

TRANSMISSION DIAGNOSTIC PARAMETERS

2005trans2_CVT.doc

FAULT CODE	SENSED PARAMETER	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALF DETECTION PARAMETER	SECONDARY PARAMETERS AND CONDITIONS	MONITORING TIME LENGTH AND DTC TYPE	DEFAULT ACTIONS	PRIMARY MALF PASS CONDITION	SECONDARY PASS CONDITIONS
P0218	Transmission Fluid Overtemperature	This DTC detects a high transmission fluid temperature over a extended period of time.	Trans temp ≥ 140 C	No Trans Fluid Temp Sensor DTC's P0711, P0712, P0713	180 seconds Type C	No Default Actions Fault Active	Trans temp ≤ 135C 5 Seconds	Same as Fail
P0562	System Voltage Low		System voltage ≤ 11 volts	Engine speed ≥ 1500 rpm.	42 fail counts out of 50 sample counts Type C	NOTE: Default Actions occur at 8 volts and are not dependent on the DTC. -Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Reverse / Drive Lockout Inhibit -Multiplex PCA Off Default -Multiplex Enbl HSD Off Default -Adapt Line Pressure Inhibit -Line PSI Solenoid Off Default -Open Loop Ratio Control -Stepper Motor Default -Abuse Torque Mngmnt Inhibit -Torque Management Inhibit -Cold Fast Decel Lockout Inhibit -Neutral Idle Inhibit -Diff Score Torque Mngmnt Inhib -TCC Adapt Inhibit -TCC Force Off FATKO	System voltage >11 volts 50 pass counts out of 50 sample counts.	None

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VT25E (CVT) when used with 2.2L L61 engine in Saturn VUE

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P0563	System Voltage High		System voltage \geq 18 volts	Engine running	43 fail counts out of 50 sample counts Type C	NOTE: Default Actions occur at 18 volts and are not dependent on the DTC. -Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Reverse / Drive Lockout Inhibit -Multiplex PCA Off Default -Multiplex Enbl HSD Off Default -Adapt Line Pressure Inhibit -Line PSI Solenoid Off Default -Open Loop Ratio Control -Stepper Motor Default -Abuse Torque Mngmnt Inhibit -Torque Management Inhibit -Cold Fast Decel Lockout Inhibit -Neutral Idle Inhibit -Diff Score Torque Mngmnt Inhib -TCC Adapt Inhibit -TCC Force Off FATKO	System voltage <18 volts 50 pass counts out of 50 sample counts.	None

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P0601	TCM Memory ROM	This DTC is designed to verify ROM Checksum at key up.	Calculated two's complement ROM. Checksum IS NOT the same as the Stored Checksum in KKSUM ID cal.	None	Runs @ start-up Type A	-Adapt Garage Shift Inhibit -Reverse / Drive Lockout Inhibit -Multiplex Enbl HSD Off Default -Adapt Line Pressure Inhibit -Line Fault Action Max -Open Loop Ratio Control -Stepper Motor Default -TCC Adapt Inhibit -TCC Force Off -Abuse Torque Mngmnt Inhibit -Torque Management Inhibit -Diff Score Torque Mngmnt Inhib -Cold Fast Decel Lockout Inhibit -Neutral Idle Inhibit -Ratio at Rest Inhibit FATKO	Calculated Checksum IS the same as the Stored Checksum.	Runs @ start up
P0602	TCM Not Programmed	This DTC is designed to verify that the TCM has been programmed.	TCM is not programmed KfP0602_CNT_NoStartCal IS NOT equal to 137	No DTC P0601	Runs @ start-up Type A	-Line Fault Action Offset -Ratio Soft Landing -TCC Adapt Inhibit -TCC Force Off -Adapt Line Pressure Inhibit -Ratio at Rest Inhibit FATKO	TCM is programmed KfP0602_CNT_NoStartCal IS equal to 137	Runs @ start up

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P0603	TCM Long Term Memory Reset	This DTC is designed to verify the usability of ALL four blocks of EEPROM.	All four blocks of EEPROM are not usable (Checksum of Static did not match OR Checksum of Block Data did not match OR Checksum of cumulative data did not match.)	No DTC P0604	Runs @ start-up Type A	-Adapt Line Pressure Inhibit -Line Fault Action Offset -TCC Adapt Inhibit -Ratio at Rest Inhibit FATKO	EEPROM is usable	No DTC P0604
P0604	TCM Memory RAM	This DTC is designed to verify RAM.	Read Data is not equal to Written Data (A single byte of RAM is written to with 55H and then it is read back. Another byte is written to with AAH and then read back. If either one of these actions returns with bad data the DTC is set.)	None	Runs @ start-up Type A	-Adapt Garage Shift Inhibit -Reverse / Drive Lockout Inhibit -Multiplex Enbl HSD Off Default -Adapt Line Pressure Inhibit -Line Fault Action Max -Open Loop Ratio Control -Stepper Motor Default -TCC Adapt Inhibit -TCC Force Off -Abuse Torque Mngmnt Inhibit -Torque Management Inhibit -Diff Score Torque Mngmnt Inhib -Ratio at Rest Inhibit -Cold Fast Decel Lockout Inhibit -Neutral Idle Inhibit FATKO	Read Data is equal to Written Data	None

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P0606	TCM Internal Performance	This DTC is designed to detect continuous Running Resets with the internal performance of the TCM.	Running Reset has occurred 7 times out of 10 loops	No DTC's P0601 nor P0604	None Type A	-Adapt Garage Shift Inhibit -Reverse / Drive Lockout Inhibit -Multiplex Enbl HSD Off Default -Adapt Line Pressure Inhibit -Line Fault Action Max -Open Loop Ratio Control -Stepper Motor Default -TCC Adapt Inhibit -TCC Force Off -Abuse Torque Mngmnt Inhibit -Torque Management Inhibit -Diff Score Torque Mngmnt Inhib -Ratio at Rest Inhibit -Cold Fast Decel Lockout Inhibit -Neutral Idle Inhibit FATKO	Running Reset has not occurred within 10 loops during this ignition cycle.	No DTC P0601 nor P0604
P0705	Transmission Range Switch – Illegal Range	This DTC checks for an illegal combination with the NSBU switch.	Illegal Range for 5 seconds	System voltage between 8 & 18 volts	5 seconds Type B	Mode Switch Default MSG Default -Multiplex PCA Off Default -Abuse Toque Mngmnt Inhibit -Neutral Idle Inhibit -Ratio at Rest Inhibit FATKO	Legal Range is true for 5 seconds	System voltage between 8 & 18 volts

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P0711	Trans Fluid Temp Sensor Circuit - Range / Perf	0.24 to 5.0 volt range. This DTC detects an unrealistically large change in transmission temperature, or a value that remains constant for a period of time in which a measurable amount of change is expected.	<u>Fail Case 1</u> Change in transmission temperature < 2 C for 80 seconds since start-up. <u>Fail Case 2</u> Change in transmission temperature < 2 C since start-up. <u>Fail Case 3</u> Fail counter = 10 within 2 seconds.	<u>Fail Case 1</u> System voltage between 8 & 18 volts Engine running > 500 rpm Coolant temperature is valid DTC P0711 has not already passed Start-up trans temp between – 40 C and –20 C. Coolant temp change > 20 C. Coolant temperature ≥ 0 C. No DTC's P0716, P0717, P0722, P0723 <u>Fail Case 2</u> System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Coolant temperature is valid DTC P0711 has not already passed Start-up trans temp between – 20 C and 140 C. Coolant temp change > 50 C. Coolant temperature ≥ 70 C. TCC slip ≥ 120 rpm for 180 seconds. Output pulley speed ≥ 400 rpm for 300 seconds. <u>Fail Case 3</u> System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Trans temp change ≥ 15 degrees C	<u>Fail Case 1 & 2</u> 180 seconds <u>Fail Case 3</u> Fail counter ≥ 10 in 2 seconds. Type C	Trans Temp Default Action -Adapt Garage Shift Inhibit Fault Active	Transmission temperature has changed ≥ 4 C since start-up.	Same as Fail

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P0712	Trans Fluid Temp Sensor Circuit - Low Input	0.24 to 5.0 volt range. This DTC detects a continuous short to ground in the TTS signal circuit or the TTS sensor	Trans temp \geq 151 C	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec	2 seconds Type C	Trans Temp Default Action -Adapt Garage Shift Inhibit Fault Active	Trans temp < 151 C 2 seconds	None
P0713	Trans Fluid Temp. Sensor Circuit - High Input	0.24 to 5.0 volt range. This DTC detects a continuous open or short to high in the TTS signal circuit or the TTS sensor	Trans temp \leq -40 C	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec No Input Speed Sensor DTC's P0716, P0717 No Output Speed Sensor DTC's P0722, P0723	80 seconds Type C	Trans Temp Default Action -Adapt Garage Shift Inhibit Fault Active	Trans temp > -40 C 2 seconds	None

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P0716	Input Speed Sensor Circuit-Range / Perf	0 to 6000 rpm range. This DTC detects an unrealistically large change in transmission input speed in a very short period of time	Input speed drop \geq 1000 rpm, consistent for 0.8 second	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Range = Drive Throttle \geq 15 % Output pulley speed \geq 1350 rpm Input speed has been > 1000 rpm for 5 seconds Delta positive turbine speed \leq 200 rpm for 3 seconds. No Input Speed Sensor DTC P0717 No Output Speed Sensor DTC's P0722, P0723 No Range DTC's P0705, P1756, P1758	0.8 seconds Type A	Input Speed Default -Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Adapt Line Pressure Inhibit -Line Fault Action Max -Neutral Idle Inhibit With an engine speed fault these default actions also are present: -Open Loop Ratio Control -Ratio Soft Landing -Ratio at Rest Inhibit FATKO	Input speed drop \leq 500 rpm and input speed \geq 700 rpm for 5 seconds	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec No DTC P0717
P0717	Input Speed Sensor Circuit - No Activity	0 to 6000 rpm range This DTC detects a low transmission input speed when the vehicle has vehicle speed.	Input Speed Sensor \leq 100 rpm	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Range \neq Park or Neutral Engine torque between 30 and 300 Nm Engine torque is valid Output pulley speed \geq 400 rpm No Output Speed Sensor DTC's P0722, P0723 No Range DTC's P0705, P1756, P1758 No Engine Torque DTC P1779	5 seconds Type A	Input Speed Default -Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Adapt Line Pressure Inhibit -Line Fault Action Max -Neutral Idle Inhibit With an engine speed fault these default actions are also present: -Open Loop Ratio Control -Ratio Soft Landing -Ratio at Rest Inhibit FATKO	Input Speed \geq 100 rpm for 3 seconds	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec

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P0719	Brake Switch Circuit Low - (Stuck OFF)	0 to 12 volt range This DTC detects a open brake switch during decelerations.	Decel counts = 8	The code has not passed this ignition cycle. System voltage between 8 & 18 volts Increment Decel counter 1 time when brake switch is OFF and output speed > 1400 rpm for 6 seconds, then output speed is between 400 rpm and 1400 rpm for 3 seconds, then output speed < 400 rpm. No Output Speed Sensor DTC's P0722, P0723	8 test failures within 8 test samples. Reset counter if state changes during counting. Type C	Brake Switch Default Fault Active	Brake switch has seen a change in state	System voltage between 8 & 18 volts

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P0722	Output Speed Sensor - Low Input	0 to 8000 rpm range This DTC detects a low output speed when the vehicle has a large engine speed in a Drive range.	Output pulley speed ≤ 200 rpm	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Throttle > 15 % Throttle is valid Range ≠ Park or Neutral Input speed > 750 rpm Engine torque between 30 and 300 Nm Engine torque is valid Input Clutch Capacity = Maximum No Range DTC's P0705, P1756, P1758 No Engine Torque DTC P1779 No Input Speed Sensor DTC's P0716, P0717 No Engine Speed Sensor DTC P0727 No Output Speed Sensor Intermittent DTC P0723	5 seconds Type A	Output Speed Default -Adapt Line Pressure Inhibit -Line Fault Action Max -Line Fault Action Offset With a left front wheel speed sensor fault these additional default actions are present: -Open Loop Ration Control -Ratio Soft Landing -Ratio at Rest Inhibit FATKO	Output speed ≥ 200 rpm for 3 seconds	DTC P0723 has not failed this key on

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P0723	Output Speed Sensor - Circuit Performance (Intermittent)	0 to 8000 rpm range This DTC detects a loss of output speed when vehicle is in motion.	Output pulley speed drops \geq 1000 rpm and then remains for 0.8 sec.	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Time since range change > 6 seconds Range \neq Park or Neutral Input speed > 200 rpm Output pulley speed has been \geq 800 rpm for 5 seconds. Positive delta output speed loop to loop \leq 200 rpm for 2 seconds (Stable output speed) Change in input speed loop to loop \leq 500 for 3 sec. (Stable input speed) No Range DTC's P0705, P1756, P1758 No Input Speed Sensor DTC's P0716 P0717	0.8 second Type A	Output Speed Default -Adapt Line Pressure Inhibit -Line Fault Action Max -Line Fault Action Offset With a left front wheel speed sensor fault these additional default actions are present: -Open Loop Ratio Control -Ratio Soft Landing -Ratio at Rest Inhibit FATKO	Output speed drop \leq 300 rpm & output speed \geq 350 rpm for 2 seconds	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Time since range change > 6 sec Range \neq Park or Neutral Input speed > 200 rpm Change in input speed loop to loop \leq 100 rpm for 3 sec. (stabilized)

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P0724	Brake Switch Circuit High (Stuck ON)	0 to 12 volt range This DTC detects a closed brake switch during accelerations.	Accel counts = 8	The code has not passed this ignition cycle. Increment Accel counter 1 time when brake switch is ON and output speed < 400 rpm, then output speed is between 400 rpm and 1400 rpm for 3 seconds, then output speed > 1400 rpm for 6 seconds. No Output Speed Sensor DTC's P0722, P0723	8 test failures within 8 test samples. Reset counter if state changes during counting. 900 seconds Type C	Brake Switch Default Fault Active	Brake Switch has seen a change in state.	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec
P0727	Engine Speed Sensor Circuit	0 to 12 volt range This DTC detects a loss of engine speed across the CAN Bus.	Engine Speed Validity bit is not set.	System voltage between 8 & 18 volts No DTC's U2103, U2105	2 seconds Type B	Engine Speed Default -Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Adapt Line Pressure Inhibit -Line Fault Action Offset -Line Fault Action Max -Neutral Idle Inhibit With an ISS fault these additional default actions are present: -Open Loop Ratio Control -Ratio Soft Landing -Ratio at Rest Inhibit FATKO	Engine speed is valid for 2 seconds.	Same as Fail

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P0741	TCC System Stuck OFF	This DTC detects high TCC slip speed when TCC is commanded ON.	TCC slip \geq 220 rpm for 3 seconds increments fail counter Fail counter = 3	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Time since range change > 6 seconds Range \neq Park or Neutral or Reverse Throttle > 5% Trans temp between 21 and 130 C Speed Ratio > 0.38 Engine torque between 30 and 300 N-m TCC is commanded ON. Commanded TCC pressure \geq 100 Kpa for 5 seconds Engine torque is valid Actual Throttle Angle is valid No Range DTC's P0705, P1756, P1758 No Input Speed Sensor DTC's P0716 P0717 No Output Speed Sensor DTC's P0722, P0723 No TCC System Stuck ON DTC P0742 No TCC/NI Multiplex Solenoid Circuit DTC's P1888, P1889 No Engine Torque DTC P1779	3 seconds Type B	-Ratio Fault Action Limit -TCC Adapt Inhibit -TCC Force Off FATKO	TCC slip is between -40 and +100 rpm for 2 seconds	Same as Fail.

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P0742	TCC System Stuck ON	This DTC detects low TCC slip speed when TCC is commanded OFF.	(Part 1) TCC slip speed < 3 rpm increments a fail and a total counter. For the test to be valid, the total counter must have incremented to a value between 200 and 350 counts. TCC Stuck On Flag sets when fail counter reaches a minimum of 80 % of the total counter. (Park 2) After the TCC Stuck On Flag is set, the first garage shift is also evaluated to determine if the torque converter is stuck. If Engine Speed ≤ 400 rpm And Engine Speed Derivative ≤ -750 rpm/s then the DTC is set.	Note: This test runs at engine start-up System voltage between 8 & 18 volts Engine running between 500 and 2000 rpm Throttle < 3% Actual Line Pressure ≥ 50 kPa for 2 seconds Change in throttle ≤ 2% since start-up When the above conditions are true, then the TCC override pressure is commanded to 150 Kpa. This increments the sample counter. Trans temp between 21 and 130C No Range DTC's P0705, P1756, P1758 No Input Speed Sensor DTC's P0716, P0717 No Output Speed Sensor DTC's P0722, P0723 No TCC System Stuck OFF DTC P0741 No TCC/NI Multiplex Solenoid Circuit DTC's P1888, P1889 No Engine Torque DTC P1779	5 seconds Type B	-Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Reverse / Drive Lockout Inhibit -TCC Adapt Inhibit -Cold Fast Decel Lockout Inhibit -Neutral Idle Inhibit -TCC Force ON when output pulley speed > 500 rpm. FATKO	TCC slip speed > 4 rpm increments a pass and a total counter. For the test to be valid, the total counter must have incremented to a value between 200 and 350 counts. DTC passes when pass counter reaches a minimum of 80% of the total counter.	Same as Fail

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P0841	Pressure Sensor Rationality	0 to 12 volt range This DTC monitors the functionality of the transmission fluid pressure sensor.	<u>Fail Case 1</u> Absolute Value in the change in Desired Line Pressure ≤ 600 Kpa while the Absolute Value in the change of Actual Line Pressure ≥ 1000 Kpa. Increments fail counter. DTC sets when counter = 10 counts in 2 sec. <u>Fail Case 2</u> Absolute Line Pressure has not changed more than 100 Kpa since start-up	Common Enablers for Both fail cases: System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Line_Press_Solenoid_Off_Default is not set Trans temp between 21C and 95C No Engine Speed Sensor DTC P0727 No Trans Fluid Pressure Sensor DTC's P0842, P0843 No PCA Solenoid DTC's P0960, P0961, P0962 No CAN BUS Error ECM DTC U2105 Additional Enablers: <u>Fail Case 1</u> Engine speed ≥ 1500 rpm Output speed ≥ 500 rpm No Output Speed Sensor DTC's P0722, P0723 <u>Fail Case 2</u> DTC has not passed since this key on. Desired Line Pressure has changed ≥ 200 Kpa since key on.	<u>Fail Case 1</u> 10 fail counts in 2 seconds <u>Fail Case 2</u> 2 seconds Type B	-Adapt Line Pressure Inhibit -Line Pressure Sensor Offset Default -Ratio at Rest Inhibit FATKO	<u>Fail Case 1</u> Performance Counter = 0 <u>Fail Case 2</u> Absolute Line Pressure has changed more than 150 Kpa since start-up 1 second	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Trans temp between 21C and 95C No Engine Speed Sensor DTC P0727 No Trans Fluid Pressure Sensor DTC's P0842, P0843 No PCA Solenoid DTC's P0960, P0961, P0962 No CAN BUS Error ECM DTC U2105

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P0842	Transmission Fluid Pressure Sensor Circuit - Low Voltage	0 to 12 volt range This DTC sets when the transmission fluid pressure sensor reads low as the Commanded Pressure is high.	Actual Line Pressure \leq 50 Kpa	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Commanded PCA Solenoid line pressure \geq 2200 Kpa No PCA Solenoid DTC's P0960, P0961, P0962	9 seconds Type A	-Adapt Line Pressure Inhibit -Line Pressure Sensor Offset Default -Ratio at Rest Inhibit FATKO	Actual Line Pressure \geq (Desired Line Pressure – 200 Kpa) for 5 seconds	Same as Fail
P0843	Transmission Fluid Pressure Sensor Circuit - High Voltage	0 to 12 volt range This DTC sets when the transmission fluid pressure sensor reads high as the Commanded Pressure is low.	Actual Line Pressure \geq 4500 Kpa	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Commanded PCA Solenoid line pressure \leq 4000 Kpa No PCA Solenoid DTC's P0960, P0961, P0962	20 seconds Type A	-Adapt Line Pressure Inhibit -Line Pressure Sensor Offset Default -Ratio at Rest Inhibit FATKO	Actual Line Pressure \leq Desired Line Pressure 5 seconds	Same as Fail
P0960	Pressure Control Solenoid A Control Circuit	0 to 12 volt range This DTC detects a continuous open in the PCS "A" circuit.	Line Pressure Circuit Open Flag is set for 35 out of 40 counts	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Line Pressure Control Circuit Voltage Out Of Range bit is not set No PCA Solenoid DTC's P0961, P0962	3.5 seconds Type B	-Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Reverse / Drive Lockout Inhibit -Adapt Line Pressure Inhibit -Line Pressure Solenoid Off Default -Cold Fast Decel Lockout Inhibit -Neutral Idle Inhibit -Ratio at Rest Inhibit FATKO	Line Pressure Circuit Open Flag is not set	Same as Fail

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TRANSMISSION DIAGNOSTIC PARAMETERS

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P0961	Pressure Control Solenoid A System Performance	0 to 12 volt range This DTC detects a continuous difference in the Commanded Current and Actual Current.	Line Pressure Circuit = Locked Off until retest.	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Line Pressure Control Circuit Voltage Out Of Range bit is not set No PCA Solenoid DTC's P0960, P0962	2 seconds Type B	-Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Reverse / Drive Lockout Inhibit -Adapt Line Pressure Inhibit -Line Pressure Solenoid Off Default -Cold Fast Decel Lockout Inhibit -Neutral Idle Inhibit -Ratio at Rest Inhibit FATKO	Line Pressure Circuit = Normal.	Same as Fail
P0962	Pressure Control Solenoid A Control Circuit - Low Voltage	0 to 12 volt range This DTC detects a continuous short to ground in the PCS "A" Circuit.	Line Pressure Circuit Short to Ground Flag is set for 13 out of 20 counts	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Line Pressure Control Circuit Voltage Out Of Range bit is not set No PCA solenoid DTC's P0960, P0961	1.3 seconds Type B	-Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Reverse / Drive Lockout Inhibit -Adapt Line Pressure Inhibit -Line Pressure Solenoid Off Default -Cold Fast Decel Lockout Inhibit -Neutral Idle Inhibit -Ratio at Rest Inhibit FATKO	Line Pressure Circuit Short to Ground Flag is not set	Same as Fail

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P0964	Pressure Control Solenoid B Control Circuit	0 to 12 volt range This DTC detects a continuous open in the Multiplex Solenoid circuit.	Multiplex Circuit Open Flag is set for 35 out of 40 counts	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Multiplex Circuit Voltage Out of Range = False. Multiplex Circuit Halt Testing = False Multiplex Circuit Test Suspension Time = zero. No Pressure Control Solenoid B System Performance DTC P0965 No Pressure Control Solenoid B Control Circuit Low Voltage P0966	1.3 seconds Type B	-Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Reverse / Drive Lockout Inhibit -Multiplex PCA Off Default -Multiplex Enable HSD Off Def -TCC Adapt Inhibit -TCC Force OFF -Cold Fast Decel Lockout Inhibit -Neutral Idle Inhibit -Ratio at Rest Inhibit FATKO	Multiplex Circuit Open Flag is not set for 13 out of 20 counts	Same as Fail
P0965	Pressure Control Solenoid B System Performance	0 to 12 volt range This DTC detects performance concerns with the TCC/NI solenoid.	Multiplex State Circuit = Locked Off until retest.	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Multiplex Control Circuit Voltage Out Of Range bit is not set No Multiplex Control System or Performance DTC's P0964, P0966	2 seconds Type B	-Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Reverse / Drive Lockout Inhibit -Multiplex PCA Off Default -Multiplex Enable HSD Off Def -TCC Adapt Inhibit -TCC Force OFF -Cold Fast Decel Lockout Inhibit -Neutral Idle Inhibit -Ratio at Rest Inhibit FATKO	Multiplex State Circuit = Normal.	Same as Fail

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TRANSMISSION DIAGNOSTIC PARAMETERS

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P0966	Pressure Control Solenoid B Control Circuit - Low Voltage	0 to 12 volt range This DTC detects a continuous short to ground in the Multiplex PCS Circuit.	Multiplex Circuit Short to Ground Flag is set for 13 out of 20 counts	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Multiplex Circuit Voltage Out of Range = False. Multiplex Circuit Halt Testing = False Multiplex Circuit Test Suspension Time = zero. No Pressure Control Solenoid B Performance DTC P0965 No Pressure Control Solenoid B Control Circuit DTC P0964	1.3 seconds Type B	-Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Reverse / Drive Lockout Inhibit -Multiplex PCA Off Default -Multiplex Enable HSD Off Def -TCC Adapt Inhibit -TCC Force OFF -Cold Fast Decel Lockout Inhibit -Neutral Idle Inhibit -Ratio at Rest Inhibit FATKO	Multiplex Circuit Short to Ground Flag is not set for 13 out of 20 counts	Same as Fail
P1756	Range Switch Indicates Park/Neutral With Drive Ratio	0 to 12 volt range This DTC detects an incorrect state of the transmission range switch.	Range = Park/Neutral	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Throttle ≥ 2 % Output pulley speed ≥ 400 rpm Engine torque > 2 Nm Speed ratio > 0.38 No Range DTC's P0705, P1758 No Input Speed Sensor DTC's P0716, P0717 No Output Speed Sensor DTC's P0722, P0723 No TCC System Stuck ON DTC P0742 No TCC/NI Multiplex Solenoid Circuit DTC's P1888, P1889 No Engine Torque DTC P1779	5 seconds Type B	Mode Switch Default MSG Default -Multiplex PCA Off Default -Abuse Torque Mngmnt Inhibit -Neutral Idle Inhibit -Ratio at Rest Inhibit FATKO	Range = Drive	Same as Fail

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TRANSMISSION DIAGNOSTIC PARAMETERS

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P1758	Range Switch Indicates Drive when in Park/ Neutral	0 to 12 volt range This DTC detects an incorrect state of the transmission range switch.	CVT ≠ Park/ Neutral when turbine speed ≥ 550 rpm	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Output pulley speed ≤ 150 rpm Throttle < 6% Speed ratio between 0.38 & 0.5 Input clutch at max capacity Trans ISS > 550 for 10 seconds No Range DTC's P0705, P1756 No Input Speed Sensor DTC's P0716, P0717 No Output Speed Sensor DTC's P0722, P0723 No TCC System Stuck ON DTC P0742 No TCC/NI Multiplex Solenoid Circuit DTC's P1888, P1889 No Engine Torque DTC P1779	10 seconds Type B	Mode Switch Default MSG Default -Multiplex PCA Off Default -Abuse Torque Mngmnt Inhibit -Neutral Idle Inhibit -Ratio at Rest Inhibit FATKO	CVT = Park/ Neutral when turbine speed ≥ 550 rpm for 5 seconds	Same as Fail
P1779	Engine Torque Signal	This DTC monitors the validity of the engine torque that is sent to the TCM via the CAN Bus.	Engine Torque Valid bit is not set	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec No CAN communication DTC's U2103, U2105	2 seconds Type C	Engine Torque Default -Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Line Fault Action Max FATKO	Engine Torque Valid bit is set	Same as Fail

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P1882	Ratio Control Performance	This DTC monitors the error between Actual Ratio and Commanded Ratio.	Absolute Value of Speed Ratio Error (Commanded Speed Ratio – Actual Speed Ratio) > 0.42 Speed Ratio Error 0.43 = 75 counts Speed Ratio Error 0.75 = 100 counts Speed Ratio Error 1.0 = 400 counts Fail counter = 10,000	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec Throttle > 5% Output pulley speed > 400 rpm CVT Range = Drive Time since range change > 6 seconds 0.35 ≤ Actual Speed Ratio ≤ 1.1 Turbine speed > 700 rpm Trans temp between 21 and 130C Stepper motor is not in Default No Range DTC's P0705, P1756 No Input Speed Sensor DTC's P0716, P0717 No Output Speed Sensor DTC's P0722, P0723 No TCC/NI Multiplex Solenoid Circuit DTC's P1888, P1889 No Engine Torque DTC P1779 No Stepper Motor Electrical DTC's P1883, P1884, P1885, P1886 No CAN Communication DTC's U2103, U2104, U2105 Traction control is not activated. Wheelslip torque management is not active. No ABS malfunction.and ABS is not activated	7 seconds Type A	-Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Open Loop Ratio Control -Ratio Soft Landing -TCC Force OFF -Ratio at Rest Inhibit FATKO	Absolute Value of Commanded Speed Ratio – Actual Speed Ratio < 0.1	Same as Fail

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P1883	Stepper Motor Electrical Circuit A1 Fault	This DTC detects open, short to ground or short to voltage in the stepper motor circuit.	Open / Short To Ground, or Short To Voltage flag detected	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec	0.56 second Type A	-Open Loop Ratio Control -Ratio Soft Landing -Ratio at Rest Inhibit FATKO	Open / Short To Ground, or Short To Voltage flag not detected 0.66 second	Same as Fail
P1884	Stepper Motor Electrical Circuit A2 Fault	This DTC detects open, short to ground or short to voltage in the stepper motor circuit.	Open / Short To Ground, or Short To Voltage flag detected	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec	0.56 second Type A	-Open Loop Ratio Control -Ratio Soft Landing -Ratio at Rest Inhibit FATKO	Open / Short To Ground, or Short To Voltage flag not detected 0.66 second	Same as Fail
P1885	Stepper Motor Electrical Circuit B1 Fault	This DTC detects open, short to ground or short to voltage in the stepper motor circuit.	Open / Short To Ground, or Short To Voltage flag detected	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec	0.56 second Type A	-Open Loop Ratio Control -Ratio Soft Landing -Ratio at Rest Inhibit FATKO	Open / Short To Ground, or Short To Voltage flag not detected 0.66 second	Same as Fail
P1886	Stepper Motor Electrical Circuit B2 Fault	This DTC detects open, short to ground or short to voltage in the stepper motor circuit.	Open / Short To Ground, or Short To Voltage flag detected	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec	0.56 second Type A	-Open Loop Ratio Control -Ratio Soft Landing -Ratio at Rest Inhibit FATKO	Open / Short To Ground, or Short To Voltage flag not detected 0.66 second	Same as Fail

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P1888	TCC/NI Multiplex Solenoid Circuit - Low Voltage	This DTC detects open or short to ground in the TCC/NI solenoid circuit.	Open / Short To Ground flag detected	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec TCC/NI Multiplex Solenoid HSD is enabled TCC/NI Multiplex Solenoid is commanded OFF	0.36 second Type A	-Adapt Garage Shift Inhibit -Garage Shift Pressure Inhibit -Reverse / Drive Lockout Inhibit -Multiplex Enbl HSD Off Default -Ratio Fault Action Limit -Neutral Idle Inhibit -Cold Fast Decel Lockout Inhibit -TCC Adapt Inhibit -TCC Force OFF -Ratio at Rest Inhibit FATKO	Open / Short To Ground flag not detected. 0.36 second	Same as Fail
P1889	TCC/NI Multiplex Solenoid Circuit - High Voltage	This DTC detects a short to voltage in the TCC/NI solenoid circuit.	Short To Voltage flag detected	System voltage between 8 & 18 volts Engine running > 500 rpm for 5 sec TCC/NI Multiplex Solenoid HSD is enabled TCC/NI Multiplex Solenoid is commanded ON	0.1 second Type A	-Multiplex Enbl HSD Off Default -Ratio Fault Action Limit -TCC Adapt Inhibit -TCC Force OFF -Ratio at Rest Inhibit FATKO	Short To Voltage flag not detected 0.25 second	Same as Fail

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U0002	CAN Node Communication Error	This DTC sets when the TCM has seen the CAN Bus reset one time.	CAN Communication flag is not set	System voltage between 8 & 18 volts	1 second Type B	Throttle Default Throttle Kickdown Default MSG Default Default Pattern Engine Speed Default Engine Torque Default -Adapt Garage Shift Inhibit -Reverse / Drive Lockout Inhibit -Multiplex PCA Off Default -Multiplex Enbl HSD Off Default -Adapt Line Pressure Inhibit -Line Fault Action Max -Neutral Idle Inhibit -Cold Fast Decel Lockout Inhibit - TCC Adapt Inhibit -TCC Force OFF -Ratio at Rest Inhibit FATKO	CAN Communication flag is set	Same as Fail

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U2104	CAN Bus Reset Counter Overrun	This DTC sets when the CAN Bus has continuous running reset.	CAN Bus Reset Counter \geq 64 counts	System voltage between 8 & 18 volts	Type A	Throttle Default Throttle Kickdown Default MSG Default Default Pattern Engine Speed Default Engine Torque Default -Adapt Garage Shift Inhibit -Reverse / Drive Lockout Inhibit -Multiplex PCA Off Default -Multiplex Enbl HSD Off Default -Garage Shift Pressure Inhibit -Adapt Line Pressure Inhibit -Line Fault Action Max -Neutral Idle Inhibit -Cold Fast Decel Lockout Inhibit - TCC Adapt Inhibit -TCC Force OFF -Ratio at Rest Inhibit FATKO	CAN Bus Reset Counter < 40 counts	Same as Fail

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U0100	CAN Bus Error ECM	This DTC sets when the TCM no longer communicates with the ECM.	ECM No Communication flag is set	System voltage between 8 & 18 volts ECM is not reprogramming ECM is present in vehicle configuration Ignition is ON No reset for 3 seconds No DTC U2103	1.8 seconds Type A	Throttle Default Throttle Kickdown Default Engine Speed Default Engine Torque Default -Adapt Garage Shift Inhibit -Multiplex PCA Off Default -Multiplex Enbl HSD Off Default -Garage Shift Pressure Inhibit -Adapt Line Pressure Inhibit -Line Fault Action Max -Cold Fast Decel Lockout Inhibit -TCC Adapt Inhibit -TCC Force OFF -Ratio at Rest Inhibit FATKO	ECM No Communication flag is not set	Same as Fail
U0140	CAN Bus Error with BCM	This DTC sets when the TCM no longer communicates with the BCM.	BCM No Communication flag is set	System voltage between 8 & 18 volts BCM is not reprogramming BCM is present in vehicle configuration Ignition is ON No reset for 3 seconds No DTC U2103	2 seconds Type C	No Default Actions FATKO	BCM No Communication flag is not set 2 seconds	Same as Fail
U0121	CAN Bus Error with ABS	This DTC sets when the TCM no longer communicates with the ABS Module.	ABS No Communication flag is set	System voltage between 8 & 18 volts ABS is not reprogramming ABS is present in vehicle configuration Ignition is ON No reset for 3 seconds No DTC U2103	2 seconds Type C	Default Pattern Mode Switch Default -Traction Contl Ratio Resp Inhibit -Diff Score Torque Mngmnt Inhibit FATKO	ABS No Communication flag is not set	Same as Fail

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VT25E (CVT) *when used with 2.2L L61 engine in Saturn VUE*

TRANSMISSION DIAGNOSTIC PARAMETERS

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