2000 3.0L (L81) J-car *(Saturn L-series cars)* 4T40-E TRANSMISSION DIAGNOSTIC PARAMETERS

2000trans6.doc

Sensed Parameter	Fault Code	Acceptable Operating Range and Rationality	Primary MALF Detection Parameters	Secondary Parameters and Conditions	Monitoring Time Length and DTC Type :A (MIL), B (MIL NIC, C (no-MIL)	Default Actions	Primary MALF Pass Condition	Sec. Pass Condition
Vehicle Speed Sensor - Low Input	P0502	0 RPM to 8000 RPM This DTC detects a low vehicle speed when the vehicle has a large engine speed in a drive gear range.	Output Speed < 100 rpm	Gear Selsctor is not Park/Neutral No PSA codes (P1810, P1815, P1816,P1817, P1818) No Input Speed Sensor codes (P0716, P0717) No Throttle Position Sensor codes No VSS Intermittent Code (P0503) Throttle Position greater than 15% Input Speed > 1000 RPM No Engine Torque Codes Engine Torque > 54 N-m System Voltage between 8 & 18 volts	6 seconds Type B	Freeze Adapts Max Line Output Speed calculated from Input Speed, Engine Speed, & commanded gear FATKO	Output speed is above 100 rpm. 3 seconds	None
Vehicle Speed Sensor - Intermittent	P0503	0 RPM to 8000 RPM This DTC detects a loss of vehicle speed when vehicle is in motion.	Drop in output speed: greater than 1800 rpm in Drive ranges.	Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. No ISS codes (P0716, P0717) Time since last manual range change greater than 6 sec. No PSA codes (P1810, P1815, P1816,P1817, P1818) PSA indicates **not**-P/N Positive output speed change, loop to loop, < 1500 rpm for greater than 5 sec Positive input speed change, loop to loop, < 500 for > 5 sec.	6 seconds Drive PRNDL ranges Type B	Freeze Adapts Max Line Output Speed calculated from Input Speed, Engine Speed, & commanded gear FATKO	Drop in output speed: **less** than 600 rpm in Drive ranges.	None
System Voltage Low	P0562	0V to 24V This DTC detects a low voltage when vehicle is in operation.	Sys. Volt < 7.3 V at -40C to Sys. Volt<10V at 150C	Engine Speed > 1500 RPM	10 seconds	Freeze Adapts Max Line No TCC Command HSD1 Off Command HSD2 Off Immediate landing to 2nd FATKO	Sys. Volt > 7.3 V at -40C to Sys. Volt > 10V 150C	Engine Running

2000 3.0L (L81) J-car *(Saturn L-series cars)* 4T40-E TRANSMISSION DIAGNOSTIC PARAMETERS

2000trans6.doc

Sensed Parameter	Fault Code	Acceptable Operating Range and Rationality	Primary MALF Detection Parameters	Secondary Parameters and Conditions	Monitoring Time Length and DTC Type :A (MIL), B (MIL NIC, C (no-MIL)	Default Actions	Primary MALF Pass Condition	Sec. Pass Condition
System Voltage High	P0563	0V to 24V This DTC detects a high voltage when vehicle is in operation.	Sys. Volt > 18.0V	Engine Speed > 500 rpm for 5 sec & not at fuel cutoff.	10 seconds	Freeze Adapts Max Line No TCC Command HSD1 Off Command HSD2 Off Immediate landing to 2nd FATKO	Sys Voltage < 18 V	Engine Running
Internal Control Module Check Sum Error	P0601	This DTC is to detect and to react to EPROM/Flash memory corruption. (Detection of a wrong program/calibrations checksum)	(SoftwareChecksumBypass = FALSE) OR (CalModuleChecksumBypass = FALSE)	(removed)	Immediate Type A	Freeze Adapts Max Line FATKO	(SoftwareChecksumBypass = TRUE) OR (CalModuleCheck-sumBypass = TRUE)	(removed)
TCM not Programmed	P0602	Detection of a non-programmed ITCM (calibrations).	KbCOND_NoStartCal[FALSE] = TRUE	(removed.)	Immediate Type A	Freeze Adapts Max Line FATKO	KbCOND_NoStartCal [FALSE] = FALSE	(removed)
TCM NVM copy to RAM OK @ start-up	P0603	Detection of a wrong copy of the Non - Volatile Memory to the RAM.	Non-volatile memory checksum failure		Immediate Type A	Freeze Adapts Max Line FATKO	Non-volatile memory checksum pass	
TCM Memory RAM@ startup	P0604	RAM failure detection	RAM read/write failure detected (single word)		Immediate Type A	Freeze Adapts Max Line FATKO	RAM read/write pass (all words)	
Running Reset	P0606	This DTC is to detect running resets of the ITCM CPU	3 running resets out of 10 resets		Immediate Type A	Freeze Adapts Max Line FATKO	7 normal resets out of 10 resets	
Trans Range Switch Circuit	P0705	TCM detects invalid PRNDL range	PRNDL range = illegal	System Voltage between 8 & 18 V. Engine Speed > 500 rpm for 5 sec & not at fuel cutoff.	5 Seconds Type A	Freeze Adapts Assume D4 shift patterm FATKO	PRNDL range = illegal	Engine Running

2000 3.0L (L81) J-car *(Saturn L-series cars)* 4T40-E TRANSMISSION DIAGNOSTIC PARAMETERS

2000trans6.doc

Sensed Parameter	Fault Code	Acceptable Operating Range and Rationality	Primary MALF Detection Parameters	Secondary Parameters and Conditions	Monitoring Time Length and DTC Type :A (MIL), B (MIL NIC, C (no-MIL)	Default Actions	Primary MALF Pass Condition	Sec. Pass Condition
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 Speed > 500 rpm for 5 sec & not at fuel cutoff. No ISS code (P0717) No TPS High or Low codes No VSS Low or Intermittent codes (P0502, P0503) No SS 1-2 codes (P0751, P0752, P1842, P1843) No SS 2-3 electrical codes (P1845, P1847) Throttle Position > 15% Vehicle Speed > 5 mph	0.8 seconds Type B	Freeze Adapts Max Line Inhibit Shift Energy Mngt FATKO	Input Speed > 50 RPM Input Speed Change < 300 RPM 0.3 seconds	No input speed sensor No signal code
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	Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. No VSS Low or Intermittent DTC's set (P0502 & P0503) No PSA Sensor DTC set (P1810, P1815, P1816,P1817, P1818) PSA indicating not in P/N VSS > 5 mph	5 seconds Type B	Freeze Adapts Max Line Inhibit Shift Energy Mngt FATKO	Input Speed > 120 RPM 3 seconds	None
Engine Speed Circuit Malf	P0727	0 RPM to 8000 RPM This DTC detects when the CAN bus signal for the engine speed circuit is not responding.	Engine Speed Incorrect Flag in CAN Bus is active.	System Voltage between 8 & 18 V. Engine Speed > 500 rpm for 5 sec & not at fuel cutoff.	2 seconds Type A	Freeze Adapts Max Line Engine Speed Default Action FATKO	Engine Coolant Incorrect Flag in CAN Bus is Inactive. 2 seconds	Same as fail

2000 3.0L (L81) J-car *(Saturn L-series cars)* 4T40-E TRANSMISSION DIAGNOSTIC PARAMETERS

2000trans6.doc

Sensed Parameter	Fault Code	Acceptable Operating Range and Rationality	Primary MALF Detection Parameters	Secondary Parameters and Conditions	Monitoring Time Length and DTC Type :A (MIL), B (MIL NIC, C (no-MIL)	Default Actions	Primary MALF Pass Condition	Sec. Pass Condition
TCC System Stuck OFF	P0741	This DTC detects high TCC Slip Speed when TCC is commanded on.	Slip Speed > 120 rpm increments Stuck OFF counter. Code sets when counter = 2	System Voltage between 8 & 18 V. Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. Throttle > 8% . 21 < Trans Temp < 130 C TCC commanded locked on for > 3 seconds Commanded Gear > 1 PSA = D4 or D3 or D2 Time since last range change > 6 seconds Clutch Capacity > 39 % for 5 seconds. Trans Ratio = 2nd, 3rd, or 4th gear. Engine Torque > 10 ft-lbs (15 N-m) No TPS codes No PSA codes (P1810, P1815, P1816,P1817, P1818) No VSS codes (P0502, P0503) No ISS codes (P0716, P0717) No TCC Stuck ON Code (P0742) No TCC Electrical Code (P1860) No TCC Release Switch Code (P1887) No Engine Torque Default	8 seconds Type B	Inhibit TCC Freeze Adapts FATKO	SLIP less than 50 rpm 3 seconds	Same as Fail except "Clutch Capacity condition"
TCC System Stuck ON	P0742	This DTC detects the lack of 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	System Voltage between 8 & 18 V. Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. TCC is commanded off No TCC Release Switch Code (P1887) No TPS codes No TCC Electrical Code (P1860) No VSS Codes (Po502, P0503) VSS > 10 mph (16 kph) Throttle > 8%. Trans Ratio = 3rd or 4th gear. Time since last manual range change > 6 seconds. Trans Temp > 21 C. Engine Torque > 40 ft-lbs (55 N-m) No Engine Torque Default	8 seconds Type A	Freeze Adapts TCC Cmd On 1-2-3-4 (not hydraulically possible in 1st) FATKO	The TCC release switch indicates that TCC release oil is present (switch is open). 3 seconds.	Same as Fail

2000 3.0L (L81) J-car *(Saturn L-series cars)* 4T40-E TRANSMISSION DIAGNOSTIC PARAMETERS

2000trans6.doc

Sensed Parameter	Fault Code	Acceptable Operating Range and Rationality	Primary MALF Detection Parameters	Secondary Parameters and Conditions	Monitoring Time Length and DTC Type :A (MIL), B (MIL NIC, C (no-MIL)	Default Actions	Primary MALF Pass Condition	Sec. Pass Condition
Shift Solenoid 1-2 Control Circuit Performance Stuck OFF (2-2-3-3)	P0751	This DTC detects shift patterns of 2-2-3-3 i.e., 2nd gear ratio in 1st and 3rd gear ratio in 4th.	Command Gear = 2 Ratio = 1st Command Gear = 3 Ratio = 4th Increments Stuck OFF counter. Code sets when counter = 2	System Voltage between 8 & 18 V. Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. Gear Range is D4, D3, D2 or D1 TPS > 8%. VSS > 5 mph. Trans Temp between 21 C & 130 C. No ISS codes (P0716, P0717) No PSA codes (P1810, P1815, P1816, P1817, P1818) No TPS codes. No VSS codes (P0502, P0503) No Shift Solenoid Electrical codes (P1842, P1843, P1845, P1847) Engine Torque > 25 ft-lbs (35 N-m) No Engine Torque Default	2 Seconds for 1st gear command. 5 Seconds for 4th gear command. Type B	Freeze Adapts Inhibit TCC Max Line FATKO	Gear ratio = Commanded gear. 0.75 seconds for all gears.	Same as fail
Shift Solenoid 1-2 Control Circuit Performance Stuck ON (1-1-4-4)	P0752	This DTC detects shift patterns of 1-1-4-4 i.e., 1st gear ratio in 2nd & 4th gear ratio in 3rd.	Command Gear = 1 Ratio = 2nd Command Gear = 4 Ratio = 3rd Increments Stuck ON counter. Code sets when counter = 2	System Voltage between 8 & 18 V. Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. Gear Range is D4, D3, D2 or D1 TPS > 8%. VSS > 5 mph. Trans Temp between 21 C & 130 C. The engine is running. No ISS codes (P0716, P0717) No PSA codes (P1810, P1815, P1816, P1817, P1818) No TPS codes. No VSS codes (P0502, P0503) No Shift Solenoid Electrical codes (P1842, P1843, P1845, P1847) Engine Torque > 25 ft-lbs (35 N-m). No Engine Torque Default	4 Seconds for 2nd gear command. 5 Seconds for 3rd gear command. Type B	Freeze Adapts Inhibit TCC Max Line FATKO	Gear ratio = Commanded gear. 0.75 seconds for all gears.	Same as fail

2000 3.0L (L81) J-car *(Saturn L-series cars)* 4T40-E TRANSMISSION DIAGNOSTIC PARAMETERS

2000trans6.doc

Sensed Parameter	Fault Code	Acceptable Operating Range and Rationality	Primary MALF Detection Parameters	Secondary Parameters and Conditions	Monitoring Time Length and DTC Type :A (MIL), B (MIL NIC, C (no-MIL)	Default Actions	Primary MALF Pass Condition	Sec. Pass Condition
Shift Solenoid 2-3 Control Circuit Performance Stuck ON (4-3-3-4)	P0756	This DTC detects shift patterns of 4-3-3-4	Command Gear = 1 Ratio = 4th Command Gear = 2 Ratio = 3rd Increments Stuck ON counter. Code sets when either counter = 2	System Voltage between 8 & 18 V. Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. Vehicle Speed > 5 mph. TPS > 8% Gear Range is D4, D3, D2 or D1 Trans Temp between 21 C & 130 C. No PSA codes (P1810, P1815, P1816, P1817, P1818) No Throttle Position Sensor codes No VSS codes (P0502, P0503) No ISS codes (P0716, P0717) No SSA or SSB electrical codes (P1842, P1843, P1845, P1847) Engine Torque > 25 ft-lbs (35 N-m) No Engine Torque Default	2 Seconds for 1st gear command. 2 Seconds for 2nd gear command. Type A	Freeze Adapts Inhibit TCC Max Line Immediate 2nd Gear Command HSD1 Off Command HSD2 Off FATKO	Gear ratio = Commanded gear 0.75 seconds for all gears.	Same as fail.
Shift Solenoid 2-3 Control Circuit Performance Stuck OFF (1-2-2-1)	P0757	This DTC detects shift patterns of 1-2-2-1 i.e., 2nd gear ratio in 3rd, & 1st gear ratio in 4th.	Command Gear = 3 Ratio = 2nd Command Gear = 4 Ratio = 1st Increments Stuck OFF counter. Code sets when either counter = 1	System Voltage between 8 & 18 V. Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. Vehicle Speed > 5 mph. TPS > 8% Gear Range is D4, D3, D2 or D1 Trans Temp between 21 C & 130 C. No PSA codes (P1810, P1815, P1816, P1817, P1818) No Throttle Position Sensor codes No VSS codes (P0502, P0503) No ISS codes (P0716, P0717) No SS 1-2 or SS 2-3 electrical codes (P1842, P1843, P1845, P1847) Engine Torque > 3 ft-lbs (5 N-m) No Engine Torque Default	3 Seconds for 3rd gear command. 4 Seconds for 4th gear command. Type A	Freeze Adapts Inhibit TCC Max Line Immediate 2nd Gear Command HSD1 Off Command HSD2 Off FATKO	Gear ratio = Commanded gear 0.75 seconds for all gears.	Same as fail.

2000 3.0L (L81) J-car *(Saturn L-series cars)* 4T40-E TRANSMISSION DIAGNOSTIC PARAMETERS

Sensed Parameter	Fault Code	Acceptable Operating Range and Rationality	Primary MALF Detection Parameters	Secondary Parameters and Conditions	Monitoring Time Length and DTC Type :A (MIL), B (MIL NIC, C (no-MIL)	Default Actions	Primary MALF Pass Condition	Sec. Pass Condition
CAN Bus Short Term Fault	***U2103***	The CAN Bus is a communications protocol that is used by the TCM to communicate vital engine control inputs from a stand alone engine controller. The diagnostic checks the bits received in CAN to determine whether to pass or fail the code. Before checking the bits, it makes sure that the CAN messages are being received by checking the BUS failure timer	CAN Bus Node No-Communication Bit Flag is set.	System Voltage between 8 & 18 V. Ignition ON	2 seconds Type A	Freeze Adapts Max Line FATKO	CAN Bus Node No-Communications Bit Flag in clear for 2 sec.	Same as fail
CAN Bus Reset Counter	P1611 ***U2104***	The CAN Bus is a communications protocal that is used by the TCM to communicate vital engine control inputs from a stand alone engine controller. The diagnostic checks the bits received in CAN to determine whether to pass or fail the code. Before checking the bits, it makes sure that the CAN messages are being received by checking the BUS failure timer	CAN Bus Reset Counter Flag is Active.	System Voltage between 8 & 18 V. Ignition ON	2 seconds Type A	Freeze Adapts Max Line FATKO	CAN Bus Reset Counter Flag is inactive for 2 sec.	Same as fail
CAN Bus Error ECU	P1612 ***U2105***	This DTC checks for proper communication between the TCM and the engine control unit (ECU)	CAN Bus ECU Error Flag is Active.	System Voltage between 8 & 18 V. Ignition ON	2 seconds Type A	Freeze Adapts Max Line FATKO	CAN Bus ECU Error Flag is Inactive for 2 sec.	Same as fail

2000 3.0L (L81) J-car *(Saturn L-series cars)* 4T40-E TRANSMISSION DIAGNOSTIC PARAMETERS

2000trans6.doc

Sensed Parameter	Fault Code	Acceptable Operating Range and Rationality	Primary MALF Detection Parameters	Secondary Parameters and Conditions	Monitoring Time Length and DTC Type :A (MIL), B (MIL NIC, C (no-MIL)	Default Actions	Primary MALF Pass Condition	Sec. Pass Condition
Torque Reduction Signal Circuit Malf	P1780	The CAN Bus is a communications protocal that is used by the TCM to communicate vital engine control inputs from a stand alone engine controller. The diagnostic checks the bits received in CAN to determine whether to pass or fail the code. Before checking the bits, it makes sure that the CAN messages are being received by checking the BUS failure timer	Torque Reduction Signal Incorrect Flag in CAN Bus is active.	System Voltage between 8 & 18 V. Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. CAN BUS ECU Failure timer is not zero seconds. **NOTE**: When Failure timer is zero, code has failed.	2 seconds Type A	Freeze Adapts Max Line FATKO	Torque Reduction Signal Incorrect Flag in CAN Bus is inactive for 2 sec.	Same as fail
Engine Torque Signal Circuit Malf	P1781	The CAN Bus is a communications protocal that is used by the TCM to communicate vital engine control inputs from a stand alone engine controller. The diagnostic checks the bits received in CAN to determine whether to pass or fail the code. Before checking the bits, it makes sure that the CAN messages are being received by checking the BUS failure timer	Engine Torque Incorrect Flag in CAN Bus is active.	System Voltage between 8 & 18 V. Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. CAN BUS ECU Failure timer is not zero seconds. **NOTE**: When Failure timer is zero, code has failed.	2 Seconds Type A	Freeze Adapts Max Line FATKO	Engine Torque Incorrect Flag in CAN Bus is inactive for 2 seconds.	Same as fail
CAN Throttle Error	P1791	The CAN Bus is a communications protocal that is used by the TCM to communicate vital engine control inputs from a stand alone engine controller. The diagnostic checks the bits received in CAN to determine whether to pass or fail the code. Before checking the bits, it makes sure that the CAN messages are being received by checking the BUS failure timer	Throttle Position Invalid Flag Active.	System Voltage between 8 & 18 V. Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. CAN BUS ECU Failure timer is not zero seconds. **NOTE**: When Failure timer is zero, code has failed.	2 seconds Type A	Freeze Adapts Max Line FATKO	Throttle Position Invalid Flag inactive for 2 sec.	Same as fail

2000 3.0L (L81) J-car *(Saturn L-series cars)* 4T40-E TRANSMISSION DIAGNOSTIC PARAMETERS

Sensed Parameter	Fault Code	Acceptable Operating Range and Rationality	Primary MALF Detection Parameters	Secondary Parameters and Conditions	Monitoring Time Length and DTC Type :A (MIL), B (MIL NIC, C (no-MIL)	Default Actions	Primary MALF Pass Condition	Sec. Pass Condition
CAN Temperature Error	P1792	The CAN Bus is a communications protocal that is used by the TCM to communicate vital engine control inputs from a stand alone engine controller. The diagnostic checks the bits received in CAN to determine whether to pass or fail the code. Before checking the bits, it makes sure that the CAN messages are being received by checking the BUS failure timer	Engine Coolant Incorrect Flag in CAN Bus is active.	System Voltage between 8 & 18 V. Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. CAN BUS ECU Failure timer is not zero seconds. **NOTE**: When Failure timer is zero, code has failed.	2 seconds Type A	Freeze Adapts Max Line FATKO	Engine Coolant Incorrect Flag in CAN Bus is inactive for 2 sec.	Same as fail
CAN Throttle Body Position	P1795	The CAN Bus is a communications protocal that is used by the TCM to communicate vital engine control inputs from a stand alone engine controller. The diagnostic checks the bits received in CAN to determine whether to pass or fail the code. Before checking the bits, it makes sure that the CAN messages are being received by checking the BUS failure timer	Throttle Blade Position Invalid Flag Active.	System Voltage between 8 & 18 V. **NOTE**: When Failure timer is zero, code has failed.	2 seconds Type A	Freeze Adapts Max Line FATKO	Throttle Blade Position Invalid Flag inactive.	Same as fail
PSA Circuit Malfunction - Illegal Range	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 Speed > 500 rpm for 5 sec & not at fuel cutoff.	60 seconds Type B	Freeze adapts Assume D4 shift patterm D2 Braking Pressure Inhibit TCC FATKO	PRNDL not equal to illegal 5 seconds	Same as fail
PSA Circuit Malfunction - Start in Wrong Range	P1815	0V to 12V This DTC detects an invalid state of the PSA sensor or the PSA circuit by deciphering the PSA inputs.	PSA does not indicate Park\Neutral after Start-up.	**Run once per ignition cycle** From 0 RPM to > 500 RPM 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 0.3 sec; after Engine Speed > 600 rpm PSA state is reported.	2 seconds only at Engine Start-up Type B	Freeze adapts Assume D4 shift pattern D2 Braking Pressure Inhibit TCC FATKO	PSA = P\N 3 seconds	No System Voltage Codes No Vehicle Speed Codes Vehicle Speed < 2 **mph**

Sensed Parameter	Fault Code	Acceptable Operating Range and Rationality	Primary MALF Detection Parameters	Secondary Parameters and Conditions	Monitoring Time Length and DTC Type :A (MIL), B (MIL NIC, C (no-MIL)	Default Actions	Primary MALF Pass Condition	Sec. Pass Condition
PSA Circuit Malfunction - Park\Neutral with Drive Ratio	P1816	0V to 12V This DTC detects an invalid state of the PSA sensor or the PSA circuit by deciphering the PSA inputs.	PSA indicates P/N when Ratio indicates 4th Gear < 0.72	Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. No Throttle Codes No Vehicle Speed Codes (P0502,P0503) No Input Speed Codes (P0716,P0717) No Shift Solenoid Codes (P0751, P0752, P0756, P0757, P1842, P1843, P1845, P1847) Vehicle Speed ≥ 5mph TPS ≥ 10 % Engine Torque > 10 ft-lbs (13 N-m)	5 seconds Type B	Freeze Adapts Assume D4 Shift Pattern D2 Braking Pressure Tables Inhibit TCC FATKO	PSA = PARK or NEUTRAL & RATIO > **0.72** for 5 seconds	Same as fail conditions.
PSA Circuit Malfunction - Reverse with Drive Ratio	P1817	0V to 12V This DTC detects an invalid state of the PSA sensor or the PSA circuit by deciphering the PSA inputs.	PSA indicates Reverse when Ratio indicates Drive	Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. No Throttle Codes No Vehicle Speed Codes (P0502,P0503) No Input Speed Codes (P0716,P0717) No Shift Solenoid Codes (P0751, P0752, P0756, P0757, P1842, P1843, P1845, P1847) Vehicle Speed ≥ 5mph TPS ≥ 10 % Engine Torque > 10 ft-lbs (13 N-m)	5 seconds Type B	Freeze Adapts Assume D4 Shift Pattern D2 Braking Pressure Tables Inhibit TCC FATKO	PSA = REVERSE & 2.02 ≤ RATIO ≤ 2.23 for 5 seconds	Same as fail conditions.

2000 3.0L (L81) J-car *(Saturn L-series cars)* 4T40-E TRANSMISSION DIAGNOSTIC PARAMETERS

2000trans6.doc

Sensed Parameter	Fault Code	Acceptable Operating Range and Rationality	Primary MALF Detection Parameters	Secondary Parameters and Conditions	Monitoring Time Length and DTC Type :A (MIL), B (MIL NIC, C (no-MIL)	Default Actions	Primary MALF Pass Condition	Sec. Pass Condition
PSA Circuit Malfunction - Drive with Reverse Ratio	P1818	0V to 12V This DTC detects an invalid state of the PSA sensor or the PSA circuit by deciphering the PSA inputs.	PSA indicates D4, D3, D2, or D1 when Ratio indicates Reverse	Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. No Throttle Codes No Vehicle Speed Codes (P0502,P0503) No Input Speed Codes (P0716,P0717) No Shift Solenoid Codes (P0751, P0752, P0756, P0757, P1842, P1843, P1845, P1847) Vehicle Speed ≥ 5mph TPS ≥ 10 % Engine Torque > 10 ft-lbs (13 N-m)	5 seconds Type B	Freeze Adapts Assume D4 Shift Pattern D2 Braking Pressure Tables Inhibit TCC FATKO	PSA = **D4** OR **D3** OR **D2** OR **LO** & ratio is NOT between **2.02 & 2.23** for 5 seconds	Same as fail conditions.
High Side Driver 1 Circuit Low Voltage	P1831	0 to 12V This DTC detects a continuous open, short to ground in High Side Driver 1 circuit.	The High Side Driver 1 feedback circuit state does not equal PCM commanded state	Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. System Voltage between 8 & 18 V High Side Driver 1 is commanded ON	Fail counts equal 43 out of a total of 50 samples. (Total time approx 4 seconds) Type A	Freeze Adapts Max Line Inhibit TCC Immediate Landing to 2nd Gear Command HSD1 OFF FATKO	Pass counts equal 43 out of a total of 50 samples.	Same as Fail
High Side Driver 2 Circuit Low Voltage	P1833	0 to 12V This DTC detects a continuous open, short to ground in High Side Driver 2 circuit.	The High Side Driver 2 feedback circuit state does not equal PCM commanded state	Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. System Voltage between 8 & 18 V High Side Driver 2 is commanded ON	Fail counts equal 43 out of a total of 50 samples. (Total time approx 4 seconds) Type A	Freeze Adapts Max Line Inhibit TCC Immediate Landing to 2nd Gear Command HSD2 OFF FATKO	Pass counts equal 43 out of a total of 50 samples.	Same as Fail
Shift Solenoid 1-2 Control Circuit Low Voltage (Shift Solenoid A)	P1842	0 to 12V This DTC detects a continuous open, short to ground in SSA circuit (ODM) or SSA solenoid.	The Short to Ground Bit is SET OR SS 1-2 is Commanded ON & the Open Bit is SET.	Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. System Voltage between 8 & 18 V No High Side Driver 2 Codes (1833, P1834)	Fail counts equal 43 out of a total of 50 samples. (Total time approx 4 seconds) Type A	Freeze Adapts Max Line Inhibit TCC FATKO	Pass counts equal 43 out of a total of 50 samples.	Same as Fail

2000 3.0L (L81) J-car *(Saturn L-series cars)* 4T40-E TRANSMISSION DIAGNOSTIC PARAMETERS

2000trans6.doc

Sensed Parameter	Fault Code	Acceptable Operating Range and Rationality	Primary MALF Detection Parameters	Secondary Parameters and Conditions	Monitoring Time Length and DTC Type :A (MIL), B (MIL NIC, C (no-MIL)	Default Actions	Primary MALF Pass Condition	Sec. Pass Condition
Shift Solenoid 1-2 Control Circuit High Voltage (Shift Solenoid A)	P1843	0 to 12V This DTC detects a short to voltage in SSA circuit (ODM) or SSA solenoid.	SS 1-2 feedback circuit state does not equal PCM commanded state	Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. System Voltage between 8 & 18 V Shift Solenoid 1-2 commanded ON	Fail counts equal 43 out of a total of 50 samples. (Total time approx 4 seconds) Type A	Freeze Adapts Max Line Inhibit TCC FATKO	Pass counts equal 43 out of a total of 50 samples.	Same as Fail
Shift Solenoid 2-3 Control Circuit Low Voltage (Shift Solenoid B)	P1845	0 to 12V This DTC detects a continuous open, short to ground in SSB circuit (ODM) or solenoid.	The Short to Ground Bit is SET OR SS 1-2 is Commanded ON & the Open Bit is SET.	Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. System Voltage between 8 & 18 V No High Side Driver Low Codes (P1831, P1833)	Fail counts equal 43 out of a total of 50 samples. (Total time approx 4 seconds) Type A	Freeze Adapts Max Line Inhibit TCC Immediate Landing to 2nd Gear Command HSD1 Off Command HSD2 Off FATKO	ODM = PCM commanded state Pass counts equal 43 out of a total of 50 samples.	None
Shift Solenoid 2-3 Control Circuit High Voltage (Shift Solenoid B)	P1847	0 to 12V This DTC detects a short to voltage in SSB circuit (ODM) or solenoid.	SS 2-3 feedback circuit state does not equal PCM commanded state	Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. System Voltage between 8 & 18 V Shift Solenoid 2-3 commanded ON	Fail counts equal 43 out of a total of 50 samples. (Total time approx 4 seconds) Type A	Freeze Adapts Max Line Inhibit TCC Immediate Landing to 2nd Gear Command HSD1 Off Command HSD2 Off FATKO	ODM = PCM commanded state Pass counts equal 43 out of a total of 50 samples.	None
TCC PWM Solenoid Electrical	P1860	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 shorted is detected.	System Voltage between 8 & 18 V. Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. TCC Duty Cycle < 10% or > 90%. No High Side Driver Low Codes (P1831, P1833)	Fail Counter > 43 counts out of 50 total counts. Continuous Type A	Freeze Adapts Inhibit TCC	Pass Case 1 Pass Counter > 43 counts out of 50 total counts. The solenoid must pass in both solenoid states. **OR** Pass Case 2 Both codes P0741 and P0742 Pass.	Pass Case 1 Same as fail Pass Case 2. None

2000 3.0L (L81) J-car *(Saturn L-series cars)* 4T40-E TRANSMISSION DIAGNOSTIC PARAMETERS

Sensed Parameter	Fault Code	Acceptable Operating Range and Rationality	Primary MALF Detection Parameters	Secondary Parameters and Conditions	Monitoring Time Length and DTC Type :A (MIL), B (MIL NIC, C (no-MIL)	Default Actions	Primary MALF Pass Condition	Sec. Pass Condition
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 open for 6 seconds increments counter. P1887 sets when counter = 2.	System Voltage between 8 & 18 V. Engine Speed > 500 rpm for 5 sec & not at fuel cutoff. The TCC is commanded ON. Slip is between -20 rpm and 40 rpm. PSA indicates D4. Engine Torque > 33 ft-lbs (45 N-m). TCC Pressure between 15 & 60 psi. No input speed codes (P0716, P0717). No TCC Stuck On code (P0742) No TCC Stuck Off code (P0741)	6 seconds Type B	Freeze Adapts Inhibit TCC FATKO	The release switch status is closed. 3 seconds.	Same as fail.