

## 6E3-A-18 5.7L (VIN P) DRIVEABILITY AND EMISSIONS

If after completing the On-Board Diagnostic (OBD) system check and finding the Tech 1 diagnostics functioning properly and no DTC(s) displayed, the "Engine/Transmission Tech 1 Data Values" may be used for comparison with values obtained on the vehicle being diagnosed. The "Engine/Transmission Tech 1 Data Values," are an average of display values recorded from normally operating vehicles and are intended to represent what a normally functioning system would display.

**A SCAN TOOL THAT DISPLAYS FAULTY DATA SHOULD NOT BE USED, AND THE PROBLEM SHOULD BE REPORTED TO THE MANUFACTURER. THE USE OF A FAULTY SCAN TOOL CAN RESULT IN MISDIAGNOSIS AND UNNECESSARY PARTS REPLACEMENT.**

Only the parameters listed below are used in this manual for diagnosis. If a scan tool displays other parameters, the values are not recommended by General Motors for use in diagnosis. For more description on the values and use of the Tech 1 to diagnose PCM inputs, refer to the applicable section in "Component Systems," Section "6E3-C". If all values are within the range illustrated, refer to "Symptoms," Section "6E3-B".

### ENGINE TECH 1 DATA

SCAN Position	Units Displayed	Typical Data Value	Refer To Section "C1" and:
Engine Speed	RPM	± 100 RPM from desired	
Desired Idle	RPM	PCM commanded (based on temp.)	
Eng Cool Temp.	C°/F°	85°C - 105°C (185°F - 221°F)	
Intake Air Temp.	C°/F°	10°C - 90°C (50°F - 194°F) (Depends on underhood temperature)	
MAP	kPa/Volts	20 - 48/1-2 (Varies with altitude)	
BARO	kPa/Volts	70 - 100/3.5-4.5 (Varies with altitude)	
Throt Position	Volts	.3 - .9	"C2"
Throttle Angle	Percentage	0%	"C2", DTC 21
Left HO2S Bnk 1	Millivolts	10-1000 mV and varying	
Loop Status	Open/Closed Loop	Closed Loop	"C2"
Right HO2S Bnk 2	Millivolts	10-1000 mV and varying	
Loop Status	Open/Closed Loop	Closed Loop	
ST Fuel TR Bnk 1	Counts	Varies	DTC 44,45
LT Fuel TR Bnk 1	Counts	118-138	DTC 44,45
ST Fuel TR Bnk 2	Counts	Varies	DTC 64,65
LT Fuel TR Bnk 2	Counts	118-138	DTC 64,65
Fuel Trim Cell	Cell Number	16 to 18 (depends on Air Flow & RPM)	
Fuel Trim Enable	No/Yes	Yes	
Spark Advance	# of Degrees	Varies (PCM controlled)	"C4"
Mass Air Flow	Grams Per Second	Varies	"C2"
Knock Retard	Degrees of Retard	0	"C5"
Knock Signal	No/Yes	No (Yes, when detonation is detected)	"C5"
Lo Res. Signal	Milliseconds	Varies	"C4"
High Res. Signal	Yes/No	Yes	"C4"
Inj. Pulse Width Bnk 1	Milliseconds	1-4, may vary	"C2"
Inj. Pulse Width Bnk 2	Milliseconds	1-4, may vary	"C2"
Idle Air Control	Counts	5 - 50	"C2"
Learned IAC	Counts	5 - 50	"C2"
EGR Duty Cycle	Percentage	0%	"C7"
System Voltage	Volts	12.0 - 14.5	"6D"
AIR Control	Off/On	Off	"C6"
Fuel EVAP Purge	Percentage	0%	"C3"
Injector Fault	No/Yes	No	
TCS/ASR Active	No/Yes	No	
Fan Ctrl PCM A10	Off/On	Depends on A/C refrigerant pressure,	"C12"
Fan Ctrl PCM A11	Off/On	and engine coolant temperature	"C12"
A/C Request	No/Yes	No	"C10"
A/C Clutch	Off/On	Off	"C10"
A/C Status	Off/On	Off	"C10"
A/C Refrig Pressure	Psi, Volts	Varies (Depends on temp.)	"C10"
A/C EVAP Temp	C°/F°	Varies	"DTC 71"
Skip Shift Active	No/Yes	No	"DTC 84"
MPH	km/h	0	
Trans Range Switch	Park/Neutral, Reverse Drive 4, Drive 3, Drive 2, Low, Invalid	Park/Neutral	

Park/Neutral Pos	P-N--/R-DL	Park/Neutral (P-N--)	C1-A
Mph Km/h	Mph / Km/h	0	"C8"
TCC Brake Switch	Closed/Open	Closed	
TCC Solenoid	Off/On	Off	
1 - 2 Shift Sol	Off/On	On	"C8"
2 - 3 Shift Sol	Off/On	On	"C8"
A/B/C Rng	Off/On	Off/On/Off	"C8"
Perf Mode Sw	Open/Closed		"C8"
Engine or Trans DTC	No/Yes	No	
Knock Sensor	OK/Open/Grounded	OK	"C8"
Time From Start	Hrs/Min/Sec	Varies	

### TRANSMISSION TECH 1 DATA

Idle / Lower Radiator Hose Hot / Closed Throttle / Park or Neutral / Closed Loop / Accessories off

<u>SCAN Position</u>	<u>Units Displayed</u>	<u>Typical Data Value</u>	<u>Refer To Section "C8" and:</u>
Engine Speed	RPM	± 100 RPM From desired	
Trans Output Spd	RPM	0 RPM	
Eng Cool Temp	C°/F°	85°C - 105°C (185°F - 221°F)	
Trans Fluid Temp	C°/F°	82°C - 94°C (180°F - 200°F)	
Throt Position	Volts	0.3 - 0.9V	"C2"
Throttle Angle	Percentage	0%	"C2"
A/B/C RNG	Off/On	Off/On/Off	
Trans Range Sw	Invalid, Rev, Drive 4, Drive 3, Drive 2, Low, Park/Neut	Park/Neut	
Commanded Gear	1-4	1	
Adaptable Shift	No, Yes	No	
1-2 Sol 2-3 Sol	Off/On	On/On	
CTR FDBK 1/2 2/3	OK, Fault	OK/OK	
3-2 Control Sol	Percentage	0%	
3-2 Control FDBK	OK, Fault	OK	
Hot Mode	No, Yes	No	
TCC Slip Speed	RPM	± 50 RPM From Engine Speed	
TCC Solenoid	Off/On	Off	
CTR FDBK TCC Sol	OK/Fault	OK	
Desired PCS	Amps	1.01 Amps	
Actual PCS	Amps	1.01 Amps	
PCS Duty Cycle	Percentage	40% - 60%	
MPH Km/h	0-255	0	
TCS/ASR Active	No, Yes	No	
Cruise Engaged	No, Yes	No	
TCC Brake Switch	Applied/Released	Released	
Kickdown Enabled	No, Yes	No	
1-2 Shift Time	Seconds	0	
2-3 Shift Time	Seconds	0	
1-2 Shift Time Error	Seconds	0	
Curr Adapt Cell	% TP	0	
Performance Mode Switch	No/Yes	No	
Pref Lamp FDBK	OK, Fault	OK	
Pref Mode Status	Normal/Perf	Normal	
Eng or Trans DTC	Yes, No	No	"C1"
Park/Neutral Pos	P-N--/R-DL	Park/Neutral (P-N--)	"C1-A"
System Voltage	Volts	12.0 - 14.5V	

## ENGINE AND TRANSMISSION TECH 1 DATA DEFINITIONS

A list of each data message displayed on the Tech 1 scan tool will be explained in two groups; "Engine" or "Transmission." This information will assist in emission or driveability problems. The displays can be viewed while the vehicle is being driven. Always perform the "On-Board Diagnostic (OBD) System Check" first. The "OBD System Check" will confirm proper system operation.

With the Tech 1 connected, the ASR system may be disabled and the "Service ASR" lamp may turn "ON."

### ENGINE DATA

**ENGINE SPEED - Range 0-9999 RPM** - Engine speed is computed by the PCM from the distributor reference input (low resolution circuit). It should remain close to desired idle under various engine loads with engine idling.

**DESIRED IDLE - Range 0-3187 RPM** - The idle speed that is commanded by the PCM. The PCM will compensate for various engine loads based on engine coolant temperature to keep the engine at the desired speed.

**ENG COOL TEMP - Range -40°C to 151°C, -40°F to 304°F** - The Engine Coolant Temperature (ECT) sensor is mounted in the coolant pump and sends engine temperature information to the PCM. The PCM supplies 5 volts to the ECT sensor circuit. The sensor is a thermistor which changes internal resistance as temperature changes. When the sensor is cold (internal resistance high), the PCM monitors a high signal voltage and interprets it as a cold engine. As the sensor warms (internal resistance decreases), the voltage signal will decrease and the PCM will interpret the lower voltage as a warm engine.

**INTAKE AIR TEMP - Range -40°C to 151°C, -40°F to 304°F** - The PCM converts the resistance of the intake air temperature sensor to degrees. Intake Air Temperature (IAT) is used by the PCM to adjust fuel delivery and spark timing according to incoming air density.

**MAP - Range 10-105 kPa/0.00-5.00 Volts** - The Manifold Absolute Pressure (MAP) sensor measures the change in the intake manifold pressure from engine load and speed changes. As intake manifold pressure increases, the air density in the intake manifold also increases and additional fuel is required.

**BARO - Range 10-105 kPa/0.00-5.00 Volts** - The BARO reading displayed is determined from the MAP sensor at ignition "ON," engine "OFF," and WOT conditions. The BARO reading displayed represents barometric pressure and is used to compensate for altitude differences.

**THROT POSITION - Range 0-5.00 Volts** - Used by the PCM to determine the amount of throttle demanded by the driver. The display should read 0.36-0.96 volt at idle to greater than 4 volts at wide open throttle.

**THROTTLE ANGLE - Range 0 - 100%** - Computed by the PCM from TP sensor voltage (throttle position) and should display 0% at idle and 100% at wide open throttle. Refer to DTC 21 if TP sensor angle is not 0% at idle.

**HEATED OXYGEN SENSORS (BANK 1 AND 2) - Range 0-1132 mV** - Represents the exhaust oxygen sensor output voltage. Should fluctuate constantly within a range between 10 mV (lean exhaust) and 1000 mV (rich exhaust) when operating in "Closed Loop."

**LOOP STATUS - Tech 1 Displays OPEN or CLOSED** - "Closed Loop" displayed indicates that the PCM is controlling fuel delivery according to oxygen sensor voltage. In "Open Loop," the PCM ignores the oxygen sensor voltage and bases the amount of fuel to be delivered on TP sensor, engine coolant, and MAP sensor inputs only.

**SHORT TERM FUEL TRIM - Range 0-255 Counts** - Short term fuel trim represents a short-term correction to fuel delivery by the PCM in response to the amount of time the oxygen sensor voltage spends above or below the 450 mV threshold. If the oxygen sensor voltage has mainly remained less than 450 mV, indicating a lean air/fuel mixture, short term fuel trim will increase and the PCM will add fuel. If the oxygen sensor voltage stays mainly above the threshold, the PCM will reduce fuel delivery to compensate for the indicated rich condition.

**LONG TERM FUEL TRIM - Range 0-255 Counts** - Long term fuel trim is derived from the short term fuel trim value and is used for long-term correction of fuel delivery. A value of 128 counts indicates that fuel delivery requires no compensation to maintain a 14.7:1 air/fuel ratio. A value less than 128 counts indicates that the fuel system is rich and fuel delivery is being reduced (decreased injector pulse width).

A value greater than 128 counts indicates that a lean condition exists and the PCM is compensating by adding fuel (increased injector pulse width).

**FUEL TRIM CELL - Range 0-255** - Fuel trim cell is dependent upon engine speed and MAP sensor readings. Fuel trim cell indicates which cell is currently active.

**FUEL TRIM ENABLE - Tech 1 displays NO/YES** - If the Fuel Trim Enable system is learning "YES" the long term fuel trim is responding to the short term fuel trim. If the Fuel Trim Enable indicates "NO" then long term fuel trim will not respond to changes in short term fuel trim.

**SPARK ADVANCE - Tech 1 range 0°-255°** - This is a display of the spark advance (IC) calculation which the PCM calculates and then provides all spark advance to the ignition system. The PCM computes the desired spark advance using data such as engine coolant temperature, RPM, load, vehicle speed, and operating mode. There is no adjustment for spark advance.

**MASS AIR FLOW - Tech 1 range 0-512** - Displays grams per second. The PCM converts the mass air flow sensor input signal into grams per second, indicating the amount of air flow entering the engine.

**KNOCK RETARD - Range 0° to 128°** - Indicates the amount of spark advance the PCM is removing from IC in response to the Knock Sensor (KS) signal.

**KNOCK SIGNAL - Tech 1 displays YES/NO** - Indicates whether or not a knock signal is being detected by the PCM. Should display "NO" at idle.

**LO RESOLUTION SIGNAL - Range 0-1000 m/sec.** - This signal is generated by the ignition control module and should display time between low resolution signal reference pulses detected by the PCM.

**HI RESOLUTION SIGNAL - Tech 1 displays YES/NO** - This signal is generated by the ignition control module and will switch from "NO" to "YES" when the PCM detects a high resolution signal.

**INJECTOR PULSE WIDTH - Tech 1 range 0.0-1000 m/sec** - Indicates the time the injectors remain "ON." When engine load is increased, injector pulse width will increase.

**IDLE AIR CONTROL - Range 0-255** - Displays the commanded position of the idle air control pintle in counts. The greater the number of counts, the greater the idle air passages opened. Idle air control should respond fairly quickly to changes in engine load to maintain desired idle RPM.

**LEARNED IAC - Range 0-255 counts** - Learned IAC is an internal PCM parameter. Each time the vehicle is driven the IAC system learns how many counts is required to produce a given desired idle.

**EGR DUTY CYCLE - Range 0-100%** - The PCM cycles the EGR solenoid valve "ON" and "OFF." The "ON" time (duty cycle) of the EGR solenoid valve, expressed as a percent, determines how much the exhaust gas is recirculated.

**SYSTEM VOLTAGE - Range 0.0-25.5 Volts** - This represents the system voltage measured by the PCM.

**AIR CONTROL - Tech 1 displays ON/OFF** - When the PCM enables the Secondary Air Injection System, the Tech 1 will display Air Control "ON." When the PCM determines that AIR Control is not required the Tech 1 will display "OFF."

**FUEL EVAP PURGE - Tech 1 range 0-100%** - Used to control EVAP canister purge function. 0% indicates the valve is commanded fully closed while 100% indicates that the valve is fully open.

**INJECTOR FAULT - Tech 1 displays YES/NO** - "YES" indicates that the PCM does not detect voltage at the injector driver. Injector faults should indicate "NO," when circuits are OK.

**TCS/ASR ACTIVE - Tech 1 displays NO/YES** - When the "ASR" system is active, the Tech 1 will display "YES."

**FAN CONTROL PCM A10 - Tech 1 displays OFF/ON** -

- Early Production Vehicles: This will display "ON" when the PCM enables the secondary cooling fan.
- Late Production Vehicles: This will display "ON" when the PCM enables high speed fans.

**FAN CONTROL PCM A11 - Tech 1 displays OFF/ON** -

- Early Production Vehicles: This will display "ON" when the PCM enables the primary cooling fan.
- Late Production Vehicles: This will display "ON" when the PCM enables low speed fans, and when the PCM enables high speed fans.

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**A/C REQUEST - Tech 1 displays YES/NO** - Represents if the A/C request from the control head is being received by the PCM.

**A/C CLUTCH - Tech 1 displays ON/OFF** - Represents the command state of the A/C clutch control relay. Clutch should be engaged when "ON" is displayed.

**A/C STATUS - Tech 1 displays ON/OFF** - The Tech 1 will display "ON" if voltage has been applied to the A/C compressor clutch.

**A/C REFRIG PRESSURE - Range 0-459 psi / 0.00-5.0 Volts** - The Tech 1 will display the A/C refrigerant pressure used by the PCM for cooling fan operation and A/C diagnostic trouble codes.

**A/C EVAP TEMP - -7°C to 32°C, 19°F to 90°F** - The Tech 1 will display the A/C evaporator temperature and is used by the PCM to cycle the A/C clutch. The evaporator temperature sensor will also prevent evaporator freeze-up.

**SKIP SHIFT ACT - Tech 1 displays NO/YES** - When the PCM enables the skip shift system, the Tech 1 will display "YES."

**VEHICLE SPEED - Range 0-255 km/h, mph** - The vehicle speed sensor signal is converted into km/h and mph for display.

**TRANS RANGE SWITCH - Tech 1 displays Park/Neutral, Reverse, Drive 4, Drive 3, Drive 2, Low and Invalid** - These values represent the decoded sequence of the Transmission Range (TR) pressure switch assembly circuits and are used to determine manual valve position.

**PARK/NEUTRAL POS - Tech 1 displays - P-N-- or -R-DL** - P-N-- displayed indicates that the gear select lever is in park or neutral.

**TCC BRAKE SWITCH - Tech 1 displays OPEN/CLOSED** - When the brake pedal is applied, the switch sends a signal to the PCM to disengage the TCC solenoid.

**TCC SOLENOID - Displays OFF/ON** - The Tech 1 only indicates when PCM has enabled the TCC Driver, but this does not confirm that the TCC has engaged. To determine if TCC is operating properly, engine RPM should decrease when TCC is enable.

**1 - 2 SHIFT SOL - Tech 1 displays ON/OFF** - When the transmission is in first or fourth gear, the Tech 1 should display "ON." When the transmission is in second or third gear, the Tech 1 should indicate "OFF."

**2 - 3 SHIFT SOL - Tech 1 displays ON/OFF** - When the automatic transmission is in first or second gear, the Tech 1 should indicate "ON." When the transmission is in third or fourth gear, the Tech 1 should display "OFF."

**A/B/C RANGE (RNG) - Scan tool displays ON/OFF, ON/OFF, ON/OFF** - These parameters are the three inputs from the transmission range pressure switch assembly. "ON" represents a B+ voltage signal, "OFF" represents a 0 voltage signal.

**PERF MODE SWITCH - Tech 1 Displays OPEN/CLOSED** - This parameter indicates the position of the performance mode switch. The Tech 1 will display "YES" when the switch is depressed and then "NO" when the switch is released.

**ENG/TRANS DTC DETECTED - Tech 1 Displays YES/NO** - This will display "YES" if the PCM detects a fault in an engine or transmission circuit that caused a DTC.

**KNOCK SENSOR - Tech 1 displays OK/Open/Grounded** - The PCM monitors the KS circuit and can determine if the sensor is open, grounded, or if the circuit is "OK."

**TIME FROM START - Range 0:00:00-18:12:15 HR/MIN/SEC** - A measure of how long the engine has been operating. When the ignition is cycled to "OFF" the value is reset to zero.

## TRANSMISSION DATA

**ENGINE SPEED** - Scan tool displays 0-9999 RPM - Engine speed is computed by the PCM from the distributor reference input (low resolution circuit). It should remain close to desired idle under various engine loads with engine idling.

**TRANS OUTPUT SPEED** - Scan tool displays 0 RPM to 8191 RPM - This parameter indicates the rotational speed of the transmission output shaft expressed as revolutions per minute.

**ENG COOL TEMPERATURE** - Range -40°C to 151°C, - 40° to 304°F - The Engine Coolant Temperature (ECT) sensor is mounted in the coolant pump and sends engine temperature information to the PCM. The PCM supplies 5 volts to the ECT sensor circuit. The sensor is a thermistor which changes internal resistance as temperature changes. When the sensor is cold (internal resistance high), the PCM monitors a high signal voltage and interprets it as a resistance decreases), the voltage signal will decrease and the PCM will interpret the lower voltage as a warm engine.

**TRANS FLUID TEMP** - Scan tool displays a range of -40°C to 151°C, 40°F to 304°F - This parameter is the input signal of the transmission fluid temperature sensor. Transmission fluid temperature is high (151°C) when signal voltage is low (0 volt), and transmission fluid temperature is low (-40°C) when signal voltage is high (5 volts).

**THROT POSITION** - Range of 0-5.00 Volts - Used by the PCM to determine the amount of throttle demanded by the driver. The display should read 0.36-0.96 volt at idle to greater than 4 volts at wide open throttle.

**THROTTLE ANGLE** - Range 0-100% - Computed by the PCM from TP sensor voltage (throttle position) and should display 0% at idle and 100% at wide open throttle. Refer to DTC 21 if TP sensor angle is not 0% at idle.

**A/B/C RANGE (RNG)** - Scan tool displays ON/OFF, ON/OFF, ON/OFF - These parameters are the three inputs from the Transmission Range Pressure Switch Assembly. "ON" represents a B+ voltage signal, "OFF" represents a 0 voltage signal.

**TRANS RANGE SWITCH (SW)** - Scan tool displays a range of Invalid, Park/Neutral, Reverse, Drive 4, Drive 3, Drive 2, and Low - This parameter is the decoded status of the three A/B/C Range inputs from the Transmission Range Pressure Switch Assembly and

represents the position of the transmission manual valve.

**COMMANDED GEAR** - Scan tool displays a range of 1, 2, 3, or 4 - This parameter is the decoded commanded state of the 1-2 and 2-3 Shift Solenoids. Gear 1 = ON, ON. Gear 2 = OFF, ON. Gear 3 = OFF, OFF. Gear 4 = ON, OFF.

**ADAPTABLE SHIFT** - This value indicates if the current shift will update the 1-2 adapt tables. The adapt tables are used to modify line pressure. The following items cause a shift not to be adaptable:

- Braking pressure (manual gear ranges).
- Long shift delay (shift delay is the time the solenoid changes state until the shift starts).
- Long shift time.
- Throttle range
- Significant throttle angle change.
- Hot mode.
- Transmission fluid temperature range.
- Manual gear ranges (D1, D2).
- If shift starts too soon after the solenoid state change.
- Diagnostic failures - 21, 22, 24, 28, 53, 58, 59, 72, 73, 75, 79, 81, or 82.
- Time since last shift.
- Time since the last range change.
- Significant vehicle speed change.

**1 - 2 SOLENOID (SOL)/2-3 SOLENOID (SOL)** - Scan tool displays ON/OFF - These parameters are the commanded status of the 1-2 and 2-3 shift solenoids. "ON" represents a commanded energized state (current flowing through solenoid). "OFF" represents a commanded non-energized state (current not flowing through solenoid).

**CONTROL (CTR) FEEDBACK (FDBK) 1/2 2/3** - Scan tool displays OK/FAULT - These parameters are the actual status of the 1-2 and 2-3 shift solenoid driver control circuits.

**3 - 2 CONTROL SOLENOID (SOL)** - Scan tool displays a range of 0% to 100% - This parameter is the commanded percentage of "ON" time of the 3-2 Control Solenoid. "0%" represents a completely "OFF" (non-energized) commanded state. "100%" represents an "ON" (energized) commanded state.

**3-2 CONTROL (CTR) FEEDBACK (FDBK)** - Scan Tool displays ON/OFF." - This parameter is the actual state of the 3-2 control solenoid driver control circuit.

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**HOT MODE** - The scan tool will display this value either "ON" or "OFF" When displayed "ON," the transmission fluid temperature has become greater than 135°C and the following actions will occur:

1. The TCC will engage in fourth gear, except when the brakes are applied, low TP signal, or a DTC is stored.
2. When the fluid temperature obtains 150°C but, less than 154°C for 15 minutes, DTC 79 will set. When DTC 79 is set, TCC application will still occur in the same criteria as when hot mode started.
3. When fluid temperature increases from 150°C for 1 second, in a time period less than 15 minutes, DTC 79 will not set. DTC 58 will set when transmission fluid temperature is greater than 154°C for 1 second.
4. When DTC 58 is set and in hot mode, the vehicle will retain hot mode criteria until the next ignition cycle.
5. If fluid temperature cools from 135°C down to less than 125°C, hot mode criteria will discontinue.

**TCC SLIP SPEED** - Scan tool displays a range of -4096 RPM to +4095 RPM - This parameter is the difference between transmission input speed derived (from the engine speed) and transmission output speed (from the vehicle speed sensor). A negative value indicates input speed is less than output speed (deceleration). A positive value indicates input speed is greater than output speed (acceleration). A value of zero indicates input speed is equal to output speed (TCC applied).

**TCC SOLENOID** - Scan tool displays ON/OFF - This parameter is the commanded state of the TCC solenoid. "ON" indicates a commanded energized state (current flowing through the solenoid). "OFF" indicates a commanded non-energized state (current not flowing through the solenoid).

**CONTROL (CTR) FEEDBACK (FDBK) TCC SOL** - Scan tool displays OK/FAULT - This parameter is the actual state of the TCC solenoid driver control circuit.

**DESIRED PRESSURE CONTROL SOLENOID (PCS)** - Scan tool displays a range of 0.00 amp to 1.10 amps - This parameter is the commanded current of the Pressure Control Solenoid circuit. 0.00 amps (no current flow) indicates commanded higher line pressure. 1.10 amps (high current flow) indicates commanded lower line pressure.

**ACTUAL PRESSURE CONTROL SOLENOID (PCS)** - Scan tool displays a range of 0.00 amp to 1.10 amps - This parameter is the actual current of the Pressure Control Solenoid circuit at the Control Module. 0.00 amps (no current flow) indicates actual higher line

pressure. 1.10 amps (high current flow) indicates actual lower line pressure.

**PRESSURE CONTROL SOLENOID (PCS) DUTY CYCLE** - Scan tool displays a range of 0% to 100% - This parameter is the commanded state of the pressure control solenoid expressed as a percent of energized of on time. 0% indicates zero on time (non-energized) or on current flow. 100% indicates maximum on time (energized) or high current flow.

**MPH/Km/h** - Range 0-255 km/h, mph - The vehicle speed sensor signal is converted into km/h and mph for display.

**TCS/ASR ACTIVE** - Tech 1 Displays YES/NO - When the "ASR" SYSTEM is active, the Tech 1 will display "YES."

**CRUISE ENGAGED** - Scan tool displays NO/YES - This parameter is the signal state of the cruise control ON/OFF switch. "NO" indicates a 0 voltage signal (cruise control not requested). "YES" indicates a B+ voltage (cruise control requested).

**TCC BRAKE SWITCH** - Scan tool displays APPLIED/RELEASED - This parameter indicates the state of the TCC Brake Switch circuit input. "APPLIED" indicates a 0 voltage input (brake switch open, brake pedal applied). "RELEASED" indicates a B+ voltage input (brake switch closed, brake pedal released).

**KICKDOWN ENABLED** - Scan tool displays NO/YES - This parameter indicates whether enabling conditions exists for an acceleration mode downshift. "NO" indicates enabling conditions (throttle position, vehicle speed, input speed, etc.) do not exist for an acceleration mode downshift. "YES" indicates enabling conditions exist for an acceleration mode downshift.

**1 - 2 SHIFT TIME** - Scan tool displays a range of 0.00 seconds to 6.38 seconds - This parameter is the actual time of the last 1-2 shift. This parameter is not accurate at less than 25% throttle position.

**2 - 3 SHIFT TIME** - Scan tool displays a range of 0.00 seconds to 6.38 seconds - This parameter is the actual time of the last 2-3 shift.

**1 - 2 SHIFT ERROR** - Scan tool displays a range of 0.00 seconds to 6.38 seconds - This parameter is the difference between the desired 1-2 shift time and the actual 1-2 shift time. This parameter is not accurate at less than 25% throttle position

**CURRENT (CURR) ADAPT CELL** - Scan tool displays a range of **NOT USED, 25% TP Cell, 40% TP Cell and 70% TP Cell** - This parameter indicates the current throttle position cell used for fluid line pressure modification (adaptation). "NOT USED" represents 0% - 25% throttle angle. "25% TP Cell" represents 25% - 39% throttle cell. "40% TP Cell" represents 40% - 70% throttle angle. "70% TP Cell" represents 70% - 100% throttle angle.

**PERF MODE SWITCH** - Tech 1 Displays **OPEN/CLOSED** - This parameter indicates the position of the performance mode switch. The Tech 1 will display "CLOSED" when the switch is depressed and then "OPEN" when the switch is released.

**PERF LAMP FDBK** - Tech 1 Displays **OK/Fault** - This parameter is the actual state of the performance mode indicator lamp circuit. The Tech 1 will display **FAULT** when the lamp is "ON" while commanded "OFF" or when the lamp is "OFF" while commanded "ON." The Tech 1 will display **OK** when the lamp is "ON" while commanded "ON" or when the lamp is "OFF" while commanded "OFF."

**PERF MODE STATUS** - Tech 1 Displays **Normal/PERF** - This parameter is the actual state of the performance mode control program (within the PCM). The Tech 1 will display "PERF" when the performance mode is active (Performance Shift Calibration). The Tech 1 will display "Normal" when the performance mode is not active (Normal Shift Calibration)

**ENG/TRANS DTC DETECTED** - Tech 1 Displays **YES/NO** - This will display "YES" if the PCM detects a fault in an engine or transmission circuit that caused a DTC.

**PARK/NEUTRAL POS** - Tech 1 displays **-P-N-- or -R-DL** - P-N-- displayed indicates that the gear select lever is in park or neutral.

**SYSTEM VOLTAGE** - Scan tool displays **0.00 volt to 25.5 volts** - This parameter is the battery ignition voltage input to the control module.