

**1999 3.8L (L36) F-car Camaro / Firebird  
4L60-E TRANSMISSION DIAGNOSTIC PARAMETERS**

99c38K\_F\_\_aT.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
Vehicle Speed Sensor - Low input	<b>P0502</b>	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  <i>To set the Fault: Open VSS HI switch J1-64.</i>	- 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 - Engine Torque: 40 to 400 ft-lbs - Throttle Position > 12% - Engine Speed > 3000 RPM	2.5 seconds  Continuous	DTC Type B
Vehicle Speed Sensor - Intermittent	<b>P0503</b>	0 RPM to 6000 RPM This DTC detects an unrealistic large drop in vehicle speed.	In <b>P/N</b> : Output Speed drop > 8000 RPM  Not <b>P/N</b> : Output Speed drop >1300 RPM  <i>To Set the fault: Open VSS switch J1-64 when operating at an output speed &gt; 1300 rpm.</i>	- Time since last Gear Range Change > 6 Seconds - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - No Output Speed rise > 500 rpm within 6 seconds - No PSA DTC set	In park or neutral 409 seconds  Not in park or neutral 2 sec	DTC Type B
TCC Enable Solenoid Electrical	<b>P0740</b>	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  <i>To set the fault: 1. Open switch J2-79.- code sets with vehicle standing still. 2. Open switch and short the controller side of the switch to battery (J1-20)-must drive the vehicle to set the code.</i>	- System Voltage: 9 to 18 volts - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff	Continuous	DTC Type B
TCC System Stuck ON	<b>P0742</b>	This DTC detects low torque converter slip when the TCC is commanded off.	TCC Slip: -20 to + <b>50</b> RPM  for > <b>3.8</b> sec.  Slip Counter >=3  <i>To set the fault: Open the TCC enable switch (J2-79), jumper a solenoid from the controller side of the switch to battery (J1-20) and ground (J1-60) the transmission side of the switch.</i>	- Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - No Range change within 6 sec. - No MAP low and high DTC set - No TP high or low sensor DTC's - No VSS DTC's - No TCC Enable Sol. DTC's - No TCC Control Sol. DTC's -No PSA DTC set - Eng Torque: 50 to 400 ft-lbs - Vacuum: 0 to 105 kPa - Commanded Gear is not 1st - Gear Range is D4 - Throttle Position: 13% to 50% - TCC is commanded off - Engine Speed: 1000 to 3000 rpm - Speed Ratio: 0.95 to 1.7 - Vehicle Speed: 20 to 70 mph	<b>3.8</b> seconds  Continuous	DTC Type B

**1999 3.8L (L36) F-car Camaro / Firebird**  
**4L60-E TRANSMISSION DIAGNOSTIC PARAMETERS**

99c38K\_F\_\_aT.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
Shift Solenoid A Performance	<b>P0751</b>	<p>This DTC detects abnormal shift patterns:</p> <p><b>Stuck OFF:</b> 2-2-3-3 pattern</p> <p><i>To set the Fault:</i> Open SSA switch, J1-04, and jumper a solenoid from battery, J1-20, to the controller side of the SSA switch, J1-04.</p> <p><b>Stuck ON:</b> 1-1-4-4 pattern</p> <p><i>To set the fault:</i> In addition to the stuck off setup, jumper the transmission side of SSA switch J1-04 to ground (J1-60).</p>	<p>Fail Counter &gt;=3 . The fail counter is incremented when the following fail cases are true:</p> <p><b>Stuck OFF:</b> 1,2,3,&amp; 4</p> <p><b>Stuck ON:</b> 1,2,3, &amp; 5</p>	<p><b>General</b></p> <ul style="list-style-type: none"> <li>-Engine Speed &gt; 450 rpm for 5 seconds and not in fuel cutoff</li> <li>-Gear range is D4</li> <li>-No TP high or low DTC's</li> <li>-No VSS low or intermittent DTC's</li> <li>-No Solenoid electrical DTC's</li> <li>-No DTC 742</li> <li>-No PSA DTC set</li> <li>-Time since last shift is &gt;0 sec</li> <li>-Vehicle speed &gt;5 mph</li> <li>-Trans Temp.: 20 C to 130 C</li> </ul> <p><b>Fail Case 1</b></p> <ul style="list-style-type: none"> <li>- Commanded 1-2 shift</li> <li>- TPS: 10% to 45%</li> <li>- TPS constant within +/- 6%</li> <li>- Vehicle Speed: 5 to 45 mph</li> <li>- After 2 seconds, engine speed in 2nd gear must be 100 rpm &gt; last speed in 1st gear</li> </ul> <p><b>Fail Case 2</b></p> <ul style="list-style-type: none"> <li>- Commanded 2-3 shift</li> <li>- TPS: 7% to 45%</li> <li>- TPS constant within +/- 7%</li> <li>- Vehicle Speed: 10 to 65 mph</li> <li>- After 2 sec, engine speed in 3rd gear must be 100 rpm &lt; last speed in 2nd gear</li> </ul> <p><b>Fail Case 3</b></p> <ul style="list-style-type: none"> <li>- Commanded 3-4 shift</li> <li>- TPS: 7% to 45%</li> <li>- TPS constant within +/- 5%</li> <li>- Vehicle speed: 30 to 65 mph</li> <li>- After .7 seconds, engine speed in 4th gear must be 10 rpm &gt; last speed in 3rd gear</li> </ul> <p><b>Fail Case 4</b></p> <ul style="list-style-type: none"> <li>- Commanded 4th gear</li> <li>- TCC commanded ON</li> <li>- TPS: 7% to 35%</li> <li>- Speed Ratio: 0.95 to 1.2</li> <li>- TCC Slip: 200 to 1000 rpm for &gt; 4 sec</li> </ul> <p><b>Fail Case 5</b></p> <ul style="list-style-type: none"> <li>- Commanded 4th gear</li> <li>- TCC commanded ON</li> <li>- TPS: 7% to 35%</li> <li>- Speed Ratio: .65 to 0.80</li> <li>- TCC Slip: -20 to +70 rpm for &gt; 4 sec</li> </ul>	Continuous	DTC Type A
Shift Solenoid A Electrical	<b>P0753</b>	<p>0V to 12V This DTC detects a continuous open or short to ground in the SSA circuit or the SSA solenoid</p>	<p>Fail Counter &gt;43 Counts out of 50 Total Counts</p> <p><i>To set the fault:</i></p> <ol style="list-style-type: none"> <li>1. Open switch J1-04. Must command 2nd gear before running the code</li> <li>2. Open switch and short the controller side of the switch to battery (J1-20)- code sets with vehicle stopped.</li> </ol>	<ul style="list-style-type: none"> <li>- System Voltage: 9 to 18volts</li> <li>- Engine Speed &gt; 450 rpm for 5 seconds and not in fuel cutoff</li> </ul>	Continuous	DTC Type B

**1999 3.8L (L36) F-car Camaro / Firebird**  
**4L60-E TRANSMISSION DIAGNOSTIC PARAMETERS**

99c38K\_F\_\_aT.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
Shift Solenoid B Performance	<b>P0756</b>	This DTC detects abnormal shift patterns:  <b>Stuck OFF:</b> <b>4-3-3-4 pattern</b>  <i>To set the Fault:</i> <i>Open SSB switch, J1-44, and jumper solenoid from battery, J1-20, to the controller side of the SSB switch, J1-44.</i>  <b>Stuck ON:</b> <b>1-2-2-1 pattern</b>  <i>To set the fault:</i> <i>In addition to stuck off setup, jumper the transmission side of SSB switch J1-44 to ground, J1-60.</i>	Fail Counter >=3 . The fail counter is incremented when the following fail cases are true:  <b>Stuck OFF:</b> <b>1 and 3, or 2 and 3</b>  <b>Stuck ON:</b> <b>3 and 4</b>	- Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - Gear Range is D4 - No TPS DTC's - No VSS DTC's - No solenoid electrical DTC's - No TCC Stuck On DTC. - No PSA DTC set - Trans Temp: 20 C to 130 C - Vehicle Speed > 5 MPH  <b>Fail Case 1</b> - 1st gear commanded > 1.5 sec. - Engine Torque: 40 to 400 ft lbs - Vacuum: 0 to 105 kpa - Output Speed: 400 to 1500 rpm - Speed Ratio: 0.65 to 3.0 - Throttle Position > 15% - TCC Slip: -3000 to 0 rpm for > 1.0 seconds <b>Fail Case 2</b> - 2nd gear command > 409.5 sec - Engine Torque: 40 to 400 ft lbs - Vacuum: 0 to 105 kpa - TCC Slip: 8191 to 8191 rpm - Output speed: 8191 to 8191 rpm - Speed Ratio: 8 to 8 - Throttle Position > 99.9% - Fail Timer > 409.5 sec <b>Fail Case 3</b> - Time with 3rd gear commanded: 2.5 to 4.4 seconds - TPS: 13% to 50% - TPS constant within +/- 5% - Engine Torque: 40 to 400 ft lbs - Vacuum: 0 to 105 kpa - Speed Ratio in Third gear does not drop more than 0.35 from the last Speed Ratio in Second gear - TCC Slip in Third gear remains > 400 rpm higher than the last TCC Slip in Second gear - Fail Timer > 1.0 sec <b>Fail Case 4</b> - 4th Gear commanded for > 1 sec - Engine Torque: 0 to 400 ft lbs - Vacuum: 0 to 105 kpa - Output Speed: 1400 to 2500 rpm - Speed Ratio: 1.68 to 3.3 - Throttle Position > 10% - TCC Slip: 1000 to 4000 rpm for > 1 sec	Continuous	DTC Type A
Shift Solenoid B Electrical	<b>P0758</b>	0V to 12V This DTC detects a continuous open or short to ground in the SSB circuit or the SSB solenoid	Fail Counter >43 Counts out of 50 Total Counts  <i>To set the fault:</i> <i>1. Open switch J1-44. - must command 3rd gear to run the code.</i> <i>2. Open switch and short the controller side of the switch to battery (J1-20) - code sets with the vehicle stopped.</i>	- System Voltage: 9 to 18volts - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff	Continuous	DTC Type A

**1999 3.8L (L36) F-car Camaro / Firebird**  
**4L60-E TRANSMISSION DIAGNOSTIC PARAMETERS**

99c38K\_F\_\_aT.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
3-2 Downshift Solenoid Electrical	<b>P0785</b>	0V to 12V This DTC detects a continuous open or short to ground in the SSB circuit or the SSB solenoid	Fail Counter >43 Counts out of 50 Total Counts  <i>To set the fault:</i> 1. Open switch J2-48. (code sets during downshift , easier with low trans temp) 2. Open switch and short the controller side of the switch to battery (J1-20) - code runs with vehicle standing still.	- System Voltage: 9 to 18volts - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff	Continuous	DTC Type A
PSA Circuit Malfunction	<b>P1810</b>	0V to 12V This DTC detects an invalid state of the PSA sensor or the PSA circuit by deciphering the PSA inputs.	<b>Fail Case 1</b> Illegal Trans Pressure Switch State (111) or (101)  <i>Ground Pin A (J1-22) and operate in D4.</i>  <b>Fail Case 2</b> Gear range is D2, D4, or Reverse during engine startup.  <i>Open Pin B (J2-57)</i>  <b>Fail Case 3</b> Gear range is Park or Neutral when operating in D4.  <i>Open Pin C (J2-17)</i>	<b>Fail Case 1</b> - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - System Voltage: 9 to 18 volts  <b>Fail Case 2</b> - System Voltage: 8 to 16 volts - No VSS DTC's - Vehicle Speed <2 mph  1. Engine Speed < 100 rpm for > 0.1 seconds, then, 2. Engine Speed: 100 to 600 rpm for > .05 seconds, then, 3. Engine Speed > 600 rpm  <b>Fail Case 3</b> - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - System Voltage: 8 to 16 volts - 4th gear commanded - Engine Torque: 50 to 450 ft-lbs - Vacuum: 0 to 105 kPa - TCC On - No VSS DTC's - Speed Ratio: 0.65 to 0.75 - TPS: 7% to 50%	<b>Fail Case 1</b> 60 seconds  <b>Fail Case 2</b> 5 Seconds  <b>Fail Case 3</b> 10 seconds  Continuous	DTC Type B
TCC PWM Solenoid Electrical	<b>P1860</b>	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  <i>To set the fault:</i> 1. Open switch J2-78. (code sets with vehicle standing still) 2. Open switch and short the controller side of the switch to battery (J1-20) - must drive the vehicle to set the code.	- System Voltage: 9 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

**1999 3.8L (L36) F-car Camaro / Firebird**  
**4L60-E TRANSMISSION DIAGNOSTIC PARAMETERS**

99c38K\_F\_\_aT.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 Component Slipping	<b>P1870</b>	<p>This DTC detects excessive TCC slip when the torque converter clutch should be engaged.</p> <p><i>To set the Fault: Open the TCC Enable solenoid switch (J2-79) and jumper a solenoid between the controller side of the switch and batter power (J1-20)</i></p>	<p>If TCC slip is:  <b>200 to 800 rpm</b>  for 7 seconds,  then increment the Trans Slip Counter by one.  When the counter reaches 3, set the code.</p>	<ul style="list-style-type: none"> <li>- Engine Speed &gt; 450 rpm for 5 seconds and not in fuel cutoff</li> <li>- Gear is not 1st</li> <li>- Gear Range is D4</li> <li>- No TPS High or Low DTC's</li> <li>- No VSS DTC's</li> <li>- No solenoid electrical DTC's</li> <li>- Shift Solenoid Performance Diagnostic counters are all zero</li> <li>- TPS: <b>8.0%</b> to 35%</li> <li>- Trans temp.: 20 C to 130C</li> <li>- Engine Torque: 40 to 450 ft-lbs</li> <li>- Speed ratio: 0.65 to .98</li> <li>- Engine Speed: 1000 to 3000 rpm</li> <li>- Vehicle Speed: 30 to 75 mph</li> </ul> <p><b>Fail Case 1</b>  - TCC commanded on for &gt; 8 sec</p> <p><b>Fail Case 2</b>  - 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: 7% to 40%</p> <p><b>Criteria A</b>  <b>If:</b> 200 rpm &lt; TCC slip &lt; <b>800</b> rpm for 7 seconds,  <b>then:</b> Go to max pressure freeze adapts  go to criteria B</p> <p><b>Criteria B</b>  <b>If:</b> 200 rpm &lt; TCC slip &lt; <b>800</b> rpm for 7 seconds,  <b>then:</b> Command TCC OFF for 1.5 seconds  go to criteria C</p> <p><b>Criteria C</b>  <b>If:</b> 200 rpm &lt; TCC slip &lt; <b>800</b> rpm for 7 seconds,  <b>then:</b> Set code p1870</p>	Continuous	DTC Type B