

08 GRP10 All Transmissions

DTC	Test Descriptor	Acceptable Operating Range and Rational	Test for Fail		MIL/DIC Actions	DTC Type
			Test Enable Condition(s)	Test Fail Condition(s)		
P0218	Transmission Fluid Overtemperature	-40° C to 151° C This DTC detects a very high TFT, without a TFT sensor malfunction, for a calibrated amount of time.	No TFT Sensor Low DTC No TFT Sensor High DTC No TFT Performance DTCs	TFT ≥ 140° C for 60 seconds	No MIL Illumination DIC Message – "TRANS HOT – IDLE ENGINE"	Type C
	Vehicle Speed Sensor (VSS) Low Voltage	0 RPM to 6000 RPM This DTC detects a very low vehicle speed signal when the vehicle has a large engine speed in a drive gear range.	No MAP Sensor DTCs No Transmission ISS DTCs Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off TFT ≥ 0°C TP ≥ 12% 0 kPa ≤ MAP ≤ 105 kPa 50 lb ft < Engine Torque < 300 lb ft Transmission ISS ≥ 1500 RPM TCC Slip Speed ≥ 0 RPM	Transmission OSS ≤ 150 RPM for 5 seconds	MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message	Type B
P0503	Vehicle Speed Sensor (VSS) Intermittent	0 RPM to 6000 RPM This DTC detects a large drop in the vehicle speed signal in a very short period of time (unrealistic change).	Time Since Last Gear Selector Range Change ≥ 6 seconds Rise in Transmission OSS < 250 RPM for 2 seconds	Drop in Transmission OSS ≥ 1500 RPM for 2 seconds	MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message	Type B
P0711	Transmission Fluid Temperature (TFT) Sensor Performance	-40° C to 151° C This DTC detects a TFT that remains constant for a period of time in which a measurable amount of change is expected or a TFT in which large rapid changes occur in a very short period of time (unrealistic change).	No ECT Sensor DTCs No VSS DTCs No Transmission ISS DTCs 8V ≤ System Voltage ≤ 18V Engine Running ≥ 300 seconds 10 ≤ Trans Temp AD Counts ≤ 251 (0.2 volts ≤ TFT Sensor ≤ 4.92 volts) -40° C ≤ TFT at startup ≤ 21° C ECT ≥ 70° C and has changed ≥ 55° C since startup Vehicle Speed ≥ 5 mph for ≥ 409 seconds cumulatively this ignition TCC Slip Speed ≥ 80 RPM for ≥ 409 seconds cumulatively this ignition	<u>Fail Case 1</u> TFT has not changed ≥ 1.5° C since startup for 409 seconds <u>Fail Case 2</u> TFT changes ≥ 20° C, 14 times within 7 seconds DTC will set if either Fail Case is True	No MIL Illumination No DIC Message	Type C
P0712	Transmission Fluid Temperature (TFT) Sensor Circuit Low Voltage	0.20V to 4.92V The DTC detects a continuous short to ground in the TFT Sensor signal circuit or the TFT Sensor.	8V ≤ System Voltage ≤ 18V The Ignition Switch is in the ON position	Trans Temp AD Counts ≤ 10 (TFT Sensor ≤ 0.20 volts) for 10 seconds	No MIL Illumination No DIC Message	Type C
P0713	Transmission Fluid Temperature (TFT) Sensor Circuit High Voltage	0.20V to 4.92V The DTC detects a continuous open or short to voltage in the TFT Sensor circuit or the TFT Sensor.	8V ≤ System Voltage ≤ 18V The Ignition Switch is in the ON position	Trans Temp AD Counts ≥ 251 (TFT Sensor ≥ 4.92 volts) for 400 seconds	No MIL Illumination No DIC Message	Type C

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			Test Enable Condition(s)	Test Fail Condition(s)		
P0716	Input Speed Sensor (ISS) Performance	0 RPM to 6000 RPM This DTC detects a large change in the input speed signal in a very short period of time (unrealistic change).	No VSS DTCs No Transmission ISS DTCs No 1-2 SS Electrical/Performance DTCs DTC P0717 Passed This Ignition Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off TP ≥ 14% Vehicle Speed ≥ 5 mph	Change in Input Speed ≥ 1300 RPM for 0.8 second	MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message	Type B
P0717	Input Speed Sensor (ISS) Low Voltage	0 RPM to 6000 RPM This DTC detects a very low input speed signal when vehicle speed is greater than a calibrated value.	No VSS DTCs Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off 50 lb ft < Engine Torque < 500 lb ft Vehicle Speed ≥ 5 mph	Transmission ISS < 100 RPM for 5 seconds	MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message	Type B
P0741	Torque Converter Clutch (TCC) System – Stuck Off	This DTC detects a high TCC Slip Speed when the TCC is Commanded On.	No VSS DTCs No Transmission ISS DTCs No TCC System Stuck On DTC No TCC Solenoid Electrical DTC No TCC Release Switch DTC Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off 20° C ≤ TFT ≤ 130° C Transmission Gear Selector in D2, D3 or D4 Range 4% < TP < 99% 21 lb ft < Engine Torque < 500 lb ft TCC Locked Capacity > 50% or Max Allowed Pressure If Commanded Gear is 2nd, then 1.5 < Gear Ratio < 1.6 If Commanded Gear is 3rd, then 0.95 < Gear Ratio < 1.05 If Commanded Gear is 4 th , then 0.7 < Gear Ratio < 0.8	If TCC Slip Speed ≥ 180 RPM for 6 seconds, then increment Fail Counter. DTC will set when Fail Counter = 2	MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message	Type B
P0742	Torque Converter Clutch (TCC) System – Stuck On	This DTC detects a closed TCC Release Switch, indicating TCC applied, when the TCC is Commanded Off.	No TCC Solenoid Electrical DTC No TCC Release Switch DTCs Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off 20° C ≤ TFT ≤ 130° C 5% ≤ TP ≤ 45% 70 lb ft < Engine Torque < 200 lb ft TCC is Commanded Off	If the TCC Release Switch is Closed (indicating TCC applied) for 6 seconds, then increment Fail Counter. DTC will set when Fail Counter = 4	MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message	Type B
P0748	Pressure Control (PC) Solenoid Control Circuit	0V to 12V This DTC detects an open, short to ground or short to voltage in the PC Solenoid circuit or	The diagnostic is disabled if System Voltage falls below 10.5 volts at low temp (-40° C) or 12.5 volts at high temp (151° C) for > 0.025 second.	PC Solenoid open/short bit is set (PC Solenoid Duty Cycle is outside the normal operating range of 0.5% to 95%) for 0.2 second	No MIL Illumination No DIC Message	

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			Test Enable Condition(s)	Test Fail Condition(s)		
		PC Solenoid.	<p>The diagnostic is enabled again when system voltage recovers to above 11 volts at low temp or 13 volts at high temp.</p> <p>The disable and enable voltage values are determined by linear interpolation when the transmission fluid temperature is between the low and high values.</p> <p>Refer to Retest Mode at bottom of Matrix for further information.</p>			Type C
P0751	1-2 Shift Solenoid (SS) Valve Performance – No First or Fourth Gear	This DTC detects a 2-2-3-3 shift pattern.	<p>No VSS DTCs</p> <p>No Transmission ISS DTCs</p> <p>No TCC System Stuck On DTC</p> <p>No Shift Solenoid Electrical DTCs</p> <p>No TCC Solenoid Electrical DTCs</p> <p>8V ≤ System Voltage ≤ 18V</p> <p>Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off</p> <p>20° C ≤ TFT ≤ 130° C</p> <p>150 RPM ≤ Transmission ISS ≤ 8000 RPM</p> <p>Transmission OSS ≥ 300 RPM</p>	<p><u>SS Fail Case 1</u></p> <p>Time Since Last Gear Selector Range Change ≥ 1 second</p> <p>TP ≥ 5%</p> <p>20 lb ft ≤ Engine Torque ≤ 200 lb ft</p> <p>1st Gear is Commanded</p> <p>1.52 ≤ Gear Ratio ≤ 1.6 (2nd Gear Ratio)</p> <p>The above conditions are true for 1 second</p> <p><u>SS Fail Case 2</u></p> <p>Time Since Last Gear Selector Range Change ≥ 1 second</p> <p>TP ≥ 10%</p> <p>30 lb ft ≤ Engine Torque ≤ 200 lb ft</p> <p>4th Gear is Commanded</p> <p>0.95 ≤ Gear Ratio ≤ 1.05 (3rd Gear Ratio)</p> <p>The above conditions are true for 1 second</p> <p>If both SS Fail Case 1 and SS Fail Case 2 are true, then increment Fail Counter.</p> <p>DTC will set when Fail Counter = 2</p>	<p>MIL Illuminated – 2nd consecutive trip with fail reported</p> <p>No DIC Message</p>	Type B
P0752	1-2 Shift Solenoid (SS) Valve Performance – No Second or Third Gear	This DTC detects a 1-1-4-4 shift pattern.	<p>No VSS DTCs</p> <p>No Transmission ISS DTCs</p> <p>No TCC System Stuck On DTC</p> <p>No Shift Solenoid Electrical DTCs</p> <p>No TCC Solenoid Electrical DTCs</p> <p>8V ≤ System Voltage ≤ 18V</p> <p>Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off</p> <p>20° C ≤ TFT ≤ 130° C</p> <p>150 RPM ≤ Transmission ISS ≤ 8000 RPM</p> <p>Transmission OSS ≥ 300 RPM</p>	<p><u>SS Fail Case 3</u></p> <p>Time Since Last Gear Selector Range Change ≥ 1 second</p> <p>TP ≥ 10%</p> <p>20 lb ft ≤ Engine Torque ≤ 200 lb ft</p> <p>2nd Gear is Commanded</p> <p>2.87 ≤ Gear Ratio ≤ 2.97 (1st Gear Ratio)</p> <p>The above conditions are true for 1 second</p> <p><u>SS Fail Case 4</u></p> <p>Time Since Last Gear Selector Range Change ≥ 1 second</p> <p>TP ≥ 10%</p> <p>20 lb ft ≤ Engine Torque ≤ 200 lb ft</p>	<p>MIL Illuminated – 2nd consecutive trip with fail reported</p> <p>No DIC Message</p>	Type B

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			Test Enable Condition(s)	Test Fail Condition(s)		
				3rd Gear is Commanded $0.65 \leq \text{Gear Ratio} \leq 0.75$ (4 th Gear Ratio) The above conditions are true for 1 second If both SS Fail Case 3 and SS Fail Case 4 are true, then increment Fail Counter. DTC will set when Fail Counter = 2		
P0753	1-2 Shift Solenoid (SS) Control Circuit	0V to 12V This DTC detects a continuous open, short to ground or short to voltage in the SS circuit or the SS.	$8V \leq \text{System Voltage} \leq 18V$ Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off The Ignition Switch is in the ON position	Every 100 milliseconds the circuit is tested and if an open or short condition is detected a Fail Counter is incremented. If the Fail Counter ≥ 43 Counts out of 50 Counts, then the DTC will set.	MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message	Type B
P0756	2-3 Shift Solenoid (SS) Valve Performance – No First or Second Gear	This DTC detects a 4-3-3-4 shift pattern.	No VSS DTCs No Transmission ISS DTCs No TCC System Stuck On DTC No Shift Solenoid Electrical DTCs No TCC Solenoid Electrical DTCs $8V \leq \text{System Voltage} \leq 18V$ Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off $20^\circ C \leq \text{TFT} \leq 130^\circ C$ $150 \text{ RPM} \leq \text{Transmission ISS} \leq 800 \text{ RPM}$ Transmission OSS $\geq 300 \text{ RPM}$	<u>SS Fail Case 5</u> Time Since Last Gear Selector Range Change ≥ 1 second TP $\geq 10\%$ $60 \text{ lb ft} \leq \text{Engine Torque} \leq 200 \text{ lb ft}$ Transmission OSS $\geq 100 \text{ RPM}$ $-8191 \text{ RPM} \leq \text{TCC Slip Speed} \leq 8191 \text{ RPM}$ (cal'd out) 1st Gear is Commanded $0.65 \leq \text{Gear Ratio} \leq 0.75$ (4th Gear Ratio) The above conditions are true for 1 second <u>SS Fail Case 6</u> Time Since Last Gear Selector Range Change ≥ 1 second TP $\geq 10\%$ $60 \text{ lb ft} \leq \text{Engine Torque} \leq 200 \text{ lb ft}$ 2nd Gear is Commanded $0.95 \leq \text{Gear Ratio} \leq 1.05$ (3rd Gear Ratio) The above conditions are true for 1 second If both SS Fail Case 5 and SS Fail Case 6 are true, then increment Fail Counter. DTC will set when Fail Counter = 2	MIL Illuminated – 1st trip with fail reported No DIC Message	Type A
P0757	2-3 Shift Solenoid (SS) Valve Performance – No Third or Fourth Gear	This DTC detects a 1-2-2-1 shift pattern.	No VSS DTCs No Transmission ISS DTCs No TCC System Stuck On DTC No Shift Solenoid Electrical DTCs No TCC Solenoid Electrical DTCs	<u>SS Fail Case 7</u> Time Since Last Gear Selector Range Change ≥ 1 second TP $\geq 10\%$ $20 \text{ lb ft} \leq \text{Engine Torque} \leq 200 \text{ lb ft}$ 3rd Gear is Commanded $1.52 \leq \text{Gear Ratio} \leq 1.62$	MIL Illuminated – 1st trip with fail reported No DIC Message	

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DTC	Test Descriptor	Acceptable Operating Range and Rational	Test for Fail		MIL/DIC Actions	DTC Type
			Test Enable Condition(s)	Test Fail Condition(s)		
			<p>8V ≤ System Voltage ≤ 18V</p> <p>Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off</p> <p>20° C ≤ TFT ≤ 130° C</p> <p>150 RPM ≤ Transmission ISS ≤ 8000 RPM</p> <p>Transmission OSS ≥ 300 RPM</p>	<p>(2nd Gear Ratio)</p> <p>The above conditions are true for 1 second</p> <p><u>SS Fail Case 8</u></p> <p>Time Since Last Gear Selector Range Change ≥ 1 second</p> <p>TP ≥ 5%</p> <p>0 lb ft ≤ Engine Torque ≤ 1300 lb ft</p> <p>4th Gear is Commanded</p> <p>1.80 ≤ Gear Ratio ≤ 2.97 (1st Gear Ratio with extended lower limit)</p> <p>The above conditions are true for 1 second</p> <p>If both SS Fail Case 7 and SS Fail Case 8 are true, then increment Fail Counter.</p> <p>DTC will set when Fail Counter = 1</p>		Type A
P0758	2-3 Shift Solenoid (SS) Control Circuit	<p>0V to 12V</p> <p>This DTC detects a continuous open, short to ground or short to voltage in the SS circuit or the SS.</p>	<p>8V ≤ System Voltage ≤ 18V</p> <p>Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off</p> <p>The Ignition Switch is in the ON position</p>	<p>Every 100 milliseconds the circuit is tested and if an open or short condition is detected a Fail Counter is incremented.</p> <p>If the Fail Counter ≥ 43 Counts out of 50 Counts, then the DTC will set.</p>	<p>MIL Illuminated – 1st trip with fail reported</p> <p>No DIC Message</p>	Type A
P0842	Torque Converter Clutch Release Switch Circuit Low Voltage	<p>Closed Release Switch, indicating TCC is applied when TCM is commanding TCC off and TCC slip shows TCC is OFF.</p>	<p>No P0716, P0717, P0741, P0742 DTCs</p> <p>No Engine Speed</p> <p>500 ≤ Engine RPM ≤ 6500 for 5.0 sec</p> <p>TCC commanded OFF</p> <p>80 RPM < Slip Speed</p> <p>30 < Engine Torque < 300 N-m</p> <p>20° C. < Trans Temp < 130° C.</p> <p>10 mph < VSS < 90 mph</p>	<p>Release switch closed (grounding) for 6.0 sec</p> <p>Count = 2</p>	10.0 sec	Type B
P0843	Torque Converter Clutch Release Switch Circuit High Voltage	<p>Open Release Switch, indicating TCC not applied when TCM is commanding TCC ON and TCC slip shows TCC is locked</p>	<p>No P0716, P0717, P0741, P0742 DTCs</p> <p>No Engine Speed</p> <p>500 ≤ Engine RPM ≤ 6500 for 5.0 sec</p> <p>TCC commanded ON</p> <p>-20 RPM < Slip Speed</p> <p>30 < Engine Torque < 300 N-m</p> <p>20° C. < Trans Temp < 130° C.</p> <p>10 mph < VSS < 90 mph</p>	<p>Release switch open for 6.0 sec</p> <p>Count = 2</p>	10.0 sec	Type B
P1820	Internal Mode Switch (IMS) A Circuit Low Voltage	<p>0V to 12V</p> <p>This DTC detects IMS circuit A voltage being continuously low.</p>	<p>No MAP Sensor DTCs</p> <p>8V ≤ System Voltage ≤ 18V</p> <p>Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off</p>	<p>If IMS = Park for 2 seconds and then the following conditions are true for 8 seconds, increment Fail Counter.</p> <p>0 kPa ≤ MAP ≤ 105 kPa</p> <p>40 lb ft ≤ Engine Torque ≤ 300 lb ft</p> <p>IMS = Transitional_1</p> <p>DTC will set when Fail Counter = 1</p>	<p>No MIL Illumination</p> <p>No DIC Message</p>	Type B
P1822	Internal Mode Switch (IMS) B Circuit High Voltage	<p>0V to 12V</p> <p>This DTC detects IMS circuit B voltage</p>	<p>No MAP Sensor DTCs</p> <p>8V ≤ System Voltage ≤ 18V</p>	<p>If IMS = Park for 2 seconds and then the following conditions are true for 8 seconds, increment</p>	<p>No MIL Illumination</p>	

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			Test Enable Condition(s)	Test Fail Condition(s)		
		being continuously high.	Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off	Fail Counter. 0 kPa ≤ MAP ≤ 105 kPa 40 lb ft ≤ Engine Torque ≤ 300 lb ft IMS = Transitional_13 DTC will set when Fail Counter = 1	No DIC Message	Type B
P1823	Internal Mode Switch (IMS) P Circuit Low Voltage	0V to 12V This DTC detects IMS circuit P voltage being continuously low.	No MAP Sensor DTCs 8V ≤ System Voltage ≤ 18V Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off	If IMS = Park for 2 seconds and then the following conditions are true for 8 seconds, increment Fail Counter. 0 kPa ≤ MAP ≤ 105 kPa 40 lb ft ≤ Engine Torque ≤ 300 lb ft IMS = Transitional_8 DTC will set when Fail Counter = 1	No MIL Illumination No DIC Message	Type B
P1825	Internal Mode Switch (IMS) – Invalid Range	0V to 12V This DTC detects an invalid IMS range.	8V ≤ System Voltage ≤ 18V Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off	IMS = Invalid range for 60 seconds	No MIL Illumination No DIC Message	Type B
P1826	Internal Mode Switch (IMS) C Circuit High Voltage	0V to 12V This DTC detects IMS circuit C voltage being continuously high.	No VSS DTCs DTC P1826 has not Passed 8V ≤ System Voltage ≤ 18V Engine Torque ≥ 20 lb ft Vehicle Speed ≥ 10 mph Gear Ratio = 1 st , 2 nd , 3 rd or 4 th Gear	If IMS Circuit C voltage is high for 60 seconds, then increment Fail Counter. DTC will set when Fail Counter = 1	No MIL Illumination No DIC Message	Type B
P2761	Torque Converter Clutch (TCC) Pulse Width Modulation (PWM) Solenoid Control Circuit	0V to 12V This DTC detects a continuous open, short to ground or short to voltage in the TCC PWM Solenoid circuit or the TCC PWM Solenoid.	8V ≤ System Voltage ≤ 18V Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off 70% ≤ TCC Duty Cycle ≤ 10%	Every 100 milliseconds the circuit is tested and if an open or short condition is detected a Fail Counter is incremented. If the Fail Counter ≥ 43 Counts out of 50 Counts, then the DTC will set.	MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message	Type B

* Transmission Temperature Default - the following is used to determine a Default Trans. Temp. for transmission operation and running the diagnostics.

- 1) If a Coolant Temp. DTC is set, Default Trans. Temp. is set to 131 C.
- 2) If Coolant Temp. is ≥ 115 C, Default Trans. Temp. is set to 131C.
- 3) If Engine Run Time is ≤ 180 seconds, Default Trans. Temp. is set to the value of Intake Air Temp. saved at startup.
(If a IAT DTC is set, Default Trans. Temp. is set to 0 C.)
- 4) If Engine Run Time ≥ 180 seconds and Coolant Temp. is between 45 C and 115 C, Default Trans. Temp. to one of the following:
 - Coolant Temp. minus 10 C, if startup IAT is ≤ 0 C
 - Coolant Temp. plus 10 C, if startup IAT is ≥ 28 C
 - Coolant Temp., if startup IAT is between 0 C and 28 C or a IAT DTC is set.
- 5) If Engine Run Time is ≥ 180 seconds and Coolant Temp. ≤ 45 C, Default Trans. Temp. is set to 12 C.