

2004 4T40-E transmission when used with 2.2L L61 engine in these vehicles
Saturn LS, Grand Am, Alero, Cavalier, Sunfire, Saturn VUE, Chevrolet Classic
Transmission Diagnostic Parameters

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SENSED PARAMETERS	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	P0502	0 - 6000 RPM Low vehicle speed with large engine speed in Drive range	raw Output Speed < 150 RPM	No P0716, P0717 DTCs No MAP, TPS DTCs (see below) No Engine Torque malfunction Range ≠ Park/Neutral 50 < Engine Torque < 175 ft-lb Input Speed > 1500 RPM 0 < MAP < 104.7 kPa TPS > 12.0%	3.0 sec <u>Continuous</u>	Type B
Vehicle Speed Sensor: Intermittent/Loss	P0503	0 - 6000 RPM Loss of vehicle speed when vehicle is moving	<u>Drive Range</u> Δraw Output Speed > 1200 RPM <u>P/N Range</u> Δraw Output Speed > 8192 RPM	Engine RPM > 500 +ΔVSS, loop-to-loop, < 250 RPM for > 5.0 sec No Engine Torque malfunction 50 < Engine Torque < 175 ft-lb	<u>Drive Range</u> 3.0 sec <u>P/N Range</u> 409 sec <u>Continuous</u>	<u>Type B</u>
Transmission Fluid Temperature Sensor Circuit: Range/Performance	P0711	0.24 - 5.0 V <u>Fail Case 1</u> Value is onstant for period in which a change is expected <u>Fail Case 2</u> Unrealistic change in TFT	<u>Fail Case 1</u> ΔTFT < 2.25° C. <u>Fail Case 2</u> ΔTFT > 20.0° C. in 200 msec	Engine Speed > 500 RPM > 300.0 sec NOT (8.0 < Ignition Voltage < 18.0) for < 0.5 sec No P0502, P0503, P0716, P0717 ECT DTCs Vehicle Speed > 5.0 mph for 900 sec, cumulative -40° C. < TFT@ startup < 21° C. TCC Slip > 120 RPM > 409.0 sec, cumulative ECT > 70° C. ΔECT > 55° C. since start-up	<u>Fail Case 1</u> 80.0 sec <u>Fail Case 2</u> Fail count > 14 within 7.0 sec <u>Continuous</u>	<u>Type C</u>
Transmission Fluid Temperature Sensor Circuit: Low Input	P0712	0.24 - 5.0 V Continuous Short-to-Ground in Transmission Fluid Temperature sensor or TFT signal circuit	Trans Temp Sensor ≤ 10 counts (Raw TTS ≤ 0.33 Volts)	No P0712 FA or FATKO No P0713 FA Ignition ON NOT (8.0 < Ignition Voltage < 18.0) for < 0.5 sec	10.0 sec <u>Continuous</u>	Type C
Transmission Fluid Temperature Sensor Circuit: High Input	P0713	0.24 - 5.0 V Continuous Open or Short-to-Power in TFT sensor or TFT signal circuit	Trans Temp Sensor ≥ 251 counts (Raw TTS ≥ 4.92 Volts)	No P0712 FA No P0713 FA or FATKO Ignition ON NOT (8.0 < Ignition Voltage < 18.0) for < 0.5 sec	400.0 sec <u>Continuous</u>	Type C

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Input Speed Sensor Circuit: Range/Performance	P0716	0 – 6000 RPM Unrealistic change in Input Speed in very short time	Δraw Input Speed > 1300 RPM	No P0502, P0503, P0717, P0751, P0752, P0753, TPS, DTCs Engine Speed > 500 RPM for 5.0 sec, not in fuel cutoff No Engine Torque malfunction 30 < Engine Torque < 175 ft-lb TPS > 15.0% Vehicle Speed > 5.0 mph	0.8 sec <u>Continuous</u>	Type B
Input Speed Sensor Circuit: No Signal	P0717	0 - 6000 RPM Low Input Speed with large vehicle speed	raw Input Speed < 100 RPM	No P0502, P0503 DTCs No Engine Torque malfunction 30 < Engine Torque < 175 ft-lb Engine Speed > 500 RPM for 5.0 sec, not in fuel cutoff Vehicle Speed > 5.0 mph	5.0 sec <u>Continuous</u>	Type B
Torque Converter Clutch System Stuck OFF	P0741	High TCC slip with TCC commanded on	TCC slip > 200 RPM increments Stuck OFF counter Count = 1	No P0502, P0503, P0716, P0717, P0742, P1860, TPS DTCs Engine Speed > 500 RPM for 5.0 sec, not in fuel cutoff 8.0% ≤ TPS ≤ 100% No Engine Torque malfunction 30 < Engine Torque < 175 ft-lb 20° C. < Trans Temp < 130° C. TCC commanded locked on TCC Capacity ≥ 60.0% for > 3.0 sec Commanded Gear > 2	6.0 sec <u>Continuous</u>	Type B
Torque Converter Clutch System Stuck ON	P0742	Lack of Torque Converter Clutch release oil pressure when TCC commanded off	TCC Release Switch closed for 4.0 sec increments fail counter Count = 4	No P1860, P1887, TPS DTC Range = D4 TCC commanded OFF 20 < Engine Torque < 175 ft-lb 10° C. < Trans Temp < 130° C. 12% ≤ TPS ≤ 100%	4.0 sec <u>Continuous</u>	Type B
Shift Solenoid A Performance Stuck OFF	P0751	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 P0502, P0503, P0716, P0717, P0742, P0753, P0758, P1860, TPS DTCs No Engine Torque malfunction TPS > 8.0% VSS > 150 RPM 20° C. < Trans Temp < 130° C. 0.30 sec. after gear change NOT (8.0 < Ignition Voltage < 18.0) for < 0.5 sec 150 < Input Speed < 6000 RPM 20 < Engine Torque < 175 ft-lb	<u>Fail Case 1</u> 1.5 sec <u>Fail Case 2</u> 4.0 sec <u>Continuous</u>	Type B

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Shift Solenoid A Performance Stuck ON	P0752	1-1-4-4 shift pattern	<p><u>Fail Case 3</u> 0 < Engine Torque < 175 ft-lbs Commanded 2nd 2.87 < Ratio < 3.13</p> <p><u>Fail Case 4</u> 20 < Engine Torque < 175 ft-lbs Commanded 3rd 0.61 < Ratio < 0.71</p> <p>Count = 2</p>	No P0502, P0503, P0716, P0717, P0742, P0753, P0758, P1860, TPS DTCs No Engine Torque malfunction TPS > 8.0% VSS > 150 RPM 20° C. < Trans Temp < 130° C. 0.30 sec. after gear change NOT (8.0 < Ignition Voltage < 18.0) for < 0.5 sec 150 < Input Speed < 6000 RPM	<p><u>Fail Case 3</u> 3.5 sec</p> <p><u>Fail Case 4</u> 4.0 sec</p> <p><u>Continuous</u></p>	<u>Type B</u>
Shift Solenoid A Electrical	P0753	0 – 12 V Continuous Open, Short-to-Ground, or Short-to-Power in SSA or SSA circuit	SSA ODM feedback circuit state ≠ PCM commanded state	Ignition ON NOT (8.0 < Ignition Voltage < 18.0) for < 0.5 sec	Fail count = 43 in sample of 50 (Time ≈ 4.3 sec)	Type A
Shift Solenoid B Performance Stuck ON	P0756	4-3-3-4 shift pattern	<p><u>Fail Case 5</u> 200 < TCC Slip < 1850 RPM VSS > 160 RPM Commanded 1st 0.61 < Ratio < 0.71</p> <p><u>Fail Case 6</u> VSS > 150 RPM Commanded Gear = 2 0.91 < Ratio < 1.07</p> <p>Count = 1</p>	No P0502, P0503, P0716, P0717, P0742, P0753, P0758, P1860, TPS DTCs No Engine Torque malfunction TPS > 8.0% 20° C. < Trans Temp < 130° C. 0.30 sec. after gear change NOT (8.0 < Ignition Voltage < 18.0) for < 0.5 sec 150 < Input Speed < 6000 RPM 20 < Engine Torque < 175 ft-lb	<p><u>Fail Case 5</u> 2.5 sec</p> <p><u>Fail Case 6</u> 1.0 sec</p> <p><u>Continuous</u></p>	<u>Type A</u>
Shift Solenoid B Performance Stuck OFF	P0757	1-2-2-1 shift pattern	<p><u>Fail Case 7</u> 20 < Engine Torque < 175 ft-lb Commanded 3rd 1.54 < Ratio < 1.71</p> <p><u>Fail Case 8</u> 0 < Engine Torque < 175 ft-lb Commanded 4th 1.87 < Ratio < 3.13</p> <p>Count = 1</p>	No P0502, P0503, P0716, P0717, P0742, P0753, P0758, P1860, TPS DTCs No Engine Torque malfunction TPS > 8.0% VSS > 150 RPM 20° C. < Trans Temp < 130° C. 0.20 sec. after gear change NOT (8.0 < Ignition Voltage < 18.0) for < 0.5 sec 150 < Input Speed < 6000 RPM	<p><u>Fail Case 7</u> 3.0 sec</p> <p><u>Fail Case 8</u> 2.0 sec</p> <p><u>Continuous</u></p>	<u>Type A</u>

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Shift Solenoid B Electrical	P0758	0 – 12 V 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 NOT (8.0 < Ignition Voltage < 18.0) for < 0.5 sec	Fail count = 43 in sample of 50 (Time ≈ 4.3 sec) <u>Continuous</u>	Type A
Pressure Switch Assembly Circuit Illegal Range	P1810	0 – 12 V Invalid state of Pressure Switch Assembly or PSA circuit	Illegal PSA range	Engine Speed > 500 RPM for 5.0 sec, not in fuel cutoff NOT (8.0 < Ignition Voltage < 18.0) for < 0.5 sec	60.0 sec <u>Continuous</u>	Type B
Pressure Switch Assembly Circuit Malfunction P/N Range with Drive Ratio	P1816	0 – 12 V Mismatch between Range and gear ratio	PSA = P/N Ratio < 3.13	No P0502, P0503, P0716, P0717, P0751, P0752, P0753, P0756, P0757, P0758, TPS DTCs Engine Speed > 500 RPM for 5.0 sec, not in fuel cutoff No Engine Torque malfunction TPS > 10.0% 25 < Engine Torque < 175 ft-lbs Vehicle Speed ≥ 3.0 mph	5.0 sec <u>Continuous</u>	Type B
Pressure Switch Assembly Circuit Malfunction Drive Range with Reverse Ratio	P1818	0 – 12 V Mismatch between Range and gear ratio	PSA = D4, D3, D2, or D1 Ratio = Reverse	No P0502, P0503, P0716, P0717, P0751, P0752, P0753, P0756, P0757, P0758, TPS DTCs Engine Speed > 500 RPM for 5.0 sec, not in fuel cutoff No Engine Torque malfunction TPS > 10.0% 25 < Engine Torque < 175 ft-lbs Vehicle Speed ≥ 3.0 mph	5.0 sec <u>Continuous</u>	Type B
Torque Converter Clutch Pulse Width Modulated Solenoid Electrical	P1860	Continuous Open or Short-to-Ground in TCC PWM circuit or TCC PWM solenoid	Every 100 msec, circuit checked, FAIL counter incremented if open or short detected	NOT (8.0 < Ignition Voltage < 18.0) for < 0.5 sec TCC Duty Cycle < 10% or > 80%	Fail Count = 43 in sample of 50 (Time ≈ 4.3 sec) <u>Continuous</u>	Type A

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Torque Converter Clutch Release Switch Circuit Malfunction	P1887	Open Release Switch when PCM and TCC slip show TCC is locked	Release switch open Count = 2	No P0716, P0717, P0741, P0742, P1860 DTCs Engine Speed > 500 RPM for 5.0 sec, not in fuel cutoff TCC LOCKED -20 < Slip < 60 RPM PSA = D4 30 < Engine Torque < 175 ft-lb 15 < TCC Pressure < 120 psi	6.0 sec <u>Continuous</u>	Type B

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