

2003 **4L60-E** when used in the Corvette with 5.7L LS1 engine

**TRANSMISSION DIAGNOSTIC PARAMETERS**

2003trans11.doc

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA AND THRESHOLD VALUE(S)	SECONDARY PARAMETERS AND ENABLE CONDITIONS	TIME LENGTH AND FREQUENCY	MIL ILLUMINATION TYPE
Transmission Fluid Overtemperature	P0218	This DTC detects a high transmission temperature for a long period of time	TTS > 130 C	No TTS DTC's	600 Seconds Continuous	DTC Type C
Vehicle Speed Sensor - Low input	P0502	0 RPM to 6000 RPM This DTC detects a low vehicle speed when the vehicle has a large engine speed in a drive gear range.	Output Speed < 150 rpm	- Gear Range is not Park/Neutral - No TPS high or low DTC's set - No Map Sensor DTC's set - No PSA DTC set - Vacuum: 0 to 105 KPA - No Engine Torque Default - Engine Torque: 40 to 400 ft-lbs - Throttle Position > 12% - Engine Speed > 3000 RPM	3 seconds Continuous	DTC Type B
Vehicle Speed Sensor - Intermittent	P0503	0 RPM to 6000 RPM This DTC detects an unrealistic large drop in vehicle speed.	In P/N: Output Speed drop > 8192 RPM  Not P/N: Output Speed drop >1300 RPM	- Time since last Gear Range Change > 6 Seconds - Engine Speed >450 rpm - No Output Speed rise > 600 rpm within 2 seconds - No PSA DTC set - Time since 4WDL State Change > 6 seconds	In park or neutral 409 seconds  Not in park or neutral 3 seconds	DTC Type B
Trans Fluid Temp Sensor Circuit - Performance Test	P0711	.24V to 5.0V The DTC detects an unrealistically large change in transmission temperature or a value which remains constant for a period of time in which a measurable amount of change is expected.	1) Failure 1 is true for ≥ 409 seconds  2) Failure 2 happens ≥ 14 times in 7 sec.	- System Voltage: 10 and 18 volts - No VSS DTC's - Raw TTS counts: 10 to 251 - No DTC 1870 - Trans Temp at startup: -40 C to 21 C - Engine Running ≥ 409 sec. - Vehicle Speed ≥ 5 mph for ≥ 409 sec. cumulative this ignition cycle. - Torque Converter Slip ≥ 120 rpm for ≥ 409 sec. cumulative this ignition cycle. - Coolant Temp ≥ 70 C and has changed by ≥ 50 C since startup.  1) Trans Temp has not changed ≥ 2.25 C (absolute value) since startup  2) Trans Temp changes ≥ 20 C (absolute value) in 200 msec.	1) 409 seconds 2) 7 seconds  continuous	DTC Type C
Trans Fluid Temp Sensor Circuit - Low input (high temp)	P0712	.24V to 5.0V The DTC detects a continuous short to ground in the TTS signal circuit or the TTS sensor	Raw TTS count < 10	- System Voltage: 10 to 18 volts - Ignition "on"	10 seconds Continuous	DTC Type C

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Trans Fluid Temp. Sensor Circuit  - High Input  (Low temp)	P0713	.24V to 5.0V The DTC detects a continuous open or short to high in the TTS signal circuit or the TTS sensor	Raw TTS counts > 250	- System Voltage: 10 to 18 volts - Ignition "on"	400 seconds  Continuous	DTC Type C
Brake Switch Circuit  Low Input  "Brake ON"	P0719	.0V to 12.0 V This DTC detects an open brake switch during accelerations.	Accel counts >= 8 and brake is ON for 900 seconds without going off for 2 seconds.	- No VSS DTC's - Brake Switch Off is not passed - Increment Accel counter when the Brake Switch is On and the following conditions are met:  1. Vehicle Speed <5 MPH, then, 2. Vehicle Speed: 5 to 20 MPH for 4 seconds, then, 3. Vehicle Speed > 20 MPH for 6 seconds.	8 test failures on the current ignition cycle.  Continuous	DTC Type C
Brake Switch Circuit  High Input  "Brake OFF"	P0724	.0 V to 12.0 V This DTC detects a closed brake switch during de accelerations	Decel counts >= 8 and brake has not been ON for > 2 seconds	- No VSS DTC's  - Increment Decel counter when the Brake Switch is OFF and the following conditions occur:  1. Vehicle Speed > 20 MPH for 6 seconds, then, 2. Vehicle Speed: 5 to 20 MPH for 4 seconds, then, 3. Vehicle Speed < 5 MPH	8 test failures on the current ignition cycle  Continuous	DTC Type C
TCC Enable Solenoid Electrical	P0740	0V to 12V This DTC detects a continuous open or short to ground in the TCC circuit or the TCC solenoid	Fail Counter >43 Counts out of 50 Total Counts	- System Voltage: 10 to 18 volts - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff	Continuous	DTC Type B











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PSA Circuit Malfunction	P1810	0V to 12V This DTC detects an invalid state of the PSA sensor or the PSA circuit by deciphering the PSA inputs.	Fail Case 1 Illegal Trans Pressure Switch State (111) or (101)  Fail Case 2 Gear range is D2, D4, or Reverse during engine startup.  Fail Case 3 Gear range is Park or Neutral when operating in D4.	<u>Fail Case 1</u> - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - System Voltage: 10 to 18 volts  <u>Fail Case 2</u> - System Voltage: 10 to 18 volts - No VSS DTC's - Vehicle Speed <2 mph  1. Engine Speed < 80 rpm for > 0.1 seconds, then, 2. Engine Speed: 80 to 550 rpm for > 0.07 seconds, then, 3. Engine Speed > 550 rpm  <u>Fail Case 3</u> - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - System Voltage: 8 to 18 volts - 4th gear commanded - Engine Torque: 40 to 400 ft-lbs - Vacuum: 0 to 105 kPa - TCC Locked On - No VSS DTC's - Speed Ratio: 0.60 to 0.75` - TPS: 10% to 50%	Fail Case 1 60 seconds  Fail Case 2 5 Seconds  Fail Case 3 10 seconds  Continuous	DTC Type B
TCC PWM Solenoid Electrical	P1860	0V to 12V This DTC detects a continuous open or short to ground in the TCC PWM circuit or the TCC PWM sensor	Fail Counter >43 Counts out of 50 Total Counts	- System Voltage: 10 to 18 volts - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - Commanded Gear is 1st - TCC Duty Cycle < 10% or > 90%	Continuous	DTC Type B



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Transmission Component Slipping	P1870	This DTC detects excessive TCC slip when the torque converter clutch should be engaged.	<p>If TCC slip is: 130 to 800 rpm for 7 seconds, then increment the Trans Slip Counter by one.</p> <p>When the counter reaches 3, set the code</p> <p>OR</p> <p>When fail case 2 is true.</p>	<p>- Engine Speed &gt; 450 rpm for 5 seconds and not in fuel cutoff - Gear is not 1st - Gear Range is D4 - No PSA DTC's set - No TPS High or Low DTC's - No VSS DTC's - No solenoid electrical DTC's - Shift Solenoid Performance Diagnostic counters are all zero - TPS: 20% to 99% - Trans temp.: 20 C to 150C - No Engine Torque Default - Engine Torque: 50 to 400 ft-lbs - Vac: 0 to 105 kpa - Speed ratio: 0.69 to 0.88 - Engine Speed: 1500 to 3000 rpm - Vehicle Speed: 30 to 82 mph</p> <p>Fail Case 1 - TCC commanded on for &gt; 5 sec  - TCC commanded to 40% for &gt; 5 seconds</p> <p>Fail Case 2 - Run fail case 2 immediately after fail case 1 increments the trans slip counter to either 1 or 2. Discontinue fail case 2 if the TCC is commanded OFF at any time. - TPS: 20% to 99%</p> <p>Criteria A If : 130 rpm &lt; TCC slip &lt; 800 rpm for 7 seconds, then: Go to max pressure freeze adapts go to criteria B</p> <p>Criteria B If : 130 rpm &lt; TCC slip &lt; 800 rpm for 7 seconds, then: Command TCC OFF for 1.5 seconds go to criteria C</p> <p>Criteria C If : 130 rpm &lt; TCC slip &lt; 800 rpm for 7 seconds, then: Set code p1870</p>	Continuous	DTC Type B

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