08 GRP08b All Transmissions

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALF DETECTION PARAMETERS	SECONDARY PARAMETERS AND CONDITIONS	TIME LENGTH & FREQUENCY	DTC TYPE
Transmission Control Module Read Only Memory	P0601	EPROM/Flash memory corruption (Incorrect program/calibrations checksum)	ROM fail count $\geq$ 5	None	Immediate Continuous	Type A
Transmission Control Module Not Programmed	P0602	Non-programmed TCM (calibrations)	KbCOND_NoStartCal = TRUE	None	Immediate Continuous	Type A
Transmission Control Module Long-Term Memory Reset	P0603	Wrong copy of Non-volatile Memory to RAM	Non-volatile memory (static or dynamic) checksum failure	None	Immediate Continuous	Type A
Transmission Control Module Random Access Memory	P0604	RAM failure	RAM read/write failure (single word) RAM fail count $\geq$ 5	None	Immediate Continuous	Type A
Transmission Control Module Long Term Memory Performance	P062F	NVM write error at key-down	TCM Non-Volatile Memory Incorrect flag = 1	8.0 $\leq$ Ignition Voltage $\leq$ 18.0 V Ignition ON	Immediate Continuous	Type A
Transmission Range Switch Circuit	P0705	NSBU reports illegal value (A, B, C, and P)	NSBU = 14 or 15 (0001 or 0000)	500 $\leq$ Engine RPM $\leq$ 6500 for 5.0 sec 8.0V $\leq$ Ignition Voltage $\leq$ 18.0V	60.0 sec Continuous	Type B

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALF DETECTION PARAMETERS	SECONDARY PARAMETERS AND CONDITIONS	TIME LENGTH & FREQUENCY	DTC TYPE
Transmission Fluid Temperature Sensor Performance	P0711	The DTC detects the following failure modes of the TFT: 1) A sensor that remains at a value. (Stuck Sensor) 2) A sensor that remains at a value. (Stuck Sensor) 4) Transmission Temperature remains below 20° C for a calibrated time dependant on startup transmission temperature.	Fail Case 1 ΔTFT < 2° C. TCC Slip ≥ 120 RPM for 300 sec cumul. -39° C. ≤ TFT at startup ≤ 20° C. Fail Case 2 ΔTFT < 2° C. 129° C ≤ TFT at startup ≤ 149° C. Fail Case 4 TFT ≤ 20° C after a calibrated amount of time based on a 2D lookup table.	For fail case 1, 2, and 4: Common ignition voltage enable, No Engine Coolant DTC's, No OSS P0722, P0723 DTCs, No ISS P0716, P0717 DTCs, P0711 has not passed this ignition cycle, -39 deg C <= trans fluid temp <= 149 deg C Fail case 1: -39 deg C <= trans fluid temp <= 20 C at startup, Engine coolant => 70 deg C, Engine Coolant has changed => 55 deg C since startup, Vehicle speed => 8 KPH for > 300 seconds (cumulative timer) Fail case 2: 129 deg C <= trans fluid temp <= 149 C at startup, Engine coolant => 70 deg C, Engine Coolant has changed => 55 deg C since startup, Vehicle speed => 8 KPH for => 300 seconds (cumulative timer) Fail case 4: Valid TPS, Torque signal, and Crank Signals. 50 ≤ Engine Torque ≤ 1492 8 ≤ Throttle Position ≤ 90 8 ≤ Vehicle Speed ≤ 511 500 ≤ Engine Speed ≤ 6500 -39 ≤ Coolant Temperature ≤ 149	Fail case 1: 80.0 seconds Fail case 2: 80.0 seconds Fail case 4: See table at end of document	Special Type C
Transmission Fluid Temperature Sensor Circuit Low Voltage	P0712	Continuous Short-to-Ground in Trans Fluid Temperature sensor or TFT signal circuit	Trans Temp Sensor ≤ 43.19 ohm Trans Temp > 150C	8V ≤ Ignition Voltage ≤ 18V for 5 sec 500 ≤ Engine RPM ≤ 6500 for 5.0 sec	12.0 sec Continuous	Special Type C
Transmission Fluid Temperature Sensor Circuit High Voltage	P0713	Continuous Open of Short to Voltage in Transmission Fluid Temperature sensor or TFT signal circuit	Trans Temp Sensor ≥ 171862 ohm Trans Temp < -40C (-40F)	No P0716, P0717, P0722, P0723 DTCs 500 ≤ Engine RPM ≥ 6500 for 5.0 sec 8.0 ≤ Ignition Voltage ≤ 18.0 V OSS ≥ 65.6* RPM for 200 sec cumul. TCC Slip ≥ 120 RPM for 200 sec cumul.	80.0 sec Continuous	Special Type C

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALF DETECTION PARAMETERS	SECONDARY PARAMETERS AND CONDITIONS	TIME LENGTH & FREQUENCY	DTC TYPE
Input Speed Sensor Performance	P0716	Unrealistically large drop in Input Speed Sensor circuit	Input Speed drop ≥ 1000 RPM	No P0717, P0722, P0723, P0752, P0973, P0974 DTCs 8V ≤ Ignition Voltage ≤ 18V 500 ≤ Engine RPM ≤ 6500 for 5 sec No TP malfunction No Engine Torque malfunction 50 ≤ Engine Torque ≤ 1492 N-m TPS ≥ 8.0% Vehicle Speed ≥ 16.0 kph ISS ≥ 1050 RPM for 2.0 sec ΔISS ≤ 500 RPM for 2.0 sec	3.25 sec Continuous	Type B
Input Speed Sensor Circuit Low Voltage	P0717	Low Input Speed with large vehicle speed	Input Speed < 50.0 RPM	No P0717, P0722, P0723 DTCs No Engine Torque malfunction 500 ≤ Engine RPM ≤ 6500 for 5 sec 8V ≤ Ignition Voltage ≤ 18V Vehicle Speed ≥ 16.0 kph 50 ≤ Engine Torque ≤ 1492 N-m	4.5 sec Continuous	Type B
Output Speed Sensor Circuit Low Voltage	P0722	Low output speed when the vehicle has a large Input speed in a driving gear range with a high Engine Torque value.	Drive 50 ≤ Engine Torque ≤ 1492 N-m Output Speed ≤ 50.0* RPM Park/Neutral 1492≤ Engine Torque ≤ 1492 N-m	No, P0716, P0717, P0723 No TPS malfunction No Engine Torque malfunction 8V ≤ Ignition Voltage ≤ 18V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec Range ≠ P/N TCC Slip ≥ -20 RPM Trans Temp ≥ -40° C. 1500 RPM ≤ Input Speed ≤ 5000 RPM TPS ≥ 8.0%	4.5 sec Continuous	Type B
Output Speed Sensor Circuit Intermittent	P0723	Unrealistically large DROP in Output Shaft speed.	Drop in Output Speed > 393.5* RPM in any Drive range	No P0716, P0717, P0974 DTC 8V ≤ Ignition Voltage ≤ 18V 500 ≤ Engine RPM ≥ 6500 for 5 sec Range ≠ P/N Time since last range change ≥ 6.0 sec +ΔVSS, loop-to-loop, ≤ 164* RPM for 2.0 sec ΔISS ≤ 500 RPM for 2.0 sec Output Speed ≥ 327.9* RPM for 2.0 sec	3.25 sec Continuous	Type B

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALF DETECTION PARAMETERS	SECONDARY PARAMETERS AND CONDITIONS	TIME LENGTH & FREQUENCY	DTC TYPE
Torque Converter Clutch System - Stuck Off	P0741	High TCC slip with TCC commanded on	TCC slip $\geq$ 150 RPM	No P0716, P0717, P0722, P0723, P0742, P0842, P0843, P2763, P2764 No TPS malfunction No Engine Torque and Speed malfunctions 8V $\leq$ Ignition Voltage $\leq$ 18V 500 $\leq$ Engine RPM $\leq$ 6500 for 5.0 sec 50 $\leq$ Engine Torque $\leq$ 1492 N-m 8.0% $\leq$ TPS $\leq$ 90% 20° C. $\leq$ Trans Temp $\leq$ 130° C. TCC Capacity $\geq$ 65% for 2.0 sec Commanded Gear > 1 TCC Mode = On or Locked On	8 sec Count = 2 Continuous	Type B
Torque Converter Clutch System - Stuck On	P0742	Low TCC slip with TCC commanded off	-20 rpm $\leq$ TCC Slip Speed $\leq$ 40 rpm	No P0716, P0717, P0722, P0723, P0741, P2763, P2764 No TPS malfunction No Engine Torque and Speed malfunctions 8V $\leq$ Ignition Voltage $\leq$ 18V 500 $\leq$ Engine RPM $\leq$ 6500 for 5.0 sec TCC commanded OFF 50 $\leq$ Engine Torque $\leq$ 1492 N-m 20° C. $\leq$ Trans Temp $\leq$ 130° C. 8% $\leq$ TPS $\leq$ 90% 16 kph $\leq$ VSS $\leq$ 511 kph 1.739 $\leq$ Ratio $\leq$ .6333	6 sec Count = 3 Continuous	Type B
1-2 Shift Solenoid Valve Performance - No First or Fourth Gear	P0751	2-2-3-3 shift pattern	Fail Case 1 Commanded 1st 1.5446 < Ratio < 1.7072 1.0 sec. after gear change And Fail Case 2 Commanded 4th 0.95 < Ratio < 1.05 1.0 sec. after gear change	No P0716, P0717, P0722, P0723, P0742, P0973, P0974, P0976, P0977, or TPS DTCs (see below) No Engine Torque malfunction 500 $\leq$ Engine RPM $\leq$ 6500 for 5.0 sec 8V $\leq$ Ignition Voltage $\leq$ 18V TPS $\geq$ 8.0% 20° C. < Trans Temp < 130° C. 150 $\leq$ Input Speed $\leq$ 6000 RPM 50 $\leq$ Engine Torque $\leq$ 1492 N-m Output Speed $\geq$ 65.6* RPM	Fail Case 1 2.0 sec Fail Case 2 4.0 sec Count = 2 Continuous	Type B

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALF DETECTION PARAMETERS	SECONDARY PARAMETERS AND CONDITIONS	TIME LENGTH & FREQUENCY	DTC TYPE
1-2 Shift Solenoid Valve Performance - No Second or Third Gear	P0752	1-1-4-4 shift pattern	Fail Case 3 Commanded 2nd 2.8120 < Ratio < 3.1080 1.0 sec. after gear change And Fail Case 4 Commanded 3rd 0.6469 < Ratio < 0.7150 1.0 sec. after gear change	See P0751	Fail Case 3 2.0 sec Fail Case 4 3.0 sec Count = 2 Continuous	Type B
2-3 Shift Solenoid Valve Performance - No First or Second Gear	P0756	4-3-3-4 shift pattern	Fail Case 5 -20 ≤ TCC Slip ≤ 8191 RPM VSS ≥ 65.6* RPM Commanded 1st 0.65 ≤ Ratio ≤ 1.87 1.0 sec. after gear change And Fail Case 6 Commanded 2nd 0.95 ≤ Ratio ≤ 1.05 1.0 sec. after gear change	See P0751	Fail Case 5 2.0 sec Fail Case 6 3.0 sec Count = 2 Continuous	Type A

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALF DETECTION PARAMETERS	SECONDARY PARAMETERS AND CONDITIONS	TIME LENGTH & FREQUENCY	DTC TYPE
2-3 Shift Solenoid Valve Performance - No Third or Fourth Gear	P0757	1-2-2-1 shift pattern	Fail Case 7 40 ≤ Engine Torque ≤ 1492 N-m Commanded 3rd 1.5446 < Ratio < 1.7073 1.0 sec. after gear change And Fail Case 8 0 ≤ Engine Torque ≤ 1492 N-m Commanded 4th 1.5446 < Ratio < 3.1080 1.0 sec. after gear change 1.2 sec after range change Range ≠ Neutral	See P0751	Fail Case 7 2.0 sec Fail Case 8 2.0 sec Count = 2 Continuous	Type A
Upshift Switch Circuit	P0815	Tap switch position is illegal	Tap switch position is tap up in D3 range	No P0826, P1761, P1810, P1816, P1818 DTCs Ignition ON 8.0 ≤ Ignition Voltage ≤ 18.0 V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec 6.0 sec. since last range change	600 sec Continuous	Special Type C
Downshift Switch Circuit	P0816	Tap switch position is illegal	Tap switch position is tap down in D3 range	See P0815	600 sec Continuous	Special Type C
Tap-up, Tap-down Switch Circuit	P0826	Tap switch voltage out of range	Tap switch position = INVALID	No P1761 Ignition ON 8.0 ≤ Ignition Voltage ≤ 18.0 V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec	20 sec Continuous	Special Type C

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALF DETECTION PARAMETERS	SECONDARY PARAMETERS AND CONDITIONS	TIME LENGTH & FREQUENCY	DTC TYPE
Torque Converter Clutch Release Switch Circuit Low Voltage	P0842	Closed Release Switch, indicating TCC is applied when TCM is commanding TCC off and TCC slip shows TCC is OFF.	Release switch closed (grounded).	No P0716, P0717, P0741, P0742 P2764, P2763 DTCs No Engine Speed or Torque Malfunctions 500 ≤ Engine RPM ≤ 6500 for 5.0 sec TCC commanded OFF 100 RPM < Slip Speed 50 < Engine Torque < 1492 N-m 20° C. < Trans Temp < 130° C. 16 kph < VSS < 512 kph	8.0 sec Count = 2 Continuous	Type B
Torque Converter Clutch Release Switch Circuit High Voltage	P0843	Open Release Switch, indicating TCC not applied when TCM is commanding TCC ON and TCC slip shows TCC is locked	Release switch open	No P0716, P0717, P0741, P0742 P2764, P2763 DTCs No Engine Speed Malfunction 500 ≤ Engine RPM ≤ 6500 for 5.0 sec TCC commanded ON, or LockON -20 < Slip < 60 RPM 50 < Engine Torque < 1492 N-m 20° C. < Trans Temp < 130° C. 90 < TCC Pressure < 830 kPa	6.0 sec Count = 2 Continuous	Type B
1-2 Shift Solenoid Control Circuit Low Voltage	P0973	Continuous Short-to-Ground OR Open in Shift Solenoid A or SSA circuit (ODM)	SSA ODM feedback circuit state ≠ TCM commanded state	Ignition ON 8.0 ≤ Ignition Voltage ≤ 18.0 V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec SSA commanded off	Fail count = 44 out of 50 (Time ≈ 4.4 sec) Continuous	Type B
1-2 Shift Solenoid Control Circuit High Voltage	P0974	Continuous Short-to-Power in Shift Solenoid A or SSA circuit (ODM)	SSA ODM feedback circuit state ≠ TCM commanded state	Ignition ON 8.0 ≤ Ignition Voltage ≤ 18.0 V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec SSA commanded on	Fail count = 44 out of 50 (Time ≈ 4.4 sec) Continuous	Type B
2-3 Shift Solenoid Control Circuit Low Voltage	P0976	Continuous Short-to-Ground OR Open in Shift Solenoid B or SSB circuit (ODM)	SSB ODM feedback circuit state ≠ TCM commanded state	Ignition ON 8.0 ≤ Ignition Voltage ≤ 18.0 V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec SSB commanded off	Fail count = 44 out of 50 (Time ≈ 4.4 sec) Continuous	Type A
2-3 Shift Solenoid Control Circuit High Voltage	P0977	Continuous Short-to-Power in Shift Solenoid B or SSB circuit (ODM)	SSB ODM feedback circuit state ≠ TCM commanded state	Ignition ON 8.0 ≤ Ignition Voltage ≤ 18.0 V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec SSB commanded on	Fail count = 44 out of 50 (Time ≈ 4.4 sec) Continuous	Type A
Up and Down Shift Switch Signal Circuit	P1761	TCM Alive Rolling Count value does not match expected value sent from BCM	Alive Rolling Count errors detected	500 ≤ Engine RPM ≤ 6500 for 5.0 sec	3 error counts out of 10 samples For 10 sec Continuous	Special Type C

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALF DETECTION PARAMETERS	SECONDARY PARAMETERS AND CONDITIONS	TIME LENGTH & FREQUENCY	DTC TYPE
Transmission Fluid Pressure Position Switch Circuit	P1810	Invalid state of Pressure Switch Assembly circuit	Illegal PSA range (Pressure switch B & C low voltage)	500 ≤ Engine RPM ≤ 6500 for 5.0 sec	60.0 sec Continuous	Type B
Transmission Fluid Pressure Valve Position Switch Indicates Park/Neutral with Drive Ratio	P1816	Drive Ratio with P/N Range	PSA = P/N 2.7528 ≤ Ratio ≤ 3.1672 1.5122 ≤ Ratio ≤ 1.7397 0.93 ≤ Ratio ≤ 1.07 0.6333 ≤ Ratio ≤ 0.7296	No P0716, P0717, P0722, P0723, P0751, P0752, P0756, P0757 P0973, P0974, P0976, P0977, or TPS DTCs (see below) 500 ≤ Engine RPM ≤ 6500 for 5.0 sec Output Speed ≥ 82* RPM 8% ≤ TPS ≤ 90.0% 50 ≤ Engine Torque ≤ 1492 N-m	6.0 sec Continuous	Type B
Transmission Fluid Pressure Valve Position Switch Indicates Drive without Drive Ratio	P1818	Reverse Ratio with Park/Neutral OR Drive Range	PSA = P/N, or Drive And 1.9930 ≤ Ratio ≤ 2.2928	No P0716, P0717, P0722, P0723, P0751, P0752, P0756, P0757, P0973, P0974, P0976, P0977 No TPS Malfunction No Engine Torque Malfunction 8V ≤ Ignition Voltage ≤ 18V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec Output Speed ≥ 50* RPM TPS ≥ 10% 45 ≤ Engine Torque ≤ 1492 N-m Trans Temp > 20° C	3.0 sec Continuous	Type B
Tap-up Tap-down Shift Performance, Not in D3	P1876	TUTD enable request active when D3 not selected	TUTD active and NOT in D3	No P0705, P0815, P0816, P0826, P1761, P1810, P1816, P1818, P1877, U0100 DTCs Ignition ON 8V ≤ Ignition Voltage ≤ 18V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec	4.0 sec Count = 5 Continuous	Special Type C
Tap-up Tap-down Shift Performance, in D3	P1877	TUTD enable request inactive when in D3	TUTD inactive while in D3	No P0705, P0815, P0816, P0826, P1761, P1810, P1816, P1818, P1876, U0100 DTCs Ignition ON 8V ≤ Ignition Voltage ≤ 18V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec	GMX380 4.0 sec 5 count GMX381 60 sec 1count Continuous	Special Type C

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALF DETECTION PARAMETERS	SECONDARY PARAMETERS AND CONDITIONS	TIME LENGTH & FREQUENCY	DTC TYPE
Ignition 1 Switch Circuit Low Voltage	P2534	Continuous Open/Short-to-Ground in TCM Ignition 1 Switch circuit	Every 25 msec, the FAIL counter is incremented if an open or a short to ground is detected	Engine running	Fail Count $\geq$ 200 out of 220 samples (Time $\approx$ 5 sec) Continuous	Type A
Torque Converter Clutch Pressure Control Solenoid Control Circuit High Voltage	P2763	Continuous Short-to-Voltage in TCC PWM circuit	Every 100 msec, the FAIL counter is incremented if a short to voltage is detected	Ignition ON 8V $\leq$ Ignition Voltage $\leq$ 18V 500 $\leq$ Engine RPM $\leq$ 6500 for 5.0 sec TCC Commanded ON	Fail Count = 44 out of 50 (Time $\approx$ 4.4 sec) Continuous	Type B
Torque Converter Clutch Pressure Control Solenoid Control Circuit Low Voltage	P2764	Continuous Open/Short-to-Ground in TCC PWM circuit or TCC PWM solenoid	Every 100 msec, the FAIL counter is incremented if an open or a short to ground is detected	Ignition ON 8V $\leq$ Ignition Voltage $\leq$ 18V 500 $\leq$ Engine RPM $\leq$ 6500 for 5.0 sec	Fail Count = 44 out of 50 (Time $\approx$ 4.4 sec) Continuous	Type B
Controller Area Network Bus Communication Error	U0073	TCM cannot communicate on the CAN Bus	CAN Bus Off State = TRUE	Ignition ON 8V $\leq$ Ignition Voltage $\leq$ 18V for 5 seconds	Fail Count = 5 out of 5 (Time $\approx$ 5 sec) Continuous	Type B
Lost Communications with Engine Control System	U0100	Communication between TCM & Engine Control System Lost	CAN Bus ECM Error flag = 1	Ignition ON 8V $\leq$ Ignition Voltage $\leq$ 18V for 5 seconds	Fail Count = 12 out of 12 (Time $\approx$ 12 sec) Continuous	Type B

P0711 Fail Case 4 Table	
Start-Up Transmission Temperature (DegC)	**Time for Transmission Temp to reach 20 DegC (sec)**
-40	1900
-25	1000
-10	800
-5	520
20	200