (248 °F)	98.17-103.6

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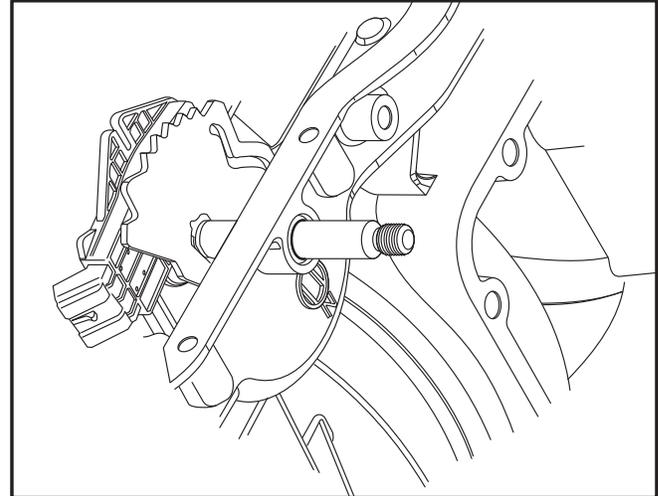
Figure 7

Internal Mode Switch (IMS)

The previous external NSBU switch has been replaced with an Internal Mode Switch (IMS), which is mounted internally on the manual shaft as shown below. The IMS transmits selector position information to the TCM through the pass-thru case connector. The IMS detects the angular position of the manual shaft. This position is communicated to the TCM so that certain vehicle control functions can be coordinated with the position of the shift lever. The IMS has redundant circuitry to alert the TCM in the event of a single wire or switch failure. The park/neutral signal output is typically used as confirmation that the transmission is in Neutral before the engine is started.

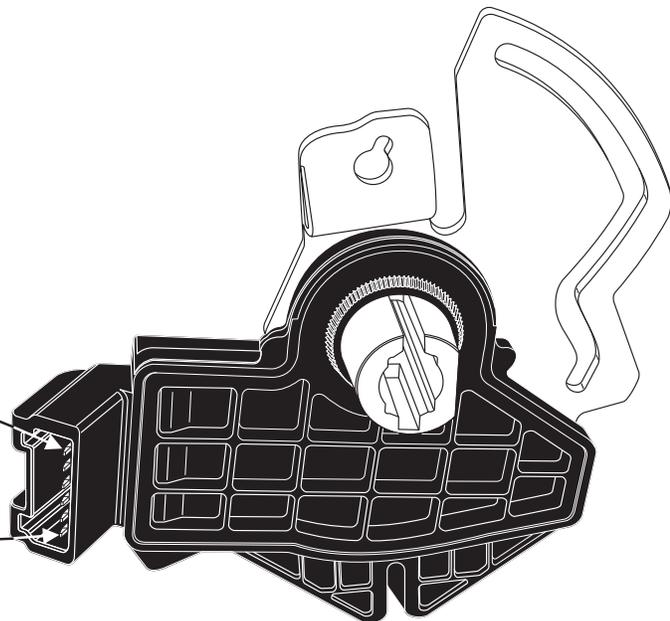
Refer to Figure 9 for partial wire schematic and Internal Mode Switch parity test. The internal harness and case connector, including terminal assignments were also changed to accommodate the IMS. Refer to Figure 7 for the new case connector pin identification and Figure 11 for full wire schematic.

INTERNAL MODE SWITCH LOCATION



- Pin A: Park/Neutral Signal***
- Pin B: Switch Signal P***
- Pin C: Switch Signal A***
- Pin D: Switch Signal B***
- Pin E: Switch Signal C***
- Pin F: Ground***

***Note: Pins are labeled at
bottom of switch.***



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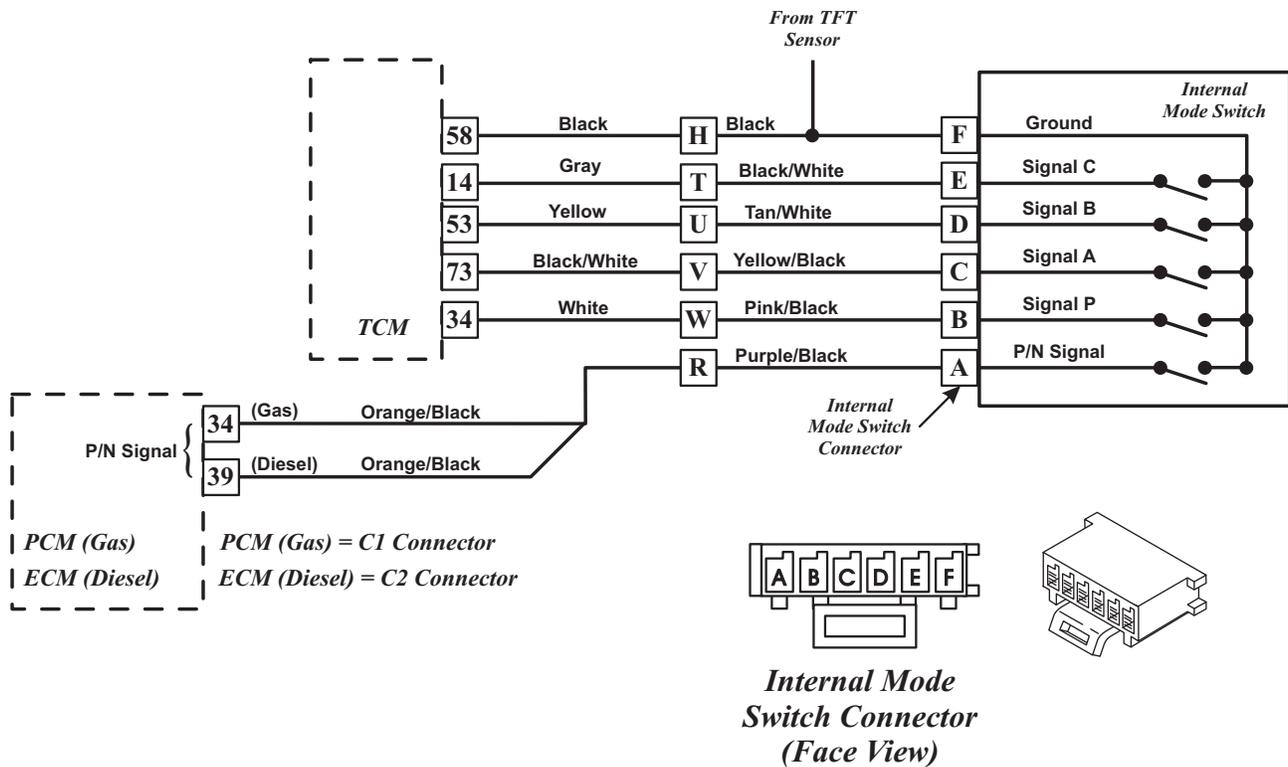
Figure 8

INTERNAL MODE SWITCH PARITY CHART

RANGE	INTERNAL MODE SWITCH SIGNAL A	INTERNAL MODE SWITCH SIGNAL B	INTERNAL MODE SWITCH SIGNAL C	INTERNAL MODE SWITCH SIGNAL P
<i>P</i>	<i>LOW/OFF</i>	<i>HIGH/ON</i>	<i>HIGH/ON</i>	<i>LOW/OFF</i>
<i>R</i>	<i>LOW/OFF</i>	<i>LOW/OFF</i>	<i>HIGH/ON</i>	<i>HIGH/ON</i>
<i>N</i>	<i>HIGH/ON</i>	<i>LOW/OFF</i>	<i>HIGH/ON</i>	<i>LOW/OFF</i>
<i>D</i>	<i>HIGH/ON</i>	<i>LOW/OFF</i>	<i>LOW/OFF</i>	<i>HIGH/ON</i>
<i>*M</i>	<i>LOW/OFF</i>	<i>LOW/OFF</i>	<i>LOW/OFF</i>	<i>LOW/OFF</i>
<i>2</i>	<i>LOW/OFF</i>	<i>HIGH/ON</i>	<i>LOW/OFF</i>	<i>HIGH/ON</i>
<i>1</i>	<i>HIGH/ON</i>	<i>HIGH/ON</i>	<i>LOW/OFF</i>	<i>LOW/OFF</i>

NOTE: HIGH/ON = APPROXIMATELY 5 VOLTS
 LOW/OFF = APPROXIMATELY 0 VOLTS

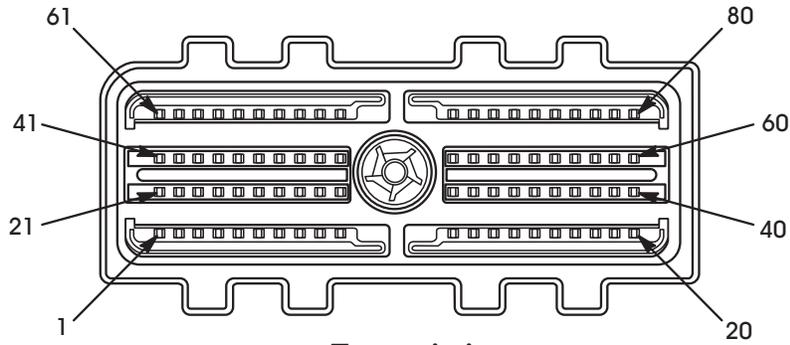
*M mode allows TAP Up/TAP Down feature functionally, 1st thru 6th ranges.
 When in M range, logic states do not change.



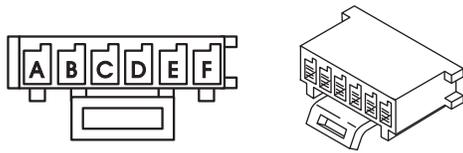
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Figure 9

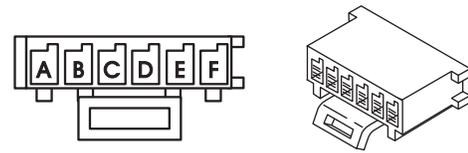
ALLISON "6 SPEED" CONNECTOR TERMINAL IDENTIFICATION



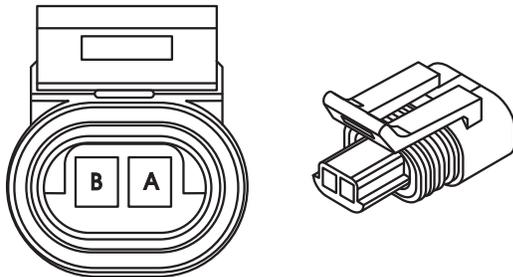
Transmission Control Module



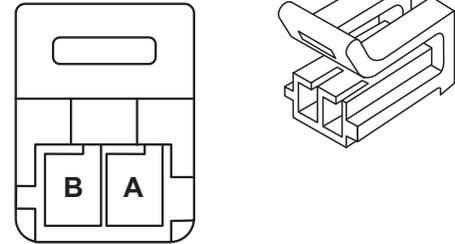
Pressure Switch Assembly Harness Connector



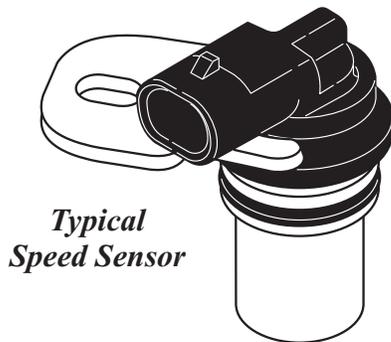
Internal Mode Switch Harness Connector



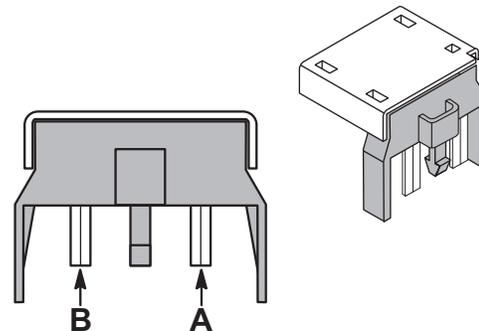
All Speed Sensor Harness Connectors



SS1, SS2, SS3, EPC (Main Mod.) Solenoid Connector



Typical Speed Sensor



PCS1, PCS2, TCC PCS, Solenoid Connector

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Figure 10

ALLISON 6 SPEED WIRE SCHEMATIC

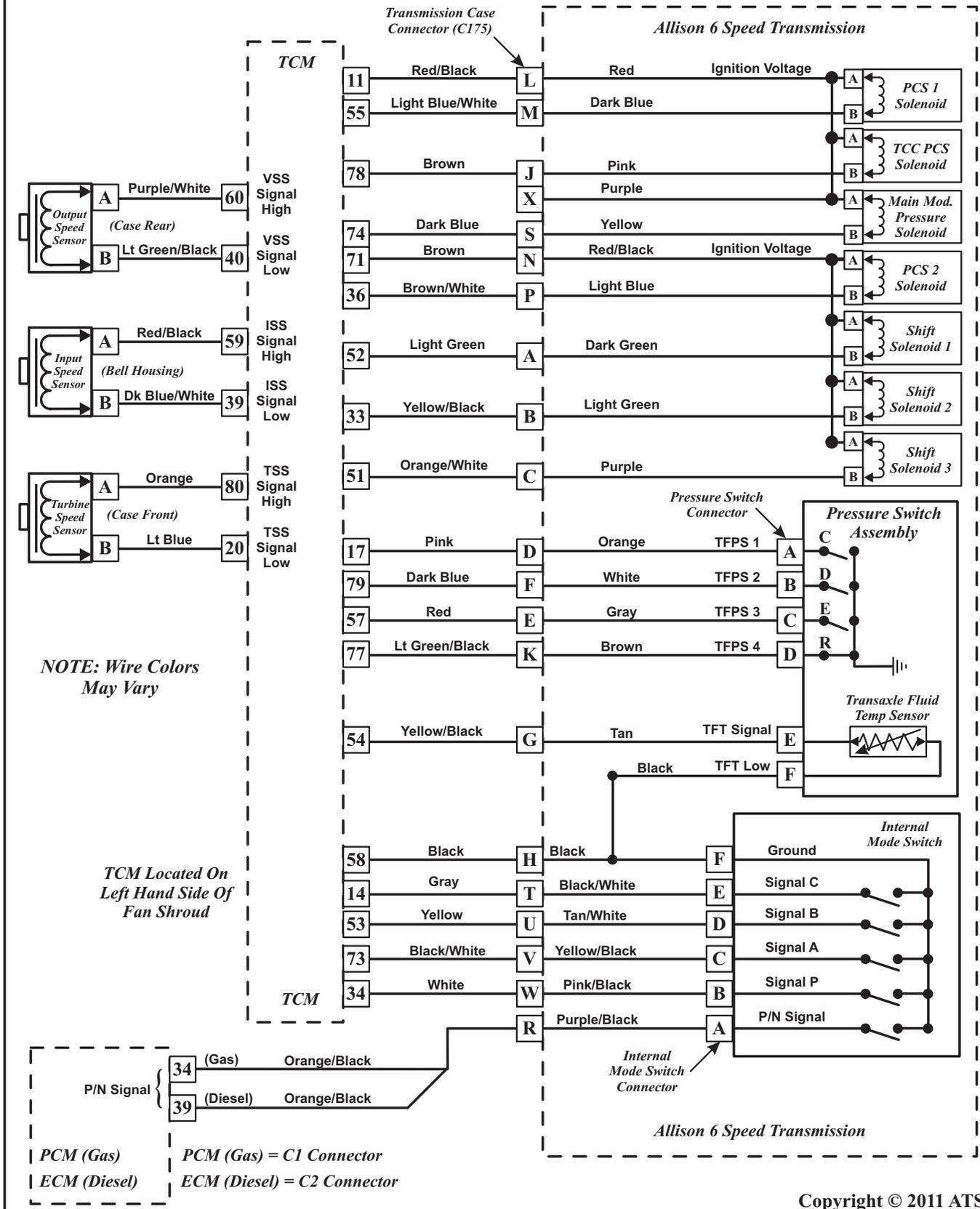


Figure 11



Technical Service Information

Diagnostic Trouble Code (DTC)

Type Definitions

The DTC Type Definitions contain the characteristics for all types of DTCs. The DTC type is based on the action that the control module takes when storing DTC information, and whether or not the control module illuminates a service lamp or displays a message on a Driver Information Center (DIC). The DTC descriptions in the DTC chart are listed in numeric order and indicate the DTC types for domestic and export vehicle applications. Each DTC is categorized into one of the following types:

Type "A"

This DTC is emissions related. The control module stores the DTC in History, Freeze Frame and Failure Records, during the 1st trip in which the conditions for setting the DTC are met. The control module also illuminates the Malfunction Indicator Lamp (MIL) during the 1st trip in which the conditions for setting the DTC are met.

Type "B"

This DTC is emissions related. The control module stores the DTC in Failure Records, during the 1st trip in which the conditions for setting the DTC are met. The control module stores the DTC in History and Freeze Frame during the 2nd consecutive trip in which the conditions for setting the DTC are met. The control module also illuminates the Malfunction Indicator Lamp (MIL) during the 2nd consecutive trip in which the conditions for setting the DTC are met.

Type "C"

This DTC is non-emissions related. The control module stores the DTC in History and Failure Records during the 1st trip in which the conditions for setting the DTC are met. The control module does not store the DTC in Freeze Frame and does not illuminate the MIL. For some Type C DTCs, a message may be displayed on a DIC, if equipped. For other Type C DTCs, a separate service lamp, other than the MIL, may be illuminated. Type C DTCs that do not display a message on the DIC or illuminate a separate service lamp were formerly referred to as Type D.

DTC	Description	DTC TYPE	
		6.6L	8.1L
P0117	Engine Coolant Temperature Circuit Low Voltage (High Temperature)	C	C
P0118	Engine Coolant Temperature Circuit High Voltage (Low Temperature)	C	C
P0120	Throttle Position Sensor 1 Performance Problem	*A	*A
P0122	Throttle Position Sensor 1 Circuit Low Voltage	*A	*A
P0123	Throttle Position Sensor 1 Circuit High Voltage	*A	*A
P0218	Transmission Overtemperature	C	C
P0220	Throttle Position Sensor 2 Performance Problem	*A	*A
P0222	Throttle Position Sensor 2 Circuit Low Voltage	*A	*A
P0223	Throttle Position Sensor 2 Circuit High Voltage	*A	*A
<p>* The control module commands the TAC system to operate in the Reduced Engine Power mode. A message or an indicator lamp displays "Reduced Engine Power". Under certain conditions, the control module commands the engine OFF.</p>			
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Figure 12



Technical Service Information

<i>DTC</i>	<i>Description</i>	<i>2007 DIAGNOSTIC TROUBLE CODE (DTC) CHART</i>	
		<i>6.6L</i>	<i>8.1L</i>
<i>P0561</i>	<i>System Voltage Unstable</i>	<i>C</i>	<i>C</i>
<i>P0562</i>	<i>System Voltage Low</i>	<i>C</i>	<i>C</i>
<i>P0563</i>	<i>System Voltage High</i>	<i>C</i>	<i>C</i>
<i>P0602</i>	<i>Transmission Control Module Not Programmed</i>	<i>C</i>	<i>C</i>
<i>P0613</i>	<i>Transmission Control Module Processor</i>	<i>C</i>	<i>C</i>
<i>P0634</i>	<i>TCM Internal Temperature Too High</i>	<i>B</i>	<i>B</i>
<i>P0658</i>	<i>Acutator Supply Voltage 1 Low</i>	<i>A</i>	<i>A</i>
<i>P0659</i>	<i>Acutator Supply Voltage 1 High</i>	<i>B</i>	<i>B</i>
<i>P0700</i>	<i>TCM Requested MIL Illumination</i>	<i>A</i>	<i>A</i>
<i>P0701</i>	<i>Transmission Control System Performance</i>	<i>C</i>	<i>C</i>
<i>P0703</i>	<i>Brake Switch Circuit</i>	<i>C</i>	<i>C</i>
<i>P0706</i>	<i>Internal Mode Switch (IMS) Circuit (PRNDL Input)</i>	<i>A</i>	<i>A</i>
<i>P0708</i>	<i>Internal Mode Switch (IMS) Circuit High Input</i>	<i>A</i>	<i>A</i>
<i>P0711</i>	<i>Transmission Fluid Temperature (TFT) Sensor Circuit Performance</i>	<i>B</i>	<i>B</i>
<i>P0712</i>	<i>Transmission Fluid Temperature Circuit Low Voltage (High Temperature)</i>	<i>B</i>	<i>B</i>
<i>P0713</i>	<i>Transmission Fluid Temperature Circuit High Voltage (Low Temperature)</i>	<i>B</i>	<i>B</i>
<i>P0716</i>	<i>Turbine Speed Sensor Circuit Performance</i>	<i>A</i>	<i>A</i>
<i>P0717</i>	<i>Turbine Speed Sensor Circuit No Signal</i>	<i>A</i>	<i>A</i>
<i>P071A</i>	<i>Transmission Tow/Haul Mode Switch Circuit</i>	<i>C</i>	<i>C</i>
<i>P0721</i>	<i>Output Speed Sensor Circuit Performance</i>	<i>A</i>	<i>A</i>
<i>P0722</i>	<i>Output Speed Sensor Circuit No Signal</i>	<i>A</i>	<i>A</i>
<i>P0729</i>	<i>Incorrect 6th Gear Ratio</i>	<i>A</i>	<i>A</i>
<i>P0731</i>	<i>Incorrect 1st Gear Ratio</i>	<i>A</i>	<i>A</i>
<i>P0732</i>	<i>Incorrect 2nd Gear Ratio</i>	<i>A</i>	<i>A</i>
<i>P0733</i>	<i>Incorrect 3rd Gear Ratio</i>	<i>A</i>	<i>A</i>
<i>P0734</i>	<i>Incorrect 4th Gear Ratio</i>	<i>A</i>	<i>A</i>
<i>P0735</i>	<i>Incorrect 5th Gear Ratio</i>	<i>A</i>	<i>A</i>
<i>P0736</i>	<i>Incorrect Reverse Gear Ratio</i>	<i>A</i>	<i>A</i>
<i>P0741</i>	<i>Torque Converter Clutch System Stuck Off</i>	<i>B</i>	<i>B</i>
<i>P0742</i>	<i>Torque Converter Clutch System Stuck On</i>	<i>B</i>	<i>B</i>
<i>P0751</i>	<i>Shift Solenoid 1 (SS1) Stuck Off</i>	<i>A</i>	<i>A</i>
<i>P0752</i>	<i>Shift Solenoid 1 (SS1) Stuck On</i>	<i>A</i>	<i>A</i>
<i>P0756</i>	<i>Shift Solenoid 2 (SS2) Stuck Off</i>	<i>A</i>	<i>A</i>
<i>P0757</i>	<i>Shift Solenoid 2 (SS2) Stuck On</i>		

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Figure 13



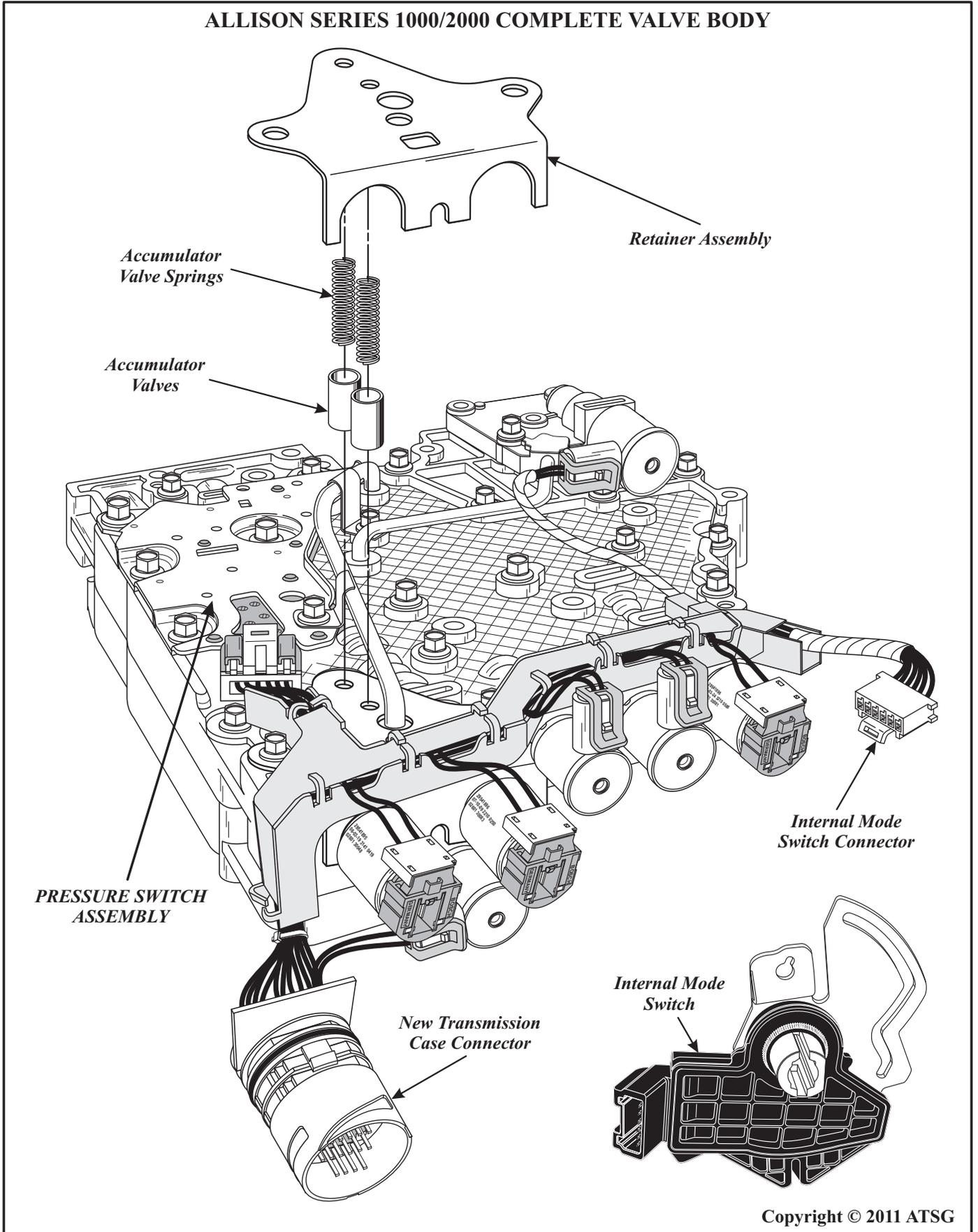
Technical Service Information

DTC	Description	DTC TYPE	
		6.6L	8.1L
P0761	Shift Solenoid 3 (SS3) Stuck Off	A	A
P0762	Shift Solenoid 3 (SS3) Stuck On	A	A
P0776	Pressure Control Solenoid 2 (PCS2) Stuck Off	A	A
P0777	Pressure Control Solenoid 2 (PCS2) Stuck On	A	A
P0815	Upshift Switch Circuit	C	C
P0816	Downshift Switch Circuit	C	C
P0826	Upshift and Downshift Switch Circuit	B	B
P0827	TAP Up and Down Shift Switch Circuit Low	B	B
P0828	TAP Up and Down Shift Switch Circuit High	B	B
P0842	Transmission Pressure Switch 1, Circuit Low	A	A
P0843	Transmission Pressure Switch 1, Circuit High	A	A
P0847	Transmission Pressure Switch 2, Circuit Low	A	A
P0848	Transmission Pressure Switch 2, Circuit High	A	A
P0851	Internal Mode Switch, P/N Signal Short to Ground	C	C
P0852	Internal Mode Switch, P/N Signal Open	C	C
P0872	Transmission Pressure Switch 3, Circuit Low	A	A
P0873	Transmission Pressure Switch 3, Circuit High	A	A
P0877	Transmission Pressure Switch 4, Circuit Low	B	B
P0878	Transmission Pressure Switch 4, Circuit High	B	B
P0880	Transmission Control Module (TCM) Power Input Signal Loss	C	C
P0881	Transmission Control Module (TCM) Power Input Signal Unstable	C	C
P0882	Transmission Control Module (TCM) Power Input Signal Low	C	C
P0883	Transmission Control Module (TCM) Power Input Signal High	C	C
P0894	Transmission Component Slipping	B	B
P0960	Pressure Control Solenoid, Main Modulation Circuit Open	A	A
P0962	Pressure Control Solenoid, Main Modulation Circuit Low	A	A
P0963	Pressure Control Solenoid, Main Modulation Circuit High	A	A
P0964	Pressure Control Solenoid 2 (PCS2) Control Circuit Open	A	A
P0966	Pressure Control Solenoid 2 (PCS2) Control Circuit Low	A	A
P0967	Pressure Control Solenoid 2 (PCS2) Control Circuit High	A	A
P0972	Shift Solenoid 1 (SS1) Control Circuit Open	A	A
P0973	Shift Solenoid 1 (SS1) Control Circuit Low	A	A
P0974	Shift Solenoid 1 (SS1) Control Circuit High	A	A
P0975	Shift Solenoid 2 (SS2) Control Circuit Open	A	A

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Figure 14

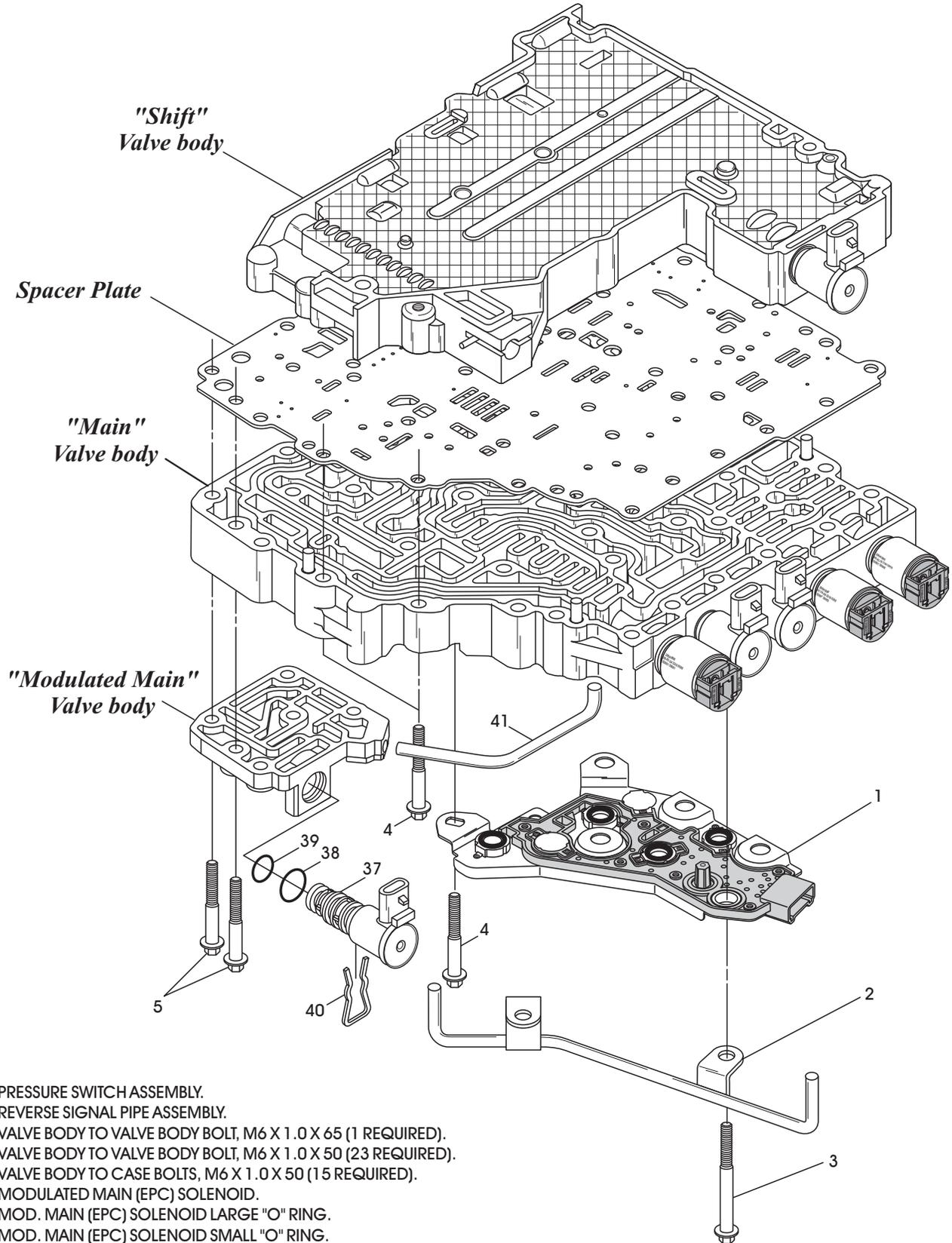
ALLISON SERIES 1000/2000 COMPLETE VALVE BODY



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Figure 16

ALLISON "6 SPEED" VALVE BODY EXPLODED VIEW



1. PRESSURE SWITCH ASSEMBLY.
2. REVERSE SIGNAL PIPE ASSEMBLY.
3. VALVE BODY TO VALVE BODY BOLT, M6 X 1.0 X 65 (1 REQUIRED).
4. VALVE BODY TO VALVE BODY BOLT, M6 X 1.0 X 50 (23 REQUIRED).
5. VALVE BODY TO CASE BOLTS, M6 X 1.0 X 50 (15 REQUIRED).
37. MODULATED MAIN (EPC) SOLENOID.
38. MOD. MAIN (EPC) SOLENOID LARGE "O" RING.
39. MOD. MAIN (EPC) SOLENOID SMALL "O" RING.
40. MOD. MAIN (EPC) SOLENOID RETAINING CLIP.
41. OIL PIPE.

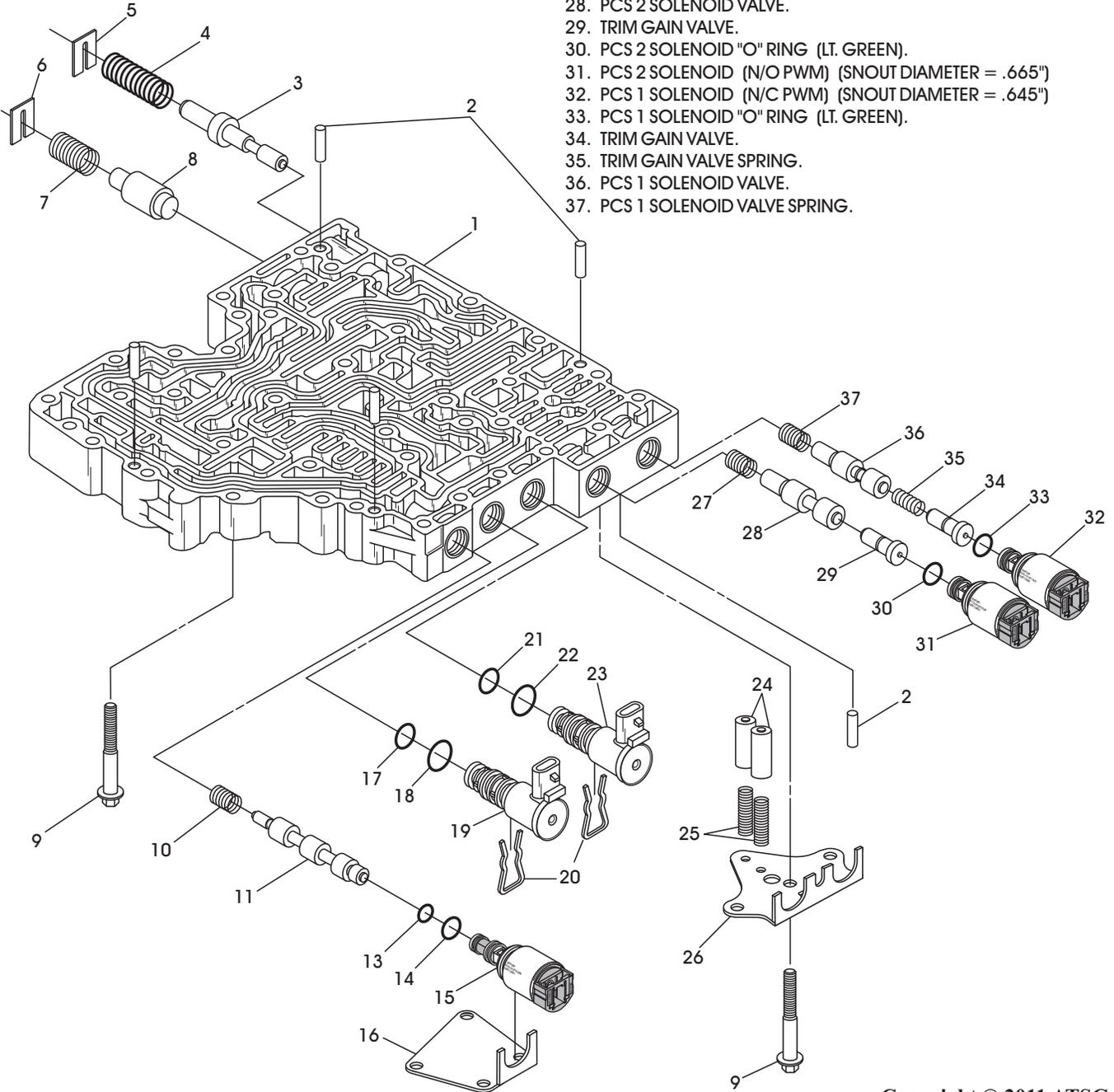
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Figure 17

ALLISON "6 SPEED", "MAIN" VALVE BODY EXPLODED VIEW

1. MAIN VALVE BODY CASTING.
2. ALIGNMENT DOWELS (5 REQUIRED).
3. MAIN CONTROL RELIEF VALVE.
4. MAIN CONTROL RELIEF VALVE SPRING.
5. MAIN CONTROL RELIEF VALVE SPRING RETAINER.
6. EXHAUST PRESSURE REGULATOR VALVE SPRING RETAINER.
7. EXHAUST PRESSURE REGULATOR VALVE SPRING.
8. EXHAUST PRESSURE REGULATOR VALVE.
9. BOLT, M6 X 1.0 X 50 (23 REQUIRED)
10. TCC PCS SOLENOID VALVE SPRING.
11. TCC PCS SOLENOID VALVE.
12. TCC PCS SOLENOID SMALL "O" RING (DK. GREEN).
13. TCC PCS SOLENOID LARGE "O" RING (LT. GREEN).

14. TCC PCS SOLENOID VALVE SPRING.
15. TCC PCS SOLENOID (LOCK-UP PWM).
16. TCC PCS SOLENOID RETAINING BRACKET.
17. SHIFT SOLENOID "2" SMALL "O" RING.
18. SHIFT SOLENOID "2" LARGE "O" RING.
19. SHIFT SOLENOID "2".
20. SHIFT SOLENOID RETAINING CLIPS
21. SHIFT SOLENOID "3" SMALL "O" RING.
22. SHIFT SOLENOID "3" LARGE "O" RING.
23. SHIFT SOLENOID "3".
24. ACCUMULATOR VALVES.
25. ACCUMULATOR SPRINGS.
26. PCS 1 AND PCS 2 SOLENOID RETAINING BRACKET.
27. PCS 2 SOLENOID VALVE SPRING.
28. PCS 2 SOLENOID VALVE.
29. TRIM GAIN VALVE.
30. PCS 2 SOLENOID "O" RING (LT. GREEN).
31. PCS 2 SOLENOID (N/O PWM) (SNOUT DIAMETER = .665")
32. PCS 1 SOLENOID (N/C PWM) (SNOUT DIAMETER = .645")
33. PCS 1 SOLENOID "O" RING (LT. GREEN).
34. TRIM GAIN VALVE.
35. TRIM GAIN VALVE SPRING.
36. PCS 1 SOLENOID VALVE.
37. PCS 1 SOLENOID VALVE SPRING.

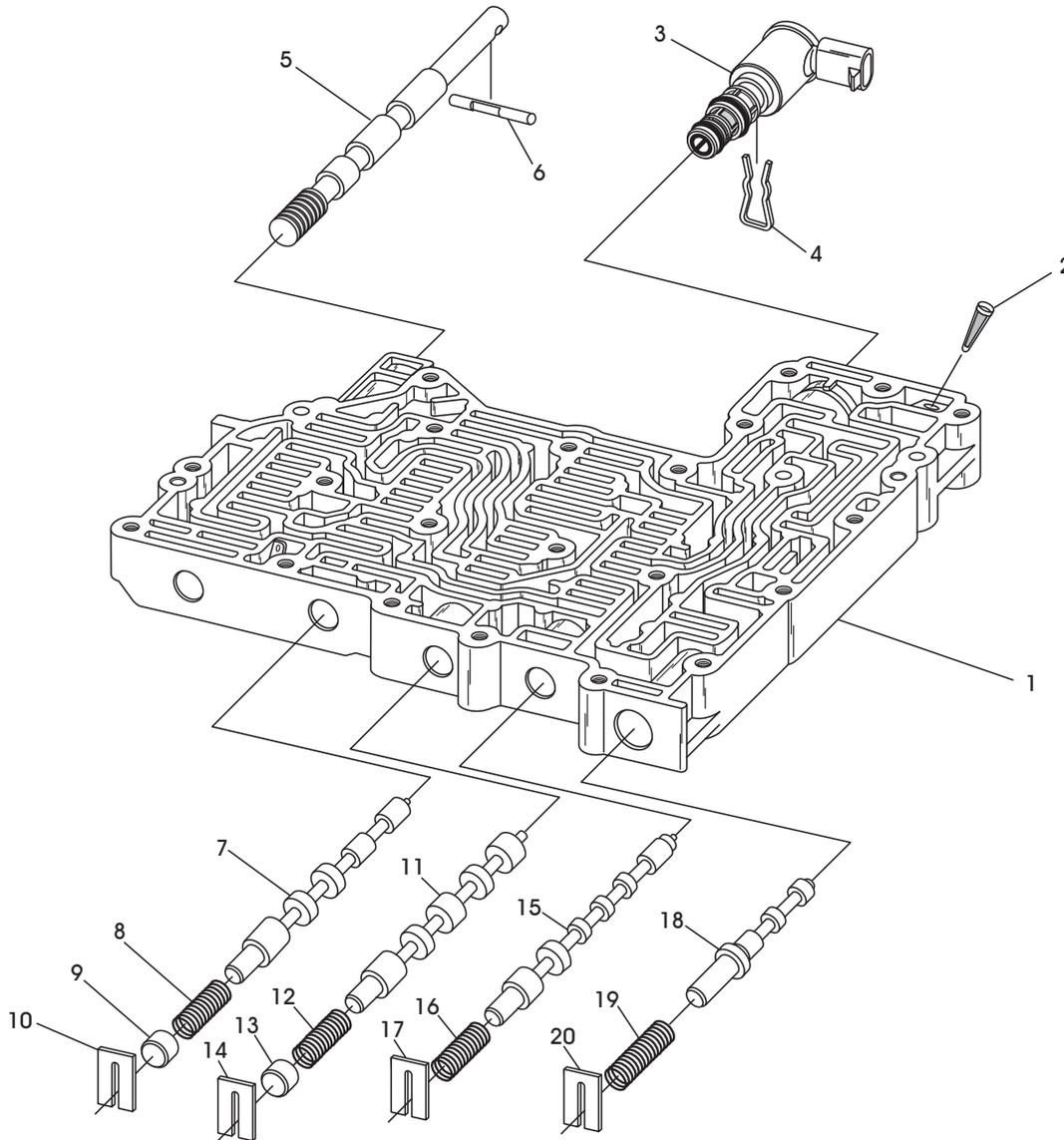


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Figure 18

ALLISON "6 SPEED", "SHIFT" VALVE BODY EXPLODED VIEW

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. SHIFT VALVE BODY CASTING. 2. SOLENOID SCREEN. 3. SHIFT SOLENOID "1". 4. SHIFT SOLENOID "1" RETAINING CLIP. 5. MANUAL SELECTOR VALVE. 6. MANUAL SELECTOR VALVE PIN. 7. SHIFT SOLENOID "2" SHIFT VALVE. 8. SHIFT SOLENOID "2" SHIFT VALVE SPRING. 9. SHIFT SOLENOID "2" SHIFT VALVE BORE PLUG. 10. SHIFT SOLENOID "2" SHIFT VALVE LINE-UP RETAINER. | <ol style="list-style-type: none"> 11. SHIFT SOLENOID "3" SHIFT VALVE. 12. SHIFT SOLENOID "3" SHIFT VALVE SPRING. 13. SHIFT SOLENOID "3" SHIFT VALVE BORE PLUG. 14. SHIFT SOLENOID "3" SHIFT VALVE LINE-UP RETAINER. 15. SHIFT SOLENOID "1" SHIFT VALVE. 16. SHIFT SOLENOID "1" SHIFT VALVE SPRING. 17. SHIFT SOLENOID "1" SHIFT VALVE LINE-UP RETAINER. 18. MAIN CONTROL VALVE. 19. MAIN CONTROL VALVE SPRING. 20. MAIN CONTROL VALVE LINE-UP RETAINER. |
|---|--|



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Figure 19