

**2003 4T40-E** when used with 2.2L L61 engine  
in these cars: Saturn L-series, Cavalier, Sunfire, GrandAm, Alero

**TRANSMISSION DIAGNOSTIC PARAMETERS**

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SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALF DETECTION PARAMETERS	SECONDARY PARAMETERS AND CONDITIONS	MONITORING TIME LENGTH & DTC TYPE
Vehicle Speed Sensor: Low Input	P0502	0 - 8000 RPM Detects low vehicle speed with large engine speed in Drive range	Output Speed < 150 RPM	Range ≠ Park/Neutral No P0716, P0717, P1810 DTCs No MAP, TPS DTCs (see below) 50 < Engine Torque < 300 ft-lb Input Speed > 1500 RPM 0 < MAP < 104.7 kPa TPS > 12%	3.0 sec  Type B
Vehicle Speed Sensor: Intermittent	P0503	0 - 8000 RPM Detects loss of vehicle speed when vehicle is moving	Drop in Output Speed > 1200 RPM in any Drive range	Engine Running No P1810 DTC  Time since last range change > 6.0 sec +ΔVSS, loop-to-loop, < 250 RPM for > 5.0 sec	3.0 sec in all Drive ranges  Type B

MAF DTCs	P0101-P0102-P0103
MAP DTCs	P0105-P0106-P0107-P0108
MAP Intermittent	P1106-P1107
ECT DTCs	P0115-P0116-P0117-P0118-P0125-P0126-P0128
TP DTCs	P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125
	P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288
System Voltage DTCs	P0560-P0562-P0563

Type A and Type B codes illuminate the "Service Engine Soon" lamp.  
Type C codes illuminate the "Service Vehicle Soon" or "Wrench" lamp.

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Transmission Fluid Temperature Sensor Circuit: Range/ Performance	P0711	0.24 - 5.0 V Detects unrealistically large change in TFT or value which remains constant for period of time in which a measurable change is expected	<u>Fail Case 1</u> $\Delta TFT < 2.25^\circ C.$  <u>Fail Case 2</u> $\Delta TFT > 20^\circ C.$ in 200 msec	Engine Speed > 500 RPM > 300.0 sec 8 < Ignition Voltage < 18 V No P0502, P0503, P0716, P0717 DTCs Vehicle Speed > 5 mph for 900.0 sec cumulative -40° C. < Trans Temp at startup < 21° C. TCC Slip > 120 RPM > 409.0 sec cumulative ECT > 70° C. $\Delta ECT > 50^\circ C.$ since start-up	<u>Fail Case 1</u> 80.0 sec  <u>Fail Case 2</u> Fail count > 14 within 7.0 sec  Type C
Transmission Fluid Temperature Sensor Circuit: Low Input	P0712	0.24 - 5.0 V Detects continuous Short-to-Ground in Transmission Fluid Temperature sensor or TFT signal circuit	Trans Temp Sensor $\leq$ 10 counts (Raw TTS $\leq$ 0.33 Volts)	No P0712 FA or FATKO No P0713 FA Ignition ON 8 < Ignition Voltage < 18 V	10.0 sec  Type C
Transmission Fluid Temperature Sensor Circuit: High Input	P0713	0.24 - 5.0 V Detects continuous Open or Short-to-Power in TFT sensor or TFT signal circuit	Trans Temp Sensor $\geq$ 251 counts (Raw TTS $\geq$ 4.92 Volts)	No P0712 FA No P0713 FA or FATKO Ignition ON 8 < Ignition Voltage < 18 V	400.0 sec  Type C

MAF DTCs P0101-P0102-P0103  
MAP DTCs P0105-P0106-P0107-P0108  
MAP Intermittent P1106-P1107  
ECT DTCs P0115-P0116-P0117-P0118-P0125-P0126-P0128  
TP DTCs P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125  
  
P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288  
  
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Input Speed Sensor Circuit: Range/ Performance	P0716	0 - 6000 RPM Detects unrealistically large change in Input Speed in very short time	Input Speed change > 1300 RPM	Engine Running No TPS DTCs (see below) No P0502, P0503, P0716, P0717. P0751, P0753, P0758 DTCs TPS > 15% Vehicle Speed > 5 mph	0.8 sec  Type B
Input Speed Sensor Circuit: No Signal	P0717	0 - 6000 RPM Detects low Input Speed with large vehicle speed	Input Speed < 100 RPM	No P0502, P0503, P1810 DTCs PSA ≠ P/N Engine Running Vehicle Speed > 5 mph	5.0 sec  Type B
Torque Converter Clutch System Stuck OFF	P0741	Detects high TCC slip with TCC commanded on	TCC slip > 200 RPM increments Stuck OFF counter  Count = 1	No TPS DTCs (see below) No P0502, P0503, P0742, P1810, P1887 DTCs 8% ≤ TPS ≤ 100% 20° C. < Trans Temp < 130° C. TCC commanded locked on > 3.0 sec  Commanded Gear > 2 PRNDL = D4, D3, or D2 Time since last manual range change > 6.0 sec	6.0 sec  Type B

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MAP DTCs	P0105-P0106-P0107-P0108
MAP Intermittent	P1106-P1107
ECT DTCs	P0115-P0116-P0117-P0118-P0125-P0126-P0128
TP DTCs	P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125
	P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288
System Voltage DTCs	P0560-P0562-P0563

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Torque Converter Clutch System Stuck ON	P0742	Detects lack of Torque Converter Clutch release oil pressure (switch is CLOSED) when TCC commanded off	TCC Release Switch closed for 4.0 sec increments fail counter  Count = 4	No P1887 DTC No TPS DTCs (see below) Range = D4 500 < Engine Speed < 6500 RPM TCC commanded OFF 20 < Engine Torque < 300 ft-lb 20° C. < Trans Temp < 130° C. 20 < Vehicle speed < 60 mph 12% ≤ TPS ≤ 100% Time since last manual range change > 6.0 sec	6.0 sec  Type A
Shift Solenoid A Performance  Stuck OFF	P0751	Detects 2-2-3-3 shift pattern	<u>Fail Case 1</u> Commanded 1st 1.54 < Ratio < 1.71  <u>Fail Case 2</u> Commanded 4th 0.91 < Ratio < 1.07  Count = 2	No TPS DTCs (see below) No P0502, P0503, P0716, P0717, P0753, P0758, P1810 DTCs PRNDL ≠ Park, Reverse, or Neutral TPS > 8% VSS > 150 RPM 20° C. < Trans Temp < 130° C. Engine running 0.30 sec. after gear change 8 < Ignition Voltage < 18 V 150 < Input Speed < 6000 RPM 20 < Engine Torque < 300 ft-lb	<u>Fail Case 1</u> 3.25 sec  <u>Fail Case 2</u> 4.0 sec  Type B

MAF DTCs                    P0101-P0102-P0103  
MAP DTCs                    P0105-P0106-P0107-P0108  
MAP Intermittent        P1106-P1107  
ECT DTCs                    P0115-P0116-P0117-P0118-P0125-P0126-P0128  
TP DTCs                    P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125  
  
P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288  
  
System Voltage DTCs      P0560-P0562-P0563

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Shift Solenoid A Performance  Stuck ON	P0752	Detects 1-1-4-4 shift pattern	<p><u>Fail Case 3</u>  0 &lt; Engine Torque &lt; 300 ft-lbs  Commanded 2nd  2.87 &lt; Ratio &lt; 3.13</p> <p><u>Fail Case 4</u>  20 &lt; Engine Torque &lt; 300 ft-lbs  Commanded 3rd  0.61 &lt; Ratio &lt; 0.72</p> <p>Count = 2</p>	No TPS DTCs (see below) No P0502, P0503, P0716, P0717, P0753, P0758, P1810 DTCs PRNDL ≠ Park, Reverse, or Neutral TPS > 8% VSS > 150 RPM 20° C. < Trans Temp < 130° C. Engine running 0.30 sec. after gear change 8 < Ignition Voltage < 18 V 150 < Input speed < 6000 RPM	<p><u>Fail Case 3</u>  4.0 sec</p> <p><u>Fail Case 4</u>  4.0 sec</p> <p>Type B</p>
Shift Solenoid A Electrical	P0753	0 – 12 V Detects continuous Open, Short-to-Ground, or Short-to-Power in Shift Solenoid A or SSA circuit (ODM)	SSA ODM feedback circuit state ≠ PCM commanded state	Ignition ON 8 < Ignition Voltage < 18 V for 0.5 sec	Fail count = 43 in sample of 50 (Total time approx 4.0 sec)  Type A

MAF DTCs                    P0101-P0102-P0103  
MAP DTCs                    P0105-P0106-P0107-P0108  
MAP Intermittent        P1106-P1107  
ECT DTCs                    P0115-P0116-P0117-P0118-P0125-P0126-P0128  
TP DTCs                    P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125

                                  P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288

System Voltage DTCs    P0560-P0562-P0563

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Shift Solenoid B Performance  Stuck ON	P0756	Detects 4-3-3-4 shift pattern	<u>Fail Case 5</u> 200 < TCC Slip < 1850 RPM VSS > 160 RPM Commanded 1st 0.61 < Ratio < 0.72  <u>Fail Case 6</u> Commanded Gear = 2 0.91 < Ratio < 1.07  Count = 1	No TPS DTCs (see below) No P0502, P0503, P0716, P0717, P0753, P0758, P1810 DTCs No Engine Torque Codes Engine Running Vehicle Speed > 150 RPM 150 < Input Speed < 6000 RPM TPS > 8% Range = D4, D3, D2 or D1 0.30 sec. after gear change 8 < Ignition Voltage < 18 V 20° C. < Trans Temp < 130° C. 20 < Engine Torque < 300 ft-lbs	<u>Fail Case 5</u> 4.0 sec  <u>Fail Case 6</u> 4.0 sec  Type A
Shift Solenoid B Performance  Stuck OFF	P0757	Detects 1-2-2-1 shift pattern	<u>Fail Case 7</u> 20 < Engine Torque < 300 ft-lb Commanded 3rd 1.54 < Ratio < 1.71  <u>Fail Case 8</u> 0 < Engine Torque < 300 ft-lb Commanded 4th 2.87 < Ratio < 3.13  Count = 1	No TPS DTCs (see below) No P0502, P0503, P0716, P0717, P0753, P0758, P1810 DTCs No Engine Torque Codes Engine Speed < 6500 rpm 150 < Input Speed < 6000 RPM Vehicle Speed > 150 RPM TPS > 8% Gear Range = D4, D3, D2, or D1 0.20 sec. after gear change 8 < Ignition Voltage < 18 V 20° C. < Trans Temp < 130° C.	<u>Fail Case 7</u> 3.0 sec  <u>Fail Case 8</u> 2.0 sec  Type A

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MAP DTCs	P0105-P0106-P0107-P0108
MAP Intermittent	P1106-P1107
ECT DTCs	P0115-P0116-P0117-P0118-P0125-P0126-P0128
TP DTCs	P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125
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Shift Solenoid B Electrical	P0758	0 – 12 V Detects continuous Open, Short-to-Ground, or Short-to-Power in Shift Solenoid B or SSB circuit (ODM)	SSB ODM feedback circuit state ≠ PCM commanded state	Ignition ON 8 < Ignition Voltage < 18 V for 0.5 sec	Fail count = 43 in sample of 50 (Total time approx 4 sec)  Type A
Pressure Switch Assembly Circuit Malfunction (Fail Case 1)	P1810	0 – 12 V Detects invalid state of Pressure Switch Assembly or PSA circuit	Illegal PSA range	Engine running	60.0 sec  Type B
Pressure Switch Assembly Circuit Malfunction (Fail Case 2) Engine Speed Transition	P1810	0 – 12 V Detects invalid state of Pressure Switch Assembly or PSA circuit	PSA = D2, D4, or Reverse after Start-up	<b>Run once per ignition cycle</b> 8 < Ignition Voltage < 18 V for 0.5 sec No Vehicle Speed Codes Vehicle Speed < 2 mph Engine Speed < 200 RPM for 0.1 sec, <b>THEN</b> 200 < Engine Speed < 600 RPM for 0.025 sec; <b>after</b> Engine Speed > 600 RPM, PSA state is reported	2.0 sec  Only at Engine Start-up  Type B

MAF DTCs                    P0101-P0102-P0103  
MAP DTCs                    P0105-P0106-P0107-P0108  
MAP Intermittent        P1106-P1107  
ECT DTCs                    P0115-P0116-P0117-P0118-P0125-P0126-P0128  
TP DTCs                      P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125  
  
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Pressure Switch Assembly Circuit Malfunction (Fail Case 3)	P1810	0 – 12 V Detects invalid state of Pressure Switch Assembly or PSA circuit	<u>Fail Case A</u> PSA = P/N Ratio < 0.71  <u>Fail Case B</u> PSA = Reverse Ratio = Drive  <u>Fail Case C</u> PSA = D4, D3, D2, or D1 Ratio = Reverse	Engine Running No TPS DTCs (see below) No P0502, P0503, P0716, P0717, P0751, P0753, P0756, P0758 DTCs Vehicle Speed ≥ 5mph 10% < TPS < 25% 10 < Engine Torque < 300 ft-lbs	<u>Fail Case A</u> 5.0 sec  <u>Fail Case B</u> 5.0 sec  <u>Fail Case C</u> 5.0 sec  Continuous  Type B
Torque Converter Clutch Pulse Width Modulated Solenoid Electrical	P1860	Detects continuous Open or Short-to-Ground in TCC PWM circuit or TCC PWM solenoid	Every 100 msec, circuit is checked, FAIL counter incremented if open or short detected	8 < Ignition Voltage < 18 V > 0.5 sec Ignition On Engine Speed > 500 RPM for 5.0 sec, not at fuel cutoff TCC Duty Cycle < 10% or > 90% 10% < TPS < 90%	Fail Count = 43 in sample of 50 (Total time approx 4.0 sec)  Continuous  Type A

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MAP Intermittent        P1106-P1107  
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Torque Converter Clutch Release Switch Circuit Malfunction	P1887	Detects open Release Switch, indicating TCC not applied when PCM and TCC slip show TCC is locked	Release switch open for 6 sec  Count = 2	No P0716, P0717, P0741, P0742 DTCs Engine running TCC commanded ON -20 < Slip < 60 RPM PSA = D4 30 < Engine Torque < 300 ft-lb 15 < TCC Pressure < 120 psi	6.0 sec  Type B

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