SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALFUNCTION DETECTION PARAMETERS	SECONDARY MONITORING PARAMETERS AND CONDITIONS	MONITORING TIME LENGTH AND FREQUENCY OF CHECK	FAULT CODE STORAGE AND MIL ILLUMINATION
Transmission Fluid Temperature Sensor Circuit Range/Performance	P0711	This test detects performance of the transmission fluid temperature sensor by comparing changes in temperature from start up and between samples to calibration values.	For Case 1 (Temperature change from start up) Number of temperature data points is 6 and the time the detection has been enabled with the difference of minimum and maximum temperature > a target value The target value is dependent on the start-up temperature: start-up <= -40 deg. C; target is 36 deg. C within 1200 seconds -40 deg. C < start-up <= -30 deg. C; target is 25 deg. C within 1000 seconds -30 deg. C < start-up <= -20 deg. C; target is 21 deg. C within 900 seconds -20 deg. C < start-up <= 0 deg. C; target is 16 deg. C within 800 seconds 0 deg. C < start-up <= 20 deg. C; target is 7 deg. C within 600 seconds 20 deg. C < start-up <= 30 deg. C; target is 3 deg. C within 600 seconds 30 deg. C < start-up <= 35 deg. C; target is 0.2 deg. C within 600 seconds start-up > 35 deg. C; target is 0 deg. C within 100 seconds For Case 2 (Noisy signal) Number of temperature data points is 6 and the number of occurrences of (T- Tprevious) > +/- 10 deg. C is >= 10. If Case 1 or Case 2 detected, the performance test fails. For Case 3 (Temperature decrease from start-up) This performance test fails if a temperature decrease from start-up is >= 40 deg. C within 6 seconds.	All Cases No TFT DTC (P0711, P0712, P0713) No Input Speed Sensor DTCs (P0716, P0717) No Output Speed Sensor DTC (P0721, P0722) Components powered and 9 V < Ignition Voltage < 18 V 200 RPM < Engine Speed < 7500 RPM for 5 seconds Engine Running Start-up temperature available For Case 1 and Case 2 This DTC (P0711) has not passed Enable/disable conditions must be met AND engine has been running for >= 2 seconds, and engine speed is >= 450 RPM and output speed is >= 100 RPM.	1.5 seconds 250 ms	B
Transmission Fluid Temperature Sensor Circuit Low Input	P0712	This test detects low voltage on transmission fluid temperature sensor by comparing to a calibration value. Low voltage signal occurs at high temperature.	Trans Fluid Temp raw counts <= 16 for > 2.5 seconds	No TFT DTCs (P0711, P0712, P0713) 200 RPM < Engine Speed < 7500 RPM for 5 seconds Components powered and 9 V < Ignition Voltage < 18 V Engine running >= 20 seconds WITH Engine coolant temperature > 20 deg. C and not defaulted	2.5 seconds 250 ms	B
Transmission Fluid Temperature Sensor High Input	P0713	This test detects high voltage on transmission temperature sensor by comparing to a value. High voltage signal occurs at low temperature.	Trans Fluid Temp raw counts >= 247 for > 2.5 seconds.	No TFT DTCs (P0711, P0712, P0713) 200 RPM < Engine Speed < 7500 RPM for 5 seconds Components powered and 9 V < Ignition Voltage < 18 V Engine running >= 20 seconds WITH Engine coolant temperature > 20 deg. C and not defaulted	2.5 seconds 250 ms	B
Input/Turbine Speed Sensor Circuit Range/Performance	P0716	This test detects large changes in Input Speed and noisy Input Speed by comparing to calibration values.	For Case 1: (Unrealistically large changes in input Speed) Change of Input Speed between samples >= 800 RPM for >= 0.15 seconds For Case 2: (Noisy Input Speed)	No Output Speed Sensor DTCs (P0721, P0722) No Input Speed Sensor DTCs (P0716, P0717) Input Speed > 200 RPM for >= 0.5 seconds Shift complete and range attained NOT neutral	For Case 1: 0.15 s For Case 2: 2 s	A

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			For 80 samples, if the change in Input Speed <= -800 RPM, then the Low Counter is incremented. If the change in Input Speed is >= 800 RPM, then the High Counter is incremented. This test fails if both the Low Counter and the High Counter are >= 5 OR High Counter >= 5		25 ms	
Input/Turbine Speed Sensor Circuit No Signal	P0717	This test detects unrealistically low value of input/turbine speed or unrealistically large changes in input/turbine speed.	For Case 1: (Unrealistically large change in input speed) Failure pending if change in transmission input speed >= 800 RPM. For Case 2: (Unrealistically low value of input Speed) Failure pending if transmission input speed < 61 RPM. This test fails if input speed < 61 RPM AND output speed > 500 RPM for > 1 second.	All Cases No Input Speed Sensor NoActivity DTC (P0717) Reverse-to-Neutral shift not in process AND no hydraulic default condition due to loss of ignition voltage. For Case 1: (Unrealistically large change in input speed) Engine is running AND Shift not in process AND Range attained is NOT Neutral AND Transmission fluid temperature > -25 deg. C For Case 2: (Unrealistically low input speed) No Incorrect Ratio DTCs (P0731 through P0736) No Output Speed Sensor DTCs (P0721, P0722) Engine is running AND Shift not in process AND Range attained is not Neutral AND Transmission fluid temperature > -25 deg. C AND Transmission output speed >= 150 RPM OR Transmission output speed >= 150 RPM AND Engine Speed >= 400 RPM	1 second 25 ms	A
Output Speed Sensor Circuit Range/Performance	P0721	This test detects a noisy output speed sensor circuit by detecting large changes in output	For Case 1: (Unrealistically large change in output speed) Change in output speed >= 500 RPM for >= 0.15 s For Case 2: (Noisy output speed) For 80 samples, if the change in output speed is <= -500 RPM, then the Low Counter is incremented. If the change in output speed is >= 500 RPM, then the High Counter is incremented. Test fails if both the Low Counter and the High Counter are >= 5 or the Low Counter or the High Counter is >= 5.	No Input Speed Sensor DTCs (P0716, P0717) No Output Speed Sensor DTCs (P0721, P0722) Output Speed > 200 RPM for >= 0.5 seconds Shift complete and range attained NOT neutral	For Case 1: 0.15 s For Case 2: 2 seconds 25 ms	A
Output Speed Sensor Circuit No Signal	P0722	This test detects unrealistically low value of output speed or unrealistically large change in output speed.	For Case 1: (Unrealistically large change in output speed) Failure pending if change in output speed >= 600 RPM Failure sets if range attained is Neutral. For Case 2: (Unrealistically low value of output Speed) Failure pending if output speed < 61 RPM. Failure sets if not monitoring for low speed neutral and output speed < 61 RPM AND range is 3rd, 4th, 5th, or 6th for > 1 second. Failure sets if not monitoring for low speed neutral and output speed < 61 RPM AND ((net engine torque < -100 Nm OR net engine torque > 100 Nm) OR (turbine speed >1500 RPM and range is 2nd)) for >= 4 seconds.	All Cases No Output Speed Sensor Perf DTC (P0721) Reverse-to-Neutral shift not in process AND no hydraulic default condition due to loss of ignition voltage. For Case 1: Unrealistically large change in output speed Test enabled when output speed >= 600 RPM for >= 1 seconds or for 2 seconds. Test disabled when output speed <= 600 RPM for > 1 seconds For Case 2: Unrealistically low value of output speed No Incorrect Ratio DTCs (P0731 through P0736) No Input Speed Sensor DTCs (P0716, P0717) Engine is running AND Shift not in process AND Range attained is not Neutral AND Transmission fluid temperature > -25 deg. C Transmission input speed >= 1050 RPM Not waiting for Manual Selector Valve to attain forward range PRNDL State Not D4, nor Transitional D4, nor	1 second 25 ms	A

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALFUNCTION DETECTION PARAMETERS	SECONDARY MONITORING PARAMETERS AND CONDITIONS	MONITORING TIME LENGTH AND FREQUENCY OF CHECK	FAULT CODE STORAGE AND MIL ILLUMINATION
				Transitional N		
Gear 1 Incorrect Ratio	P0731	This test verifies transmission operating ratio while 1st range is commanded by comparing computed ratio to the commanded ratio.	Pending failure occurs when accumulated event timer >= 2 seconds. Timer accumulates when transmission is in forward or reverse range, output speed >= 100 RPM, and gear slip > 100 RPM. In response to pending failure, a diagnostic response range is commanded. During this command, this test fails if Abs(Converter Slip) >= 230 RPM for > 10 samples.	No Reverse Pressure Switch DTCs (P0875, P0876) No Output Speed Sensor DTCs (P0721, P0722) No Input Speed Sensor DTCs (P0716, P0717) Hydraulic System Pressurized Shift complete Output speed >= 200 RPM Normal powertrain shutdown not in process No hydraulic default condition present No range switch response active Normal powertrain initialization is complete	2.25 seconds 25 ms	A
Gear 2 Incorrect Ratio	P0732	This test verifies transmission operating ratio while 2nd range is commanded by comparing computed ratio to the commanded ratio.	Pending failure occurs when accumulated event timer >= 2 seconds. Timer accumulates when transmission is in forward or reverse range, output speed >= 100 RPM, and gear slip > 100 RPM. In response to pending failure, a diagnostic response range is commanded. During this command, this test fails if Abs(Converter Slip) >= 230 RPM for > 10 samples.	No Reverse Pressure Switch DTCs (P0875, P0876) No Output Speed Sensor DTCs (P0721, P0722) No Input Speed Sensor DTCs (P0716, P0717) Hydraulic System Pressurized Shift complete Output speed >= 200 RPM Normal powertrain shutdown not in process No hydraulic default condition present No range switch response active Normal powertrain initialization is complete	2.25 seconds 25 ms	A
Gear 3 Incorrect Ratio	P0733	This test verifies transmission operating ratio while 3rd range is commanded by comparing computed ratio to the commanded ratio.	Pending failure occurs when accumulated event timer >= 2 seconds. Timer accumulates when transmission is in forward or reverse range, output speed >= 100 RPM, and gear slip > 100 RPM. In response to pending failure, a diagnostic response range is commanded. During this command, this test fails if Abs(Converter Slip) >= 230 RPM for > 10 samples.	No Reverse Pressure Switch DTCs (P0875, P0876) No Output Speed Sensor DTCs (P0721, P0722) No Input Speed Sensor DTCs (P0716, P0717) Hydraulic System Pressurized Shift complete Output speed >= 200 RPM Normal powertrain shutdown not in process No hydraulic default condition present No range switch response active Normal powertrain initialization is complete	2.25 seconds 25 ms	A
Gear 4 Incorrect Ratio	P0734	This test verifies transmission operating ratio while 4th range is commanded by comparing computed ratio to the commanded ratio.	Pending failure occurs when accumulated event timer >= 2 seconds. Timer accumulates when transmission is in forward or reverse range, output speed >= 100 RPM, and gear slip > 100 RPM. In response to pending failure, a diagnostic response range is commanded. During this command, this test fails if Abs(Converter Slip) >= 230 RPM for > 10 samples.	No Reverse Pressure Switch DTCs (P0875, P0876) No Output Speed Sensor DTCs (P0721, P0722) No Input Speed Sensor DTCs (P0716, P0717) Hydraulic System Pressurized Shift complete Output speed >= 200 RPM Normal powertrain shutdown not in process No hydraulic default condition present No range switch response active Normal powertrain initialization is complete	2.25 seconds 25 ms	A
Gear 5 Incorrect Ratio	P0735	This test verifies transmission operating ratio while 5th range is commanded by comparing computed ratio to the commanded ratio.	Pending failure occurs when accumulated event timer >= 2 seconds. Timer accumulates when transmission is in forward or reverse range, output speed >= 100 RPM, and gear slip > 100 RPM. In response to pending failure, a diagnostic response range is commanded. During this command, this test fails if	No Reverse Pressure Switch DTCs (P0875, P0876) No Output Speed Sensor DTCs (P0721, P0722) No Input Speed Sensor DTCs (P0716, P0717) Hydraulic System Pressurized Shift complete Output speed >= 200 RPM Normal powertrain shutdown not in process	2.25 seconds 25 ms	A

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALFUNCTION DETECTION PARAMETERS	SECONDARY MONITORING PARAMETERS AND CONDITIONS	MONITORING TIME LENGTH AND FREQUENCY OF CHECK	FAULT CODE STORAGE AND MIL ILLUMINATION
			Abs(Converter Slip) >= 230 RPM for > 10 samples.	No hydraulic default condition present No range switch response active Normal powertrain initialization is complete		
Reverse Incorrect Ratio	P0736	This test verifies transmission range while range is commanded by comparing computed to the commanded ratio.	Accumulated event timer >= 2 seconds. Timer accumulates when transmission in forward or reverse range, output speed >= 100 RPM, and gear slip > 100 RPM	No Reverse Pressure Switch DTCs (P0875, P0876) No Output Speed Sensor DTCs (P0721, P0722) No Input Speed Sensor DTCs (P0716, P0717) Hydraulic System Pressurized Shift complete Output speed >= 200 RPM No hydraulic default condition present Normal powertrain shutdown not in process No range switch response active Normal powertrain initialization is complete	2 seconds 25 ms	A
Engine Speed Input Circuit Range/Performance	P0726	This test detects large changes in Engine Speed and noisy Engine Speed by comparing to calibration values.	For Case 1: (Large change in Engine Speed) Change in engine speed >= 600 RPM for 0.15 Seconds For Case 2: (Noisy Engine Speed) For 80 samples, if the change in engine speed <= -650 RPM then the Low Counter is incremented. If the change in engine speed >= 650 RPM, then the High Counter in incremented. This test fails if both the Low Counter and the High Counter >= 5 or the Low Counter or the High Counter >= 5	No Input Speed Sensor DTCs (P0716, P0717) No TCM Engine Speed Sensor DTCs (P0726, P0727) Engine speed > 600 RPM for 1 seconds Shifts complete and range attained not neutral	For Case 1: 0.15 s For Case 2: 2 seconds 25 ms	B
Engine Speed Input Circuit No Signal	P0727	This test detects unrealistically low value of engine speed or unrealistically large change in engine speed.	Case 1: (Unrealistically large change in engine speed) Failure pending if change in engine speed >= 1140 RPM Case 2: (Unrealistically low value for engine Speed) Engine speed < 61 RPM for 4 seconds	All Cases: No TCM Engine Speed Sensor Perf DTC (P0726) Case 2: (Unrealistically low value of engine speed) No Input Speed Sensor DTCs (P0716, P0717) Turbine speed >= 400 RPM Ignition Key in RUN position AND Ignition Key is not being cycled AND vehicle is not coasting with engine off	4 seconds 25 ms	B
Torque Converter Clutch Circuit Performance or Stuck Off	P0741	This test detects the torque converter being stuck off (unlocked).	TCC Slip >= 80 RPM for >= 15 seconds.	No TCC Electrical DTC (P0743) No Output Speed Sensor DTCs (P0721, P0722) No Input Speed Sensor DTCs (P0716, P0717) 200 RPM < Engine Speed < 7500 RPM for 5 seconds Components powered and 9 V < Ignition Voltage < 18 V Must be in forward range 10 % < % Throttle <= 90 % Time Since Range Change >= 6 seconds AND (TCC is OnMode or LockOnMode)	15 s 100 ms	B
Torque Converter Clutch Circuit Stuck On	P0742	This test detects the torque convert being stuck on (locked).	Transmission output speed <= 0 RPM AND % throttle <= 0 % AND (brake is on OR engine speed < 0 RPM) AND (-40 RPM <= TCC Slip <= -5 RPM) for > 5 seconds. Transmission output speed >= 100 RPM AND % throttle >= 15 % AND net engine torque >= 130 Nm AND (-40 RPM <= TCCSlip <= -5 RPM) AND engine speed <= 5500 RPM AND turbine speed <= 5500 RPM for > 2.5 seconds.	No TCC Electrical DTC (P0743) No Output Speed Sensor DTCs (P0721, P0722) No Input Speed Sensor DTCs (P0716, P0717) No TCM Engine Speed Sensor DTCs (P0726, P0727) 200 RPM < Engine Speed < 7500 RPM for 5 seconds Components powered and 9 V < Ignition Voltage < 18 V Must be in forward range TCC is off	2.5 s or 5 s 100 ms	B

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALFUNCTION DETECTION PARAMETERS	SECONDARY MONITORING PARAMETERS AND CONDITIONS	MONITORING TIME LENGTH AND FREQUENCY OF CHECK	FAULT CODE STORAGE AND MIL ILLUMINATION
Pressure Control Solenoid "A" Electrical	P0748	This test detects solenoid A electrical circuit malfunctions.	A Solenoid Hardware detected failure for 5 samples. -- OR -- For 5 samples, if A Solenoid Duty Cycle > 31.25 % AND (31.25 % < A Solenoid Duty Cycle <= 86.99951 % AND A Solenoid Current < 0.09998 A OR (A Solenoid Duty Cycle > 86.99951 % AND A Solenoid Current < 0.59998 A) OR (A Solenoid Duty Cycle <= 14.99939 % and A Solenoid Current > target current + 0.200 A). Target current = (A Solenoid Duty Cycle * A Solenoid Supply Voltage) /(8 ohms * (1 + (Trans fluid temp - 20 deg. C) * 0.00394 (1/deg. C))).	No Solenoid A Electric DTC (P0748) Components powered and 9 V < Ignition Voltage < 18 V A Solenoid low-side driver closed (circuit complete) Engine cranking time < 4 seconds Ignition voltage > 7 V OR Engine running Enable/Disable conditions must be met for 2 samples with Solenoid A duty cycle within 30% from previous sample.	125 ms 25 ms	A
Pressure Control Solenoid "B" Electrical	P0778	This test detects solenoid B electrical circuit malfunctions.	B Solenoid Hardware detected failure for 5 samples. -- OR -- For 5 samples, if B Solenoid Duty Cycle > 31.25 % AND (31.25 % < B Solenoid Duty Cycle <= 86.99951 % AND B Solenoid Current < 0.09998 A) OR (B Solenoid Duty Cycle > 86.99951 % AND B Solenoid Current < 0.59998 A) OR (B Solenoid Duty Cycle <= 14.99939 % AND B Solenoid Current > target current + 0.200 A). Target current = (B Solenoid Duty Cycle * B Solenoid Supply Voltage) / (8 ohms * (1 + (Trans fluid temp - 20 deg. C) * 0.00394 (1/deg. C))).	No Solenoid B Electric DTC (P0778) Components powered and 9 V < Ignition Voltage < 18 V B Solenoid low-side driver closed (circuit complete) Engine cranking time < 4 seconds Ignition voltage > 7 V OR Engine running Enable/Disable conditions must be met for 2 samples with Solenoid B duty cycle within 30% from previous sample.	125 ms 25 ms	A
Shift Solenoid "C"	P0763	This test detects solenoid C electrical circuit malfunctions.	C Solenoid Off AND Hardware detected failure for > 0.09961 seconds C Solenoid ON and Hardware detected failure for > 0.09961 seconds	No Solenoid C Electric DTC (P0763) Initialization in process OR 200 RPM < Engine Speed < 7500 RPM for 5 seconds Components powered and 9 V < Ignition Voltage < 18 V SystemState not ControllerReady	100 ms 25 ms	A
Shift Solenoid "D" Electrical	P0768	This test detects solenoid D electrical circuit malfunctions.	D Solenoid OFF and Hardware detected failure for > 0.09961 seconds D Solenoid ON and Hardware detected failure for > 0.09961 seconds	No Solenoid D Electric DTC (P0768) Initialization in process OR 200 RPM < Engine Speed < 7500 RPM for 5 seconds Components powered and 9 V < Ignition Voltage < 18 V SystemState not ControllerReady	100 ms 25 ms	A
Shift Solenoid "E"	P0773	This test detects Solenoid E electrical circuit malfunctions.	E Solenoid OFF and Hardware detected failure for > 0.09961 seconds E Solenoid ON and Hardware detected failure for > 0.09961 seconds	No Solenoid E Electric DTC (P0773) Initialization in process OR 200 RPM < Engine Speed < 7500 RPM for 5 seconds Components powered and 9 V < Ignition Voltage < 18 V SystemState not ControllerReady	100 ms 25 ms	A
Pressure Switch C Circuit Malfunction	P0840	This test compares the commanded valve position to the pressure switch C feedback. (part of S1 valve integrity test)	Pending failure occurs when C pressure switch indicates stroked for > 0.125 seconds. (If a main pressure dropout is suspected or detected, then time limit increases to 0.125 seconds and 30 seconds, respectively.) In response to the pending failure, S1 valve is retried by triggering S1 valve command to stroked and back to destroked. If the C pressure switch continues to indicate stroked, then one of three malfunction cases exists. For Case 1 (electrical malfunction), Solenoid C Electrical Malfunction (P0763) reports failure, also.	S1 valve is destroked NOT Cold initialization unless transmissions fluid temperature > -25 deg. C. Shutdown is NOT in process Ignition voltage > 5 V and stable.	125 ms 25 ms	A

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			For Case 2 (mechanical malfunction), Pressure Switch C Circuit Low/Stuck Closed (P0842) reports failure, also. For Case 3 (intermittent malfunction), S1 valve retry attempted 15 times and C pressure switch continues to indicate stroked.			
Pressure Switch C Stuck Open/Performance	P0841	This test compares the change of state of the valve command to the change of state of the C pressure switch feedback. (part of the S1 valve timeout test)	S1 valve is commanded from destroked to stroked and the C pressure switch indication remains destroked for 5 seconds at transmission fluid temperature >= 0 deg. C. (Time increases as temperature decreases with maximum time of 5 seconds at transmission fluid temperature <= -40 deg. C.)	S1 valve commanded from destroked to stroked.	5 seconds 25 ms	A
Pressure Switch C Circuit Low/Stuck Closed	P0842	This test compares the change of state of the valve command to the change of state of the C pressure switch feedback (part of the S1 valve timeout test).	S1 valve commanded from stroked to destroked and the C pressure switch indication remains stroked for > 2 seconds at transmission fluid temperature >= 0 deg. C. (Time increases as temperature decreases with maximum time of 4 seconds at transmission fluid temperature >= -40 deg. C.)	S1 valve changes from stroked to destroked	2 seconds 25 ms	A
Pressure Switch C Circuit High	P0843	This test compares the commanded valve position to the pressure switch C feedback. (part of S1 valve integrity test)	Pending failure occurs when C pressure switch indicates destroked for > 0.09961 seconds. (If a main pressure dropout is suspected or detected, then time limit increases to 5 seconds and 30 seconds, respectively.) In response to the pending failure, S1 valve is retried by triggering the S1 valve command to destroked and back to stroked. If the C pressure switch continues to indicate destroked, then one of three malfunction cases exists. For Case 1 (electrical malfunction), Solenoid C Electrical Malfunction (P0763) reports failure, also. For Case 2 (mechanical malfunction), Pressure Switch C Circuit Stuck Open/Performance (P0841) reports failure, also. For Case 3 (intermittent malfunction), S1 valve retry attempted 15 times and C pressure switch continues to indicate destroked.	S1 valve is stroked NOT Cold initialization unless transmissions fluid temperature > -25 deg. C. Shutdown NOT in process Ignition voltage > 5 V and stable.	100 ms 25 ms	A
Pressure Switch D Circuit Malfunction	P0845	This test compares the commanded valve position to the D pressure switch feedback (part of the S2 valve integrity test).	Pending failure occurs when D pressure switch indicates stroked for > 0.040 seconds. (If a main pressure dropout is suspected or detected, then time limit increases to 5 seconds and 30 seconds, respectively.) In response to the pending failure, S2 valve is retried by triggering S2 valve command to stroked and back to destroked. If the D pressure switch continues to indicate	S2 valve is destroked NOT Cold initialization unless transmissions fluid temperature > -25 deg. C. Shutdown is NOT in process Ignition voltage > 5 V and stable.	40 ms 25 ms	A

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			stroked, then one of three malfunction cases exists. For Case 1 (electrical malfunction), Solenoid D Electrical Malfunction (P0768) reports failure, also. For Case 2 (mechanical malfunction), Pressure Switch D Circuit Low/Stuck Closed (P0847) reports failure, also. For Case 3 (intermittent malfunction), S2 valve retry attempted 2 times and D pressure switch continues to indicate stroked.			
Pressure Switch D Stuck Open/Performance	P0846	This test compares the change of state of the valve command to the change of state of the D pressure switch feedback (part of the S2 valve timeout test).	If the S2 valve is commanded from destroked to stroked and the D pressure switch indication remains destroked for 5 seconds at transmission fluid temperature >= 0 deg. C. (Time increases as temperature decreases with maximum time of 5 seconds at transmission fluid temperature <= -40 deg. C.)	S2 valve commanded from destroked to stroked.	5 seconds 25 ms	A
Pressure Switch D Circuit Low/Stuck Closed	P0847	This test compares the change of state of the valve command to the change of state of the D pressure switch feedback (part of the S2 valve timeout test).	S2 valve commanded from stroked to destroked and the D pressure switch does not indicate destroked for > 2 seconds at transmission fluid temperature >= 0 deg. C. (Time increases as temperature decreases with maximum time of 4 seconds at transmission fluid temperature <= -40 deg. C.)	S2 valve changes from stroked to destroked	2 seconds 25 ms	A
Pressure Switch D Circuit High	P0848	This test compares the commanded valve position to the D pressure switch feedback (part of the S2 valve integrity test).	Pending failure occurs when D pressure switch indicates destroked for > 0.125 seconds. (If a main pressure dropout is suspected or detected, then time limit increases to 5 seconds and 30 seconds, respectively.) In response to the pending failure, S2 valve is retried by triggering the S2 valve command to destroked and back to stroked. If the D pressure switch continues to indicate destroked, then one of three malfunction cases exists. For Case 1 (electrical malfunction), Solenoid D Electrical Malfunction (P0768) reports failure, also. For Case 2 (mechanical malfunction), Pressure Switch D Circuit Stuck Open/Performance (P0846) reports failure, also. For Case 3 (intermittent malfunction), S2 valve retry attempted 2 times and D pressure switch continues to indicate destroked.	S2 valve is stroked NOT Cold initialization unless transmissions fluid temperature > -25 deg. C. Shutdown NOT in process Ignition voltage > 5 V and stable.	125 ms 25 ms	A
Pressure Switch "E" Malfunction	P0870	This test compares the commanded valve position to the pressure switch E feedback. (part of S3 valve integrity test)	Pending failure occurs when E pressure switch indicates stroked for > 0.0195 seconds. (If a main pressure dropout is suspected or detected, then time limit increases to 5 seconds and 30 seconds, respectively.)	S3 valve is destroked NOT Cold initialization unless transmissions fluid temperature > -25 deg. C. Shutdown is NOT in process Ignition voltage > 5 V and stable.	20 ms 25 ms	A

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			In response to pending failure, S3 valve is retried by triggering S3 valve command to stroked and back to destroked. If the E pressure switch continues to indicate stroked, then one of three malfunction cases exists. For Case 1 (electrical malfunction), Solenoid E Electrical Malfunction (P0773) reports failure, also. For Case 2 (mechanical malfunction), Pressure Switch E Circuit Low/Stuck Closed (P0872) reports failure, also. For Case 3 (intermittent malfunction), S3 valve retry attempted 2 times and E pressure switch continues to indicate stroked.			
Pressure Switch "E" Stuck Open / Performance	P0871	This test compares the change of state of the valve command to the change of state of the E pressure switch feedback. (part of the S3 valve timeout test)	If the S3 valve is commanded from destroked to stroked and the E pressure switch indication remains destroked for 5 seconds at transmission fluid temperature >= 0 deg. C. (Time increases as temperature decreases with maximum time of 5 seconds at transmission fluid temperature <= -40 deg. C.)	S3 valve commanded from destroked to stroked.	5 seconds 25 ms	A
Pressure Switch "E" Circuit Low / Stuck Closed	P0872	This test compares the change of state of the valve command to the change of state of the E pressure switch feedback. (part of the S3 valve timeout test)	S3 valve commanded from stroked to destroked and the E pressure switch does not indicate destroked for > 2 seconds at transmission fluid temperature >= 0 deg. C. (Time increases as temperature decreases with maximum time of 4 seconds at transmission fluid temperature >= -40 deg. C.)	S3 valve changes from stroked to destroked	2 seconds 25 ms	A
Pressure Switch "E" High	P0873	This test compares the commanded valve position to the pressure switch E feedback. (part of S3 valve integrity test)	Pending failure occurs when E pressure switch indicates destroked for > 0.125 seconds. (If a main pressure dropout is suspected or detected, then time limit increases to 5 seconds and 30 seconds, respectively.) In response to the pending failure, S3 valve is retried by triggering the S3 valve command to destroked and back to stroked. If the E pressure switch continues to indicate destroked, then one of three malfunction cases exists. For Case 1 (electrical malfunction), Solenoid E Electrical Malfunction (P0773) reports failure, also. For Case 2 (mechanical malfunction), Pressure Switch E Circuit Open/Performance (P0871) reports failure, also. For Case 3 (intermittent malfunction), S3 valve retry attempted 2 times and E pressure switch continues to indicate destroked.	S3 valve is stroked NOT Cold initialization unless transmissions fluid temperature > -25 deg. C. Shutdown NOT in process Ignition voltage > 5 V and stable.	125 ms 25 ms	A
Torque Converter Clutch Electrical	P0743	This test detects torque converter solenoid circuit malfunctions.	Hardware Detected Failure for > 1.5 seconds	No TCC Electrical DTC (P0743) Components powered and 9 V < Ignition Voltage < 18 V Initialization in process OR 200 RPM < Engine Speed <	1.5 seconds 25 ms	B

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				7500 RPM for 5 seconds Powertrain State NOT ControllerReady TCC Solenoid commanded ON		
4 Wheel Drive Low Switch Circuit Malfunction	P2771	This test detects abnormal conditions for the four-wheel drive indication switch input by comparing switch state range to calculated range.	For Case 1: (Stuck Off) This test fails when, for >= 200 occurrences, the transfer case 4WD switch indicates High range and the calculated transfer case range is Low range for >= 5 seconds. For Case 2 (Stuck On) This test fails when, for >= 200 occurrences, the transfer case 4WD switch indicates Low range and the calculated transfer case range is High range for >= 5 seconds.	No Four Wheel Drive Low Circuit Perf DTC (P2771) No Output Speed Sensor DTCs (P0721, P0722) Output Speed > 60 RPM 20 deg. C < Transmission fluid temperature < 130 deg. C Transfer Case NOT neutral 200 RPM < Engine Speed < 7500 RPM Shift complete and range attained not neutral	9 sec 25 ms	B
CAN Bus Reset Counter Overrun	U0073	This test detects if the CAN (J1939) bus is off.	CAN bus is OFF >= 3 seconds.	200 RPM < Engine Speed < 7500 RPM for 5 seconds Components powered and 9 V < Ignition < 18 V	3 s 100 ms	B
CAN Bus Error ECU – of Health	U0100	This test detects CAN (J1939) bus message failures.	Messages absent >= 3 seconds.	200 RPM < Engine Speed < 7500 RPM for 5 seconds Components powered and 9 V < Ignition < 18 V	3 s 100 ms	B
Solenoid "A" Controlled Clutch Stuck Off	P0746	This test determines if the on-coming clutch energized by Solenoid A engages during a forward range shift.	Pending failure occurs when accumulated event timer >= 2 seconds. (For rough road conditions, use 2 seconds.) Timer accumulates when transmission is shifting, output speed >= 60 RPM, and commanded gear slip speed > 75 RPM. (For rough road conditions, use 150 RPM.) In response of pending failure, a diagnostic response range is commanded. During this command, this test fails if Abs(Converter Slip) >= 230 RPM for > 10 samples.	No Output Speed Sensor DTCs (P0721, P0722) No Input Speed_Sensor DTCs (P0716, P0717) No Reverse Pressure Switch DTCs (P0875, P0876) Hydraulic System Pressurized Output Speed >= 125 RPM Turbine Speed >= 60 RPM Normal powertrain shutdown not in process Normal or Cold powertrain initialization is complete No Cold Mode operation No abusive garage shift to 1st range detected On-coming clutch control enabled No range switch response active Power downshift abort to previous range NOT active	2.25 s 25 ms	A
Solenoid "B" Controlled Clutch Stuck Off	P0776	This test determines if the on-coming clutch energized by Solenoid B engages during a forward range shift.	Pending failure occurs when accumulated event timer >= 2 seconds. (For rough road conditions, use 2 seconds.) Timer accumulates when transmission is shifting, output speed >= 60 RPM, and commanded gear slip speed > 75 RPM. (For rough road conditions, use 150 RPM.) In response of pending failure, a diagnostic response range is commanded. During this command, this test fails if Abs(Converter Slip) >= 230 RPM for > 10 samples.	No Output Speed Sensor DTCs (P0721, P0722) No Input Speed_Sensor DTCs (P0716, P0717) No Reverse Pressure Switch DTCs (P0875, P0876) Hydraulic System Pressurized Output Speed >= 125 RPM Turbine Speed >= 60 RPM Normal powertrain shutdown not in process Normal or Cold powertrain initialization is complete No Cold Mode operation No abusive garage shift to 1st range detected On-coming clutch control enabled No range switch response active Power downshift abort to previous range NOT active	2.25 s 25 ms	A
Solenoid "A" Controlled Clutch Stuck On	P0747	This test determines if the off-going clutch energized by A solenoid remains engaged during a forward range shift.	Accumulated fail timer >= 0.2998 seconds for forward range upshift; >= 0.500 seconds for forward range closed throttle downshift; >= 1.0 second for forward downshifts above closed throttle. Fail timer accumulates during range to range shifts when attained gear slip speed <= 25 RPM	No Output Speed Sensor DTCs (P0721, P0722) No Input Speed Sensor DTCs (P0716, P0717) No Reverse Pressure Switch DTCs (P0875, P0876) Output Speed >= 200 RPM Turbine Speed >= 200 RPM Normal powertrain shutdown not in process	< 1 s 25 ms	A

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALFUNCTION DETECTION PARAMETERS	SECONDARY MONITORING PARAMETERS AND CONDITIONS	MONITORING TIME LENGTH AND FREQUENCY OF CHECK	FAULT CODE STORAGE AND MIL ILLUMINATION
				Normal or Cold powertrain initialization is complete No Cold Mode operation No range switch response active No abusive garage shift to 1st range detected		
Solenoid "B" Controlled Clutch Stuck On	P0777	This test determines if the off-going clutch energized by B solenoid remains engaged during a forward range shift.	Accumulated fail timer >= 0.2998 seconds for forward range upshift; >= 0.500 seconds for forward range closed throttle downshift; >= 1.0 second for forward downshifts above closed throttle. Fail timer accumulates during range to range shifts when attained gear slip speed <= 25 RPM	No Output Speed Sensor DTCs (P0721, P0722) No Input Speed Sensor DTCs (P0716, P0717) No Reverse Pressure Switch DTCs (P0875, P0876) Output Speed >= 200 RPM Turbine Speed >= 200 RPM Normal powertrain shutdown not in process Normal or Cold powertrain initialization is complete No Cold Mode operation No range switch response active No abusive garage shift to 1st range detected	< 1 s 25 ms	A
Transmission Range Sensor High Input	P0708	This test monitors the transmission range switch for invalid input conditions and parity errors occurring over consecutive ignition cycles.	For Case 1 (No Information): Illegal electrical state for >= 1 second. For Case 2 (Long-term Parity): There are 3 counters for long-term parity. These counters are updated at the end of each drive cycle, immediately prior to TCM shutdown. For Counter 1, increment counter IF Parity Error Detected; decrement counter IF No Parity Error Detected AND No Motion Detected. IF Counter 1 >= 15 counts, THEN report failure. For Counter 2, increment counter IF Parity Error Detected AND (No Valid Drive Detected OR No Valid Park/Neutral Detected) AND Motion Detected; decrement counter IF No Parity Error Detected AND Valid Park/Neutral Detected AND Valid Drive Detected AND Motion Detected. IF Counter 2 >= 5 counts, THEN report failure. For Counter 3, increment Counter IF Parity Error Detected while in Reverse AND No Valid Reverse Detected AND Motion Detected. Decrement counter IF No Parity Error Detected AND Valid Reverse Detected AND Motion Detected. IF Counter 3 >= 10 counts, THEN report failure. Where . . . . Parity Error Detected is defined as a failure of the 4-bit PRNDL input such that the sum of those bits yields an odd result for 30 seconds; Motion Detected is defined as output speed >= 200 RPM for 10 seconds; Valid Drive Detected is defined as the 4-bit PRNDL indicates Valid Drive for 3 seconds; Valid Park Detected is defined as the 4-bit PRNDL indicates Valid Park for 0.2 seconds and output	200 RPM < Engine Speed < 7500 RPM for 5 seconds Components powered and 9 V < Ignition Voltage < 18 V	Case 1: 1 s Case 2: 5th occurrence 100 ms	A

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALFUNCTION DETECTION PARAMETERS	SECONDARY MONITORING PARAMETERS AND CONDITIONS	MONITORING TIME LENGTH AND FREQUENCY OF CHECK	FAULT CODE STORAGE AND MIL ILLUMINATION
			speed <= 20 RPM. Valid Reverse Detected is defined as the 4-bit PRNDL indicates Valid Reverse for 15 seconds; Valid Neutral Detected is defined as the 4-bit PRNDL indicates Valid Neutral for 3 seconds OR for 0.2 seconds with output speed <= 20 rpm			
Pressure Switch Reverse Circuit Malfunction	P0875	This test detects Reverse Pressure Switch closed indication by comparing the Reverse Pressure Switch state to the PRNDL switch state.	For 100 samples (if dropouts detected, use 200 samples), PRNDL is in P, D1, D2, D3, D4, D5, T1, T8, T4 or T13 AND RPS indicates Reverse after >= 1 seconds (if dropouts detected, use 30 seconds).	No Reverse Pressure Switch DTCs (P0875, P0876) Engine is Running No range switch response active 200 RPM < Engine Speed < 7500 RPM for 5 seconds 9 V < Ignition Voltage < 18 V Transmission Fluid Temperature >= 0 deg. C Hydraulic System is Pressurized	3 s 50 ms	A
Pressure Switch Reverse Stuck Open / Performance	P0876	This test detects the Reverse Pressure switch being stuck in the open position by comparing to the PRNDL switch state and detects the Reverse Pressure switch stuck open at shutdown.	For Case 1: (RPS State and PRNDL State do not agree) For 40 samples, PRNDL is in R AND RPS indicates not Reverse after >= 1 seconds For Case 2: (RPS Shutdown Test) If RPS State is not Reverse for > 10 seconds at 0 deg. C. This time varies with transmission fluid temperature, from 5 seconds at temperature > 35 deg. C to 30 seconds at temperature < -20 deg. C.	For All Cases: Transmission Fluid Temperature >= 0 deg. C For Case 1: (RPS State and PRNDL State do not agree) No range switch response active No Reverse Pressure Switch DTCs (P0875, P0876) 9 V < Ignition Voltage < 18 V For Case 2: (RPS Shutdown Test) NOT (9 V < Ignition Voltage < 18 V) Engine speed < 50 RPM Turbine speed < 50 RPM Output speed < 50 RPM	Case 1: 3 s Case 2: 30 s 50 ms	B
Pressure Control Solenoid "G" Electrical	P2810	This test detects G solenoid electrical circuit malfunctions.	Hardware detected failure for > 1.5 seconds	No G Solenoid Electrical DTC (P2810) Components powered and 9 V < ignition voltage < 18 V Initialization in process OR 200 RPM < engine speed < 7500 RPM for 5 seconds Powertrain state NOT ControllerReady G solenoid autodetected	1.5 seconds 25 ms	A