2000 2.2L (LN2) J-car *(Cavalier/Sunfire)* w/4-speed Auto Trans 4T40-E TRANSMISSION DIAGNOSTIC PARAMETERS

2000trans2.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	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 Sensor signal is less than 2 mph.	Gear Range is not Park/Neutral No PSA sensor DTCs set No TP high or low sensor DTCs set Throttle Position > 12% No Map Sensor High or Low DTCs set MAP > 50 KPA No Input Speed Sensor DTCs Input Speed > 1600 RPM Engine speed between 2500 & 4800 rpm	3 seconds CONTINUOUS CHECK	DTC TYPE B
Vehicle Speed Sensor - Intermitttent	P0503	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 Sensor signal drop is greater than 1200 rpm for 3 seconds in all Drive gear selector ranges.	Engine Running No PSA DTC No PRNDL range changes for 6 sec Max positive loop to loop change less than 500 rpm. Time delay if max loop to loop is exceeded = 5 sec Output Speed greater than 500 rpm	3 seconds CONTINUOUS CHECK	DTC TYPE B
Input Speed Sensor Circuit - Range/Perf	P0716	0 RPM TO 6000 RPM The DTC detects an unrealistically large change in Input Speed in a very short period of time	Input Speed change > 1300 RPM	Engine Running No ISS DTCs set No TPS High or Low DTCs set No VSS DTCs No SSA DTCs set No SSB DTCs set Vehicle Speed Sensor > 5 mph Throttle Position Sensor > 15%	0.8 seconds CONTINUOUS CHECK	DTC TYPE B
Input Speed Sensor Circuit - No Signal	P0717	0 RPM TO 6000 RPM The DTC detects a Low Input Speed when the vehicle has large vehicle speed.	Input Speed < 100 RPM	No VSS DTCs set No PSA Sensor DTC set PSA indicating not in P/N Engine Running VSS > 5 mph	5 seconds CONTINUOUS CHECK	DTC TYPE B
TCC System Stuck OFF	P0741	This DTC detects high TCC Slip Speed when TCC is commanded on.	Slip Speed > 250 rpm Code sets when counter = 2	Throttle between 8% and 75% 20 C < Trans Temp < 130 C TCC commanded locked on for 3 seconds Commanded Gear > 1 PSA = D4 or D3 or D2 No PRNDL range changes for 6 sec No Input Speed Sensor Codes No TPS codes No PSA codes No Vehicle Speed Sensor Code No TCC Electrical Codes No TCC Stuck ON Codes No TCC Release Switch Code	8 seconds CONTINUOUS CHECK	DTC TYPE B

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TCC System Stuck ON	P0742	This DTC detects Torque Converter release oil pressure (Switch is closed) when the TCC is commanded off.	TCC Release Switch is closed increments fail counter. Code sets when counter = 2.	Engine Running TCC is commanded off No TCC Release Switch Code No TCC Solenoid Code Throttle between 12% and 75% No PRNDL range changes for 6 sec	8 seconds CONTINUOUS CHECK	DTC TYPE A
Shift Solenoid A Performance	P0751	This DTC detects shift patterns of 1-1-4-4 or 2-2-3-3 i.e., 1st in 2nd, 4th in 3rd. or 2nd in 1st, 3rd in 4th.	Command Gear = 2 Ratio = 1st Command Gear = 3 Ratio = 4th Increments Stuck ON counter. Command Gear = 1 Ratio = 2nd Command Gear = 4 Ratio = 3rd Increments Stuck OFF counter. Code sets when either counter = 2	PRNDL not in park, reverse, or neutral. TPS > 8%. VSS > 5 mph. Trans Temp > 20 C. The engine is running. Engine RPM < 6500 rpm. Engine Torque > 10 ft-lbs. No ISS codes. No PSA codes. No TPS codes. No VSS code. No Shift Solenoid Electrical codes present.	2 seconds for 1st gear command. 4 seconds for 2nd gear command. 5 seconds for 3rd gear command. 5 seconds for 4th gear command. CONTINUOUS CHECK	DTC TYPE B
Shift Solenoid A Electrical	P0753	0 to 12V This DTC detects a continuous open, short to ground, or short to voltage in SSA circuit (ODM) or solenoid.	SSA ODM feedback circuit state does not equal PCM commanded state	Ignition ON 8 Volts < System voltage < 18V	5 seconds CONTINUOUS CHECK	DTC TYPE A
Shift Solenoid B Performance	P0756	This DTC detects shift patterns of 1-2-2-1 or 4-3-3-4 i.e. 2nd in 3rd, 1st in 4th or 4th in 1st, 3rd in 2nd.	Command Gear = 1 Ratio = 4th Command Gear = 2 Ratio = 3rd Increments Stuck ON counter. Command Gear = 3 Ratio = 2nd Command Gear = 4 Ratio = 1st Increments Stuck OFF counter. Code sets when Stuck ON counter = 2 or Code sets when Stuck OFF counter = 1	Vehicle Speed > 5 mph TPS > 8% Gear Range is D4, D3, D2 or D1 Trans Fluid Temp > 20C Enigine Torque > 15 ft-lbs (Stuck ON case only) [No Engine Torque for Gear = 4 Ratio =1] Engine running. Engine RPM > 6500 rpm. No TTS sensor DTC's set No PSA sensor DTC's set No TPS sensor High or Low DTC's set No VSS Low DTC' set No shift solenoid electrical codes.	2 seconds for 1st gear command. 2 seconds for 2nd gear command. 3 seconds for 3rd gear command. 4 seconds for 4th gear command. CONTINUOUS CHECK	DTC TYPE A

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Shift Solenoid B Electrical	P0758	0 to 12V This DTC detects a continuous open, short to ground, or short to voltage in SSB circuit (ODM) or solenoid.	SSB ODM feedback circuit state does not equal PCM commanded state	Ignition ON 8 Volts < System voltage < 18 V	5 seconds CONTINUOUS CHECK	DTC TYPE A
PSA Circuit Malfunction **(Fail Case 1)**	P1810	0V to 12V This DTC detects an invalid state of the PSA sensor or the PSA circuit by deciphering the PSA inputs.	Illegal Range is true	Engine Running 8 Volts < System voltage < 18 V	60 seconds CONTINUOUS CHECK	DTC TYPE B
PSA Circuit Malfunction **(Fail Case 2)**	P1810	0V to 12V This DTC detects an invalid state of the PSA sensor or the PSA circuit by deciphering the PSA inputs.	PSA indicates D2, D4 & Rev after Start-up	Run once per ignition cycle From 0 RPM to > 600 RPM 7 Volts < System voltage < 18V No Vehicle Speed Codes Vehicle Speed < 2 mph Engine Speed < 200 rpm for 0.1 sec, then engine speed between 200 rpm and 600 rpm for 0.025 sec; after Engine speed > 600 rpm, PSA state is reported.	2 seconds only at Engine Start-up CONTINUOUS CHECK	DTC TYPE B
PSA Circuit Malfunction **(Fail Case 3)**	P1810	0V to 12V This DTC detects an invalid state of the PSA sensor or the PSA circuit by deciphering the PSA inputs.	**A).** PSA indicates P/N when Ratio indicates 4th Gear < 0.72 **B).** PSA indicates Reverse when Ratio indicates Drive **C).** PSA indicates D4, D3, D2, or D1 when Ratio indicates Reverse	Engine running No Throttle Codes No Vehicle Speed Code No Input Speed Codes No PSA Code No Shift Solenoid Codes Vehicle Speed ≥ 5 mph Throttle ≥ 10% Engine Torque ≥ 10 ft-lbs	A) 5 seconds B) 5 seconds C) 5 seconds CONTINUOUS CHECK	DTC TYPE B
TCC PWM Solenoid Circuit 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.	Every 100 msec the circuit is checked and a fail counter is incremented if an open or a short is detected.	8 Volts < System voltage < 18V Ignition ON Engine Speed > 500 rpm for 5 sec & not in fuel cut-off. TCC Duty Cycle < 10% or > 70%.	5 seconds CONTINUOUS CHECK	DTC TYPE A

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TCC Release Switch Circuit Malf	P1887	This DTC detects release switch is open indicating TCC is not applied when PCM and slip speed indicate TCC is locked.	The release switch status is on (open) and counter = 2.	The engine is running. The TCC is commanded ON. Slip is between -20 rpm and 40 rpm PSA = D4 TCC Pressure between 15 and 60 psi. Engine Torque > 33 ft-lbs. No TCC Stuck On code No TCC Stuck Off code No TCC solenoid electrical failure codes No input speed codes are present.	6 seconds CONTINUOUS CHECK	DTC TYPE B