08 GRP13 All Transmissions

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALF DETECTION PARAMETERS	SECONDARY PARAMETERS AND CONDITIONS	MONITORING TIME & DTC TYPE
Transmission Control Module Read Only Memory	P0601	EPROM/Flash memory corruption (Incorrect program/calibrations checksum)	ROM fail count ≥ 5	None	Immediate Type A
Transmission Control Module Not Programmed	P0602	Non-programmed TCM (calibrations)	KbCOND_NoStartCal = TRUE	None	Immediate 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 Type A
Transmission Control Module Random Access Memory	P0604	RAM failure	RAM read/write failure (single word) RAM fail count ≥ 5	None	Immediate Type A
Powertrain Internal Control Module EEPROM Error	P062F	NVM write error at key-down	TCM Non-Volatile Memory Incorrect flag = 1	8.0 ≤ Ignition Voltage ≤ 18.0 V Ignition ON	Immediate Type A
Trans Fluid Temp Sensor Circuit Range/ 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, Common engine speed enable, No Engine Coolant DTC's, No OSS P0722, P0723 DTCs, No ISS P0716, P0717 DTCs, P0711 has not passed this ignition cycle, -39°C ≤ trans fluid temp ≤ 149°C Fail case 1: -39°C ≤ trans fluid temp ≤ 20°C at startup, Engine coolant ≥ 70°C, Engine Coolant has changed ≥ 55°C since startup, Vehicle speed ≥ 8 kph for > 300 seconds (cumulative timer) Fail case 2: 129°C ≤ trans fluid temp ≤ 149°C at startup, Engine coolant ≥ 70 °C Engine Coolant has changed ≥ 55°C since startup, Vehicle speed ≥ 8 kph for ≥ 300 seconds (cumulative timer) Fail case 4: Valid TPS, Torque signal, and Crank Signals. 50 Nm ≤ Engine Torque ≤ 1492 Nm 2% ≤ Throttle Position ≤ 90% 8 kph ≤ Vehicle Speed ≤ 511 kph 500 rpm≤ Engine Speed ≤ 6500 rpm -39°C ≤ Coolant Temperature ≤ 149°C	Fail case 1: 80.0 seconds Continuous Fail case 2: 80.0 seconds Continuous Fail case 4: Between 200 & 1900 seconds dependant on startup trans temperature. Continuous Type C-

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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 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 ≥ 64.3.* RPM for 200 sec cumul. TCC Slip ≥ 120 RPM for 200 sec cumul.	80.0 sec Type C- Continuous
Input Speed Sensor Performance	P0716	0 – 6500 RPM Unrealistically large drop in Input Speed in a very period of time that remains	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 Type B Continuous
Input Speed Sensor Circuit Low Voltage	P0717	0 – 6500 RPM Low Input Speed with large vehicle speed	Input Speed < 100.0 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	0 - 6500 RPM Low vehicle speed with large engine speed in Drive range	Drive 50 ≤ Engine Torque ≤ 1492 N-m Output Speed ≤ 64.3* 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 ≤ 6500 RPM TPS ≥ 8.0%	4.5 sec Continuous Type B
Output Speed Sensor Circuit Intermittent	P0723	0 - 6500 RPM Loss of vehicle speed when vehicle is moving	Drop in Output Speed > 385.8* RPM in any Drive range	No P0716, P0717, P0974 DTC 8V ≤ Ignition Voltage ≤ 18V 500 ≤ Engine RPM ≥ 6500 for 5 sec Range ≠ P/N 50 Nm ≤ Engine Torque ≤ 1492 Nm Time since last range change ≥ 6.0 sec +ΔVSS, loop-to-loop, ≤ 160.8* RPM for 2.0 sec ΔISS ≤ 500 RPM for 2.0 sec Output Speed ≥ 321.5* RPM for 2.0 sec	3.25 sec Continuous Type B

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Torque Converter Clutch System - Stuck Off	P0741	High TCC slip with TCC commanded on	TCC slip Error ≥ 125 RPM Count = 2	No P0716, P0717, P0722, P0723, P0742 No TPS malfunction No Engine Torque and Speed malfunctions 8V ≤ Ignition Voltage ≤ 18V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec 50 ≤ Engine Torque ≤ 1492 N-m 2.0% ≤ TPS ≤ 90% 20° C. ≤ Trans Temp ≤ 130° C. TCC Capacity ≥ 65% for 2.0 sec Commanded Gear > 2 TCC Mode = On or Locked On	8 sec Continuous Type B
Torque Converter Clutch System - Stuck On	P0742	Low TCC slip with TCC commanded off	-20 rpm ≤ TCC Slip Speed ≤ 40 rpm Count = 4	No P0716, P0717, P0722, P0723, P0741 No TPS malfunction No Engine Torque and Speed malfunctions 8V ≤ Ignition Voltage ≤ 18V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec TCC commanded OFF 50 ≤ Engine Torque ≤ 1492 N-m 20° C. ≤ Trans Temp ≤ 130° C. 8% ≤ TPS ≤ 90% 16 kph ≤ VSS ≤ 511 kph 1.07 ≥ Gear Ratio ≥ 0.6324	4.0 sec Type B Continuous
1-2 Shift Solenoid Valve Performance - No First or Fourth Gear	P0751	2-2-3-3 shift pattern	Fail Case 1 Commanded 1st 1.5483 < Ratio < 1.7115 Fail Case 2 Commanded 4th 0.95 < Ratio < 1.05 Count = 2	No P0716, P0717, P0722, P0723, P0742, P0973, P0974, P0976, P0977, or TPS DTCs (see below) No Engine Torque malfunction 500 ≤ Engine RPM ≤ 6500 for 5.0 sec 8V ≤ Ignition Voltage ≤ 18V TPS ≥ 8.0% 20° C. < Trans Temp < 130° C. 1.0 sec. after gear change 150 ≤ Input Speed ≤ 6500 RPM 50 ≤ Engine Torque ≤ 1492 N-m Output Speed ≥ 64.3* RPM	Fail Case 1 2.0 sec Fail Case 2 4.0 sec Continuous Type B
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 Fail Case 4 Commanded 3rd 0.6458 < Ratio < 0.7137 Count = 2	See P0751	Fail Case 3 2.0 sec Fail Case 4 3.0 sec Continuous Type B

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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 ≥ 64.3* RPM Commanded 1st 0.6458 ≤ Ratio ≤ 0.7137 Fail Case 6 Commanded 2nd 0.95 ≤ Ratio ≤ 1.05 Count = 2	See P0751	Fail Case 5 2.0 sec Fail Case 6 3.0 sec Continuous Type A
2-3 Shift Solenoid Valve Performance - No Third or Fourth Gear	P0757	1-2-2-1 shift pattern	Fail Case 7 50 ≤ Engine Torque ≤ 1492 N-m Commanded 3rd 1.5483 < Ratio < 1.7115 Fail Case 8 5 ≤ Engine Torque ≤ 1492 N-m Commanded 4th 2.8120 < Ratio < 3.1080 Count = 2	See P0751	Fail Case 7 2.0 sec Fail Case 8 2.0 sec Continuous Type A
1-2 Shift Solenoid Control Circuit Low Voltage	P0973	0 – 12 V Continuous Short-to-Ground OR Open in Shift Solenoid A or SSA circuit (ODM)	SSA ODM feedback circuit state ≠ PCM commanded state	Ignition ON 8.0 ≤ Ignition Voltage ≤ 18.0 V	Fail count = 44 out of 50 (Time ≈ 4.4 sec) Continuous Type B
1-2 Shift Solenoid Control Circuit High Voltage	P0974	0 – 12 V Continuous Short-to-Power in Shift Solenoid A or SSA circuit (ODM)	SSA ODM feedback circuit state ≠ PCM commanded state	Ignition ON 8.0 ≤ Ignition Voltage ≤ 18.0 V	Fail count = 44 out of 50 (Time ≈ 4.4 sec) Continuous Type B
2-3 Shift Solenoid Control Circuit Low Voltage	P0976	0 – 12 V Continuous Short-to-Ground OR Open in Shift Solenoid B or SSB circuit (ODM)	SSB ODM feedback circuit state ≠ PCM commanded state	Ignition ON 8.0 ≤ Ignition Voltage ≤ 18.0 V	Fail count = 44 out of 50 (Time ≈ 4.4 sec) Type A
2-3 Shift Solenoid Control Circuit High Voltage	P0977	0 – 12 V Continuous Short-to-Power in Shift Solenoid B or SSB circuit (ODM)	SSB ODM feedback circuit state ≠ PCM commanded state	Ignition ON 8.0 ≤ Ignition Voltage ≤ 18.0 V	Fail count = 44 out of 50 (Time ≈ 4.4 sec) Continuous Type A
Internal Mode Switch A Circuit Low Voltage	P1820	0 – 12 V IMS A Signal is Low in Park and Drive	IMS Input A = Low in Drive (Range = Transitional 1)	8V ≤ Ignition Voltage ≤ 18V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec Has not passed this key cycle IMS Input A = Low in Park for 1 sec No Engine Torque Malfunction 50 ≤ Engine Torque ≤ 1492 N-m	8.0 sec Continuous Type B

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Internal Mode Switch B Circuit High Voltage	P1822	0 – 12 V IMS B Signal is High in Park and Drive	IMS Input B = High/Open in Drive (Range = Transitional13)	8V ≤ Ignition Voltage ≤ 18V 500 < Engine RPM < 6500 for 5.0 sec Has not passed this key cycle IMS Input B = High in Park for 1 sec No Engine Torque Malfunction 50 ≤ Engine Torque ≤ 1492 N-m	8.0 sec Continuous Type B
IMS Mode 'P' Ckt Low	P1823	0 – 12 V IMS P Signal is High in Park and Drive	IMS Input P = Low in Drive (Range = Transitional 8)	8V ≤ Ignition Voltage ≤ 18V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec Has not passed this key cycle IMS Input P = Low in Park for 1 sec No Engine Torque Malfunction 50 ≤ Engine Torque ≤ 1492 N-m	8.0 sec Continuous Type B
Trans Internal Mode Switch Illegal Range	P1825	0 - 12V	Range is Illegal	8V ≤ Ignition Voltage ≤ 18V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec	8.0 sec Continuous Type B
Internal Mode Switch C Circuit High Voltage	P1826	0 – 12 V IMS C Signal is High in Drive	IMS Input C = High/Open in Drive (Range = Transitional)	No P0722 or P0723 DTC's 8V ≤ Ignition Voltage ≤ 18V Has not passed this key cycle Engine Torque ≥ 50 Nm Vehicle Speed ≥ 16 kph 3.1672 ≥Gear Ratio ≥ 2.7528 or 1.7441 ≥Gear Ratio ≥ 1.5157 or 1.0699 ≥Gear Ratio ≥ 0.9301 or 0.7275 ≥Gear Ratio ≥ 0.6324	8.0 sec Continuous Type B
Internal Mode Switch Does Not Indicate P/N During Start	P1915	0 – 12 V	IMS Not Equal to Park/Neutral During Crank	6V ≤ Ignition Voltage ≤ 18V Engine Speed ≥ 450 rpm Crank Requested ≥ 2.5 sec	2.0 sec Continuous Type B
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 Counts ≥ 200 out of 220 Samples (Time ≈ 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 ≤ Ignition Voltage ≤ 18V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec TCC Commanded ON	Fail Count = 44 out of 50 (Time ≈ 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 ≤ Ignition Voltage ≤ 18V 500 ≤ Engine RPM ≤ 6500 for 5.0 sec	Fail Count = 44 out of 50 (Time ≈ 4.4 sec) Continuous Type B

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Controller Area Network Bus Communication Error	***U0073***	TCM cannot communicate on the CAN Bus	GetCNDD_b_BusOffSt() = TRUE	Ignition ON 8V ≤ Ignition Voltage ≤ 18V for 5 seconds	Fail Count = 5 out of 5 (Time ≈ 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 ≤ Ignition Voltage ≤ 18V for 5 seconds	Fail Count = 12 out of 12 (Time ≈ 12 sec) Continuous Type B