Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
Transmission Fluid Temperature								
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.	All 5 Cases		Not Test Failed This Key On	P0711 P0716 P0717 P0721 P0722 P0742		B
					No Fault Pending DTCs for this drive cycle	P0716 P0717 P0721 P0722		
					No Pass DTCs for this drive cycle	P0711		
					No Fault Active DTC	P0711		
					Components powered AND			
					Battery Voltage between	9 V and 18 V		
					Engine Speed between	200 RPM and 7500 RPM		
					for	5 seconds		
					Start-up transmission fluid temperature is available			
					Transmission fluid temperature between	-39 deg. C and 149 deg. C		
					ECT is not defaulted			
			Case 1 (Stuck sensor after cold start-up)				300 seconds	
			Start-up temperature change	<= 2 deg. C	Start-up transmission fluid	-40 deg. C and		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			for a time	>= 100 seconds	temperature between	21 deg. C		
			AND		TCC Slip	>= 120 RPM		
					for a time	>= 300 seconds		
			Vehicle speed	>= 8 KPH				
			for a time	>= 300 seconds.	engine coolant temperature	>= 70 deg. C		
					AND			
					engine coolant temperature change from start-up	>= 15 deg. C		
			Case 2 (Stuck sensor after warm start-up)				300 seconds	
			Start-up temperature change	<= 3 deg. C	Start-up transmission fluid temperature between	115 deg. C and 150 deg. C.		
			for a time	>= 100 seconds				
			AND		TCC Slip	>= 120 RPM		
					for a time	>= 300		
					engine coolant temperature	>= 70 deg. C		
					AND			
			Vehicle speed	>= 8 KPH	engine coolant temperature change from start-up	>= 55 deg. C		
			for a time	>= 300 seconds.				
			Case 3 (Noisy sensor)				7 seconds	
			Change from previous	>= 20 deg. C				
			for	14 events				
			in a time	< 7 seconds.				
			Case 4 (Doesn't warm up to at least 20 deg. C)				2200 seconds	
					net engine torque	>= 150 Nm		
			Time Enabled Criteria met AND		and	<= 1492 Nm		
			AND		vehicle speed	>= 22 KPH		
			Transmission Fluid Temperature	< 20 deg. C.	and	<= 512 KPH		
					%throttle	>= 10.5%		
			Time Enabled Criteria is	250 seconds when start-up temperature is >= 20	and	<= 100%		
					engine speed	>= 500 RPM		
			to	2200 seconds when start-up temperature is <= -40 deg. C.	and	<= 6500 RPM		
					engine coolant temperature	>= -39 deg. C		
					and	<= 149 deg. C		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			Case 5 (Reasonableness at start-up): Engine Speed AND Engine Coolant Temperature AND AND for AND ((ABS(IAT-ECT) AND (TFT-ECT)) OR (ABS(IAT-ECT) AND (TFT-ECT)))	 > 500 RPM > -39 deg. C < 50 deg. C >= 2 seconds <= 6 deg. C > 40 deg. C > 6 deg. C > 60 deg. C.	Intake Air Temperature is not defaulted		2 seconds	
Transmission Fluid Temperature Sensor Circuit Low Input	P0712	Out of range low.	transmission fluid temperature for a time	>=150 deg. C > 2.5 seconds.	Not Test Failed This Key On Components powered AND Battery Voltage between Engine Speed between for	P0711 P0712 P0713 9 V and 18 V 200 RPM and 7500 RPM 5 seconds	2.5 seconds	B
Transmission Fluid Temperature Sensor Circuit High Input	P0713	Out of range high.	transmission fluid temperature for a time	<= -45 deg. C > 2.5 seconds	Not Test Failed This Key On Components powered AND Battery Voltage between Engine Speed between	P0711 P0712 P0713 9 V and 18 V 200 RPM and 7500 RPM	2.5 seconds	B

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					for IF Engine run time THEN Engine Coolant Temperature AND not defaulted for a time	5 seconds <= 600 seconds must be > 20 deg. C >= 20 seconds.		
Speed Sensors								
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.	All cases		Not Test Failed This Key On No Fault Pending DTCs for this drive cycle. Shifting complete	P0716 P0717 P0721 P0722 P0721 P0722		A
			Case 1: (Unrealistically large changes in input speed) Change of Input Speed between samples for	 >= 800 RPM >= 0.15 seconds	Input Speed for	> 200 RPM >= 0.5 seconds	0.15 seconds	
			Case 2: (Noisy Input Speed) For sample size IF the change in Input Speed THEN the Low Counter is incremented IF the change in Input Speed THEN the High Counter is incremented	 80 <= -800 RPM >= 800 RPM	Input Speed for	> 200 RPM >= 0.5 seconds	2 seconds	

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			This test fails if both the Low Counter and the High Counter OR Low Counter OR High Counter	>= 5 >= 5 >= 5				
			For Case 3: (Wires to speed sensors swapped) Increment counter when range attained and range commanded are neutral for a time AND when ratio of engine speed and input speed Arm test when counter OR when time Malfunction is reported when, for a time the range commanded is NOT neutral AND the on-coming clutch control is complete AND input speed AND engine speed	 <= 3.5 seconds >= 3 >=20 > 3.5 seconds > 0.5 seconds > 100 RPM < 100 RPM	Input speed AND Engine speed for a time Hydraulic system pressurized	> 100 RPM > 100 RPM >= 0.2 seconds	4 seconds	
Input/Turbine Speed Sensor Circuit No Signal	P0717	This test detects unrealistically low value of input/turbine speed or	Failure pending if transmission input speed This test fails if input speed	< 61 RPM < 61 RPM	Not Test Failed This Key On	P0717 P0729 P0731 P0732	1 second	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		unrealistically large changes in input/turbine speed.	AND output speed for a time	 > 500 RPM > 1 second.		P0733 P0734 P0735 P0736 P0721 P0722		
					No Fault Pending DTCs	P0721 P0722		
					Reverse-to-Neutral shift not in process Shifting complete Range attained is not neutral Transmission fluid temperature Engine speed Transmission output speed	 > -25 deg. C >= 400 RPM >= 150 RPM		
Output Speed Sensor Circuit Range/Performance	P0721	This test detects a noisy output speed sensor or circuit by detecting large changes in output speed.	Case 1: (Unrealistically large change in output speed) Change in output speed for a time	 >= 500 RPM >= 0.15 seconds	All Cases Not Test Failed This Key On	 P0716 P0717 P0721 P0722	Case 1: 0.65 seconds	A
			Case 2: (Noisy output speed) For sample size IF the change in output speed THEN the Low Counter is incremented. IF the change in output speed THEN the High Counter is incremented. Test fails if both the Low Counter and the High Counter OR the Low Counter OR	 80 <= -500 RPM >= 500 RPM >= 5 >= 5	No Fault Pending DTCs for this drive cycle Output Speed for a time Shift complete AND range attained NOT neutral	P0716 > 200 RPM >= 0.5 seconds	Case 2: 2 seconds	

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			the High Counter	>= 5				
Output Speed Sensor Circuit No Signal	P0722	This test detects unrealistically low value of output speed or unrealistically large change in output speed.	All Cases		All Cases Not Test Failed This Key On	 P0721		A
			Case 1: (Unrealistically large change in output speed) Failure pending if change in output speed Failure sets if range attained is Neutral	 >= 600 RPM	Test enabled when output speed for a time Test disabled when output speed for a time	>= 600 RPM >= 1 seconds <= 600 RPM > 1 seconds	1 second	
			Case 2: (Unrealistically low value of output speed) Failure pending if output speed Failure sets if not monitoring for low speed neutral and output speed AND range is 3rd, 4th, 5th, or 6th for a time Failure sets if not monitoring for low speed neutral and output speed AND ((net engine torque OR net engine torque) OR (turbine speed AND range is 2nd)) for a time	 < 61 RPM < 61 RPM > 1 second < 61 RPM < -100 Nm > 100 Nm > 1500 RPM >= 4 seconds.	 Not Test Failed This Key On No Fault Pending DTCs for this Engine is running Shift not in process Range attained is not Neutral Reverse to Neutral shift not in process Transmission fluid temperature Transmission input speed Not waiting for Manual Selector Valve to attain forward range PRNDL State is NOT D4, NOT	 P0731 P0732 P0733 P0734 P0735 P0736 P0716 P0717 P0716 P0717 > -25 deg. C >= 1050 RPM	4 seconds	

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Transitional D4			
Range Verification								
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 Timer accumulates when transmission is in forward or reverse range AND output speed AND gear slip In response to pending failure, a diagnostic response range is commanded. During this command, this test fails if Abs(Converter Slip) for	>= 2 second >= 100 RPM > 100 RPM >= 230 RPM > 10 samples.	Not Test Failed This Key On No Fault Pending DTC for this drive cycle. No range switch response active Hydraulic System Pressurized Shift complete Output speed No hydraulic default condition Normal powertrain shutdown not Normal powertrain initialization is	P0877 P0878 P0721 P0722 P0716 P0717 P0717 >= 200 RPM	2.25 seconds	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 Timer accumulates when transmission is in forward or reverse range AND output speed AND gear slip In response to pending failure, a	>= 2 second >= 100 RPM > 100 RPM	Not Test Failed This Key On No Fault Pending DTC for this drive cycle.	P0877 P0878 P0721 P0722 P0716 P0717 P0717	2.25 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			diagnostic response range is commanded.		No range switch response active			
			During this command, this test fails if Abs(Converter Slip)	>= 230 RPM	Hydraulic System Pressurized			
			for	> 10 samples.	Shift complete			
					Output speed	>= 200 RPM		
					No hydraulic default condition present			
					Normal powertrain shutdown not in process			
					Normal powertrain initialization is complete			
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 second	Not Test Failed This Key On	P0877 P0878 P0721 P0722 P0716 P0717	2.25 seconds	A
			Timer accumulates when transmission is in forward or reverse range					
			AND					
			output speed	>= 100 RPM				
			AND					
			gear slip	> 100 RPM	No Fault Pending DTC for this drive cycle.	P0717		
			In response to pending failure, a diagnostic response range is commanded.		No range switch response active			
			During this command, this test fails if Abs(Converter Slip)	>= 230 RPM	Hydraulic System Pressurized			
			for	> 10 samples.	Shift complete			
					Output speed	>= 200 RPM		
					No hydraulic default condition present			

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Normal powertrain shutdown not in process Normal powertrain initialization is complete			
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 Timer accumulates when transmission is in forward or reverse range AND output speed AND gear slip In response to pending failure, a diagnostic response range is commanded. During this command, this test fails if Abs(Converter Slip) for	>= 2 second >= 100 RPM > 100 RPM >= 230 RPM > 10 samples.	Not Test Failed This Key On No Fault Pending DTC for this drive cycle. No range switch response active Hydraulic System Pressurized Shift complete Output speed No hydraulic default condition present Normal powertrain shutdown not in process Normal powertrain initialization is complete	P0877 P0878 P0721 P0722 P0716 P0717 P0717 >= 200 RPM	2.25 seconds	A
Gear 5 Incorrect Ratio	P0735	This test verifies transmission operating ratio while 5th range is commanded by comparing computed ratio to the	Pending failure occurs when accumulated event timer Timer accumulates when transmission is in forward or reverse range AND	>= 2 second	Not Test Failed This Key On	P0877 P0878 P0721 P0722 P0716	2.25 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		ratio to the commanded ratio.	output speed AND gear slip In response to pending failure, a diagnostic response range is commanded. During this command, this test fails if Abs(Converter Slip) for	>= 100 RPM > 100 RPM >= 230 RPM > 10 samples.	 No Fault Pending DTC for this drive cycle. No range switch response active Hydraulic System Pressurized Shift complete Output speed No hydraulic default condition present Normal powertrain shutdown not in process Normal powertrain initialization is complete	P0717 P0717 >= 200 RPM		
Reverse Incorrect Ratio	P0736	This test verifies transmission range while reverse range is commanded by comparing computed ratio to the commanded ratio.	Accumulated event timer Timer accumulates when transmission is in forward or reverse range AND output speed AND gear slip	>= 2 seconds >= 100 RPM > 100 RPM	Not Test Failed This Key On No Fault Pending DTC for this drive cycle. No range switch response active Hydraulic System Pressurized	P0877 P0878 P0721 P0722 P0716 P0717 P0717	2 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Shift complete			
					Output speed	>= 200 RPM		
					No hydraulic default condition present			
					Normal powertrain shutdown not in process			
					Normal powertrain initialization is complete			
Torque Converter								
Torque Converter Clutch Circuit Performance or Stuck Off	P0741	This test detects the torque converter being stuck off (unlocked).	TCC Slip for a time	>= 80 RPM >= 15 seconds.	Not Test Failed This Key On	P2761 P2763 P2764 P0721 P0722 P0716 P0717	15 seconds	B
					No Fault Pending DTCs for this drive cycle.	P2761 P2763 P2764 P0721 P0722 P0716 P0717		
					Components powered AND			
					Battery Voltage between	9 V and 18 V		
					Engine Speed between	200 RPM and 7500 RPM		
					for	5 seconds		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Must be in forward range			
					% Throttle	> 10 % and <= 90 %		
					Transmission fluid temperature	> 5 deg. C and < 130 deg. C		
					Time Since Range Change	>= 6 seconds		
					AND			
					TCC apply is complete			
					AND			
					TCC pressure	>= 1000 kPa		
Torque Converter Clutch Circuit Stuck On	P0742	This test detects the torque converter being stuck on (locked).	Case 1: (High Torque condition)					B
			Set fault pending when throttle	>= 70%	Not Test Failed This Key On	P2761	Case 1:	
						P2763	2 Seconds	
			AND			P2764		
			net engine torque	>= 275 Nm.		P0721		
						P0722		
			Report malfunction when fault pending exists continuously			P0716		
						P0717		
			for a time	>= 2 seconds.		U0100		
			Case 2: (High Acceleration condition)		No Fault Pending DTCs for this drive cycle.	P2761	Case 2:	
						P2763	5 Seconds	
			Set fault pending when output shaft acceleration	>= 100 RPM/second		P2764		
						P0721		
						P0722		
			Report malfunction when fault pending exists continuously			P0716		
						P0717		
			for a time	>= 5 seconds.		U0100		
					Components powered			
			Case 3: (Accel/Decel/Accel condition)		AND		Case 3:	
					Battery Voltage between	9 V and 18 V	4 Seconds	

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			Report malfunction when output acceleration event is followed by output deceleration event and followed by another output acceleration event. An output acceleration event occurs when output shaft acceleration	>= 40 RPM/second	Engine Speed between	200 RPM and 7500 RPM		
					for	5 seconds		
					Must be in forward range			
			for a time	>= 4 seconds	TCC is commanded off			
					TCC Slip	>=-20 RPM and <= 20 RPM		
			An output deceleration event occurs when output shaft acceleration is	<=-40 RPM/second				
			for a time	>= 2.5 seconds.	% Throttle	>= 25%		
					Net Engine Torque	>= 175 Nm		
					Engine speed	<= 3500 RPM		
					Input speed	<= 3500 RPM		
					Output speed	>= 100 RPM		
Pressure Switches								
Pressure Switch Solenoid 1 Circuit Low	P0842	This test compares the commanded valve position to the PS1 pressure switch feedback. (part of S1 valve integrity test)	Pending failure occurs when PS1 pressure switch indicates stroked for a time	> 0.08 seconds	S1 valve is destroked		100 ms	A
					NOT Cold initialization unless transmission fluid temperature	> -25 deg. C		
					Shutdown is NOT in process			
			In response to the pending failure, S1 valve is retried by triggering S1 valve command to stroked and back to destroked. If PS1 pressure switch continues to indicate stroked, then one of three malfunction cases exists:					

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			For Case 1 (electrical malfunction), SS1 Circuit Low reports failure, also. For Case 2 (mechanical malfunction), Shift Solenoid 1 (SS1) Valve Performance – Stuck On reports failure, also. For Case 3 (intermittent malfunction), SS1 valve retry attempted AND PS1 pressure switch continues to indicate stroked.	P0793 P0752 15 times				
Shift Solenoid 1 (SS1) Valve Performance – Stuck Off	P0751	This test compares the change of state of the valve command to the change of state of the PS1 pressure switch feedback. (part of the S1 valve timeout test)	S1 valve is commanded from destroked to stroked and the PS1 pressure switch indication remains destroked for a time WITH transmission fluid temperature (Time increases as temperature decreases with maximum time at transmission fluid temperature)	>= 5 seconds >= 0 deg. C 12 seconds <= -40 deg. C	S1 valve commanded from destroked to stroked.		5 seconds	A
Shift Solenoid 1 (SS1) Valve Performance – Stuck On	P0752	This test compares the change of state of the valve command to the change of state of the PS1 pressure	S1 valve commanded from stroked to destroked and the PS1 pressure switch indication remains stroked for a time	> 6.2 seconds	S1 valve changes from stroked to destroked		6.6 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		the PS1 pressure switch feedback. (part of the S1 valve timeout test).	WITH transmission fluid temperature (Time increases as temperature decreases with maximum time at transmission fluid temperature)	>= 0 deg. C. 10 seconds <= -40 deg. C				
Pressure Switch Solenoid 1 Circuit High	P0843	This test compares the commanded valve position to the PS1 pressure switch feedback. (part of S1 valve integrity test)	Pending failure occurs when PS1 pressure switch indicates destroked for a time IF a main pressure dropout is suspected then time limit increases to In response to the pending failure, S1 valve is retried by triggering S1 valve command to destroked and back to stroked. If the PS1 pressure switch continues to indicate destroked, then one of three malfunction cases exists. For Case 1 (electrical malfunction), SS1 Control Circuit Low reports failure, also. For Case 2 (mechanical malfunction), Shift Solenoid 1 (SS1) Valve Performance – Stuck Off reports failure, also.	> 0.07 seconds 5 seconds P0793 P0751	S1 valve is stroked NOT Cold initialization unless transmission fluid temperature Shutdown NOT in process	 > -25 deg. C	70 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			For Case 3 (intermittent malfunction), S1 valve retry attempted AND PS1 pressure switch continues to indicate destroked.	 15 times				
Pressure Switch Solenoid 2 Circuit Low	P0847	This test compares the commanded valve position to the PS2 pressure switch feedback (part of the S2 valve integrity test).	Pending failure occurs when PS2 pressure switch indicates stroked for a time IF a main pressure dropout is suspected then time limit increases to In response to the pending failure, S2 valve is retried by triggering S2 valve command to stroked and back to destroked. If PS2 pressure switch continues to indicate stroked, then one of three malfunction cases exists. For Case 1 (electrical malfunction), SS2 Control Circuit Low reports failure, also. For Case 2 (mechanical malfunction), Shift Solenoid 2 Valve Performance – Stuck On reports failure, also. For Case 3 (intermittent	> 0.04004 seconds 0.2998 seconds P0976 P0757	S2 valve is destroked NOT Cold initialization unless transmission fluid temperature Shutdown is NOT in process	 > -25 deg. C	40 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			malfunction), S2 valve retry attempted AND PS2 pressure switch continues to indicate stroked.	2 times				
Shift Solenoid 2 Valve Performance – Stuck Off	P0756	This test compares the change of state of the valve command to the change of state of the PS2 pressure switch feedback (part of the S2 valve timeout test).	If the S2 valve is commanded from destroked to stroked and the PS2 pressure switch indication remains destroked for a time WITH transmission fluid temperature (Time increases as temperature decreases with maximum time at transmission fluid temperature)	>= 5 seconds >= 0 deg. C. 12 seconds <= -40 deg. C.	S2 valve commanded from destroked to stroked.		5 seconds	A
Shift Solenoid 2 Valve Performance – Stuck On	P0757	This test compares the commanded valve position to the PS2 pressure switch feedback (part of the S2 valve timeout test).	S2 valve commanded from stroked to destroked and the PS2 pressure switch does not indicate destroked for a time WITH transmission fluid temperature (Time increases as temperature decreases with maximum time at transmission fluid temperature)	>= 6.5 seconds >= 0 deg. C. 22 seconds <= -40 deg. C.	S2 valve changes from stroked to destroked		6.4 seconds	A
Pressure Switch Solenoid 2 Circuit High	P0848	This test compares the commanded valve position to the PS2 pressure switch feedback (part of the S2 valve integrity test)	Pending failure occurs when PS2 pressure switch indicates destroked for a time IF a main pressure dropout is suspected, THEN time limit	> 0.30 seconds 5 seconds	S2 valve is stroked NOT Cold initialization unless transmission fluid temperature	> -25 deg. C	300 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		test).	increases to In response to the pending failure, S2 valve is retried by triggering S2 valve command to destroked and back to stroked. If PS2 pressure switch continues to indicate destroked, then one of three malfunction cases exists. For Case 1 (electrical malfunction), SS2 Control Circuit Low reports failure, also. For Case 2 (mechanical malfunction), Shift Solenoid 2 Valve Performance – Stuck Off reports failure, also. For Case 3 (intermittent malfunction), S2 valve retry attempted AND PS2 pressure switch continues to indicate destroked.	 P0976 P0756 2 times	 Shutdown NOT in process			
Pressure Switch Solenoid 3 Circuit Low	P0872	This test compares the commanded valve position to the PS3 pressure switch feedback. (part of S3 valve integrity test)	Pending failure occurs when PS3 pressure switch indicates stroked for a time	> 0.0195 seconds	S3 valve is destroked NOT Cold initialization unless transmission fluid temperature	 > -25 deg. C	20 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			In response to the pending failure, S3 valve is retried by triggering S3 valve command to stroked and back to destroked. If PS3 pressure switch continues to indicate stroked, then one of three malfunction cases exists. For Case 1 (electrical malfunction), SS3 Control Circuit Low reports failure, also. For Case 2 (mechanical malfunction), Shift Solenoid 3 Valve Performance – Stuck On reports failure, also. For Case 3 (intermittent malfunction), S3 valve retry attempted AND PS3 pressure switch continues to indicate stroked.	 P0979 P0762 2 times	Shutdown is NOT in process			
Shift Solenoid 3 Valve Performance – Stuck Off	P0761	This test compares the change of state of the valve command to the change of state of the PS3 pressure switch feedback. (part of the S3 valve timeout test)	If the S3 valve is commanded from destroked to stroked and the PS3 pressure switch indication remains destroked for a time WITH transmission fluid temperature (Time increases as temperature decreases with maximum time at transmission fluid temperature)	 >= 5 seconds >= 0 deg. C. 12 seconds <= -40 deg. C.	S3 valve commanded from destroked to stroked.		5 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
Shift Solenoid 3 Valve Performance – Stuck On	P0762	This test compares the commanded valve position to the PS3 pressure switch feedback (part of the S3 valve timeout test).	S3 valve commanded from stroked to destroked and the PS3 pressure switch does not indicate destroked for a time WITH transmission fluid temperature (Time increases as temperature decreases with maximum time at transmission fluid temperature)	> 6.5 seconds >= 0 deg. C. 22 seconds >= -40 deg. C.	S3 valve changes from stroked to destroked		6.6 seconds	A
Pressure Switch Solenoid 3 Circuit High	P0873	This test compares the commanded valve position to the pressure switch PS3 feedback. (part of S3 valve integrity test)	Pending failure occurs when PS3 pressure switch indicates destroked for a time IF a main pressure dropout is suspected THEN time limit increases to In response to the pending failure, S3 valve is retried by triggering S3 valve command to destroked and back to stroked. If PS3 pressure switch continues to indicate destroked, then one of the three malfunction cases exists. For Case 1 (electrical malfunction), SS3 Control Circuit Low reports failure, also.	> 0.30 seconds 5 seconds P0979	S3 valve is stroked NOT Cold initialization unless transmission fluid temperature Shutdown NOT in process	> -25 deg. C	300 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			For Case 2 (mechanical malfunction), Shift Solenoid 3 Valve Performance – Stuck Off reports failure, also. For Case 3 (intermittent malfunction), S3 valve retry attempted AND PS3 pressure switch continues to indicate destroked.	P0761 2 times				
Pressure Switch Reverse Circuit Low	P0877	This test detects Reverse Pressure Switch closed indication by comparing the Reverse Pressure Switch state to the PRNDL switch state.	Case 1: (Forward range) For a sample size (if dropout suspected, NLT or N02 cmded, use sample size) PRNDL is P, D1, D2, D3, D4, D5, D6, T8, or T4 AND RPS indicates Reverse for a time (if dropout suspected, NLT or N02 cmded, use time) Case 2: (Range indefinite) For a sample size, net engine torque AND PRNDL is indefinitely D3 or another forward range for a time	 100 samples 255 samples >= 1 seconds 30 seconds 20 samples >= 100 Nm > 1 second	All Cases Not Test Failed This Key On No Fault Pending DTCs for this drive cycle Engine is Running Components powered AND Battery Voltage between Engine Speed between for Transmission Fluid Temperature Hydraulic System Pressurized Reverse Pressure Switch State	 P0877 P0878 P0708 P0708 9 V and 18 V 200 RPM and 7500 RPM 5 seconds >= 0 deg. C	5 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					indicates REVERSE			
Pressure Switch Reverse Circuit High	P0878	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.	All Cases		Transmission Fluid Temperature	>= 0 deg. C		A
			Case 1: (RPS State and PRNDL State do not agree) For sample size PRNDL is REVERSE AND RPS indicates NOT REVERSE after a time	 40 samples >= 1 second	Not Test Failed This Key On No Fault Pending DTC for this drive cycle. Battery Voltage between No range switch response active	P0877 P0878 P0708 P0708 9 V and 18 V	3 seconds	
			For Case 2: (RPS Shutdown Test) If RPS indicates for a time at transmission fluid temperature during engine shutdown This time varies with transmission at transmission fluid temperature to time at transmission fluid temperature	 not Reverse > 40 seconds 0 deg. C. 25 seconds > 35 deg. C 60 seconds < -20 deg. C.	Ignition Key State is NOT RUN Engine Stopped or Stalled End of Trip timer Engine had been cranking or running this drive cycle Engine speed Turbine speed Output speed	 >= 5 seconds < 50 RPM < 50 RPM < 50 RPM	60 seconds	
On-coming/Off-going								
Pressure Control Solenoid 1 Controlled Clutch Stuck Off	P2723	This test determines if the on-coming clutch energized by Pressure Control Solenoid 1 engages during a forward range shift	Pending failure occurs when accumulated event timer (For rough road conditions, use) Timer accumulates when transmission is shifting,	>= 2 seconds 2 seconds	Not Test Failed This Key On	P0721 P0722 P0716 P0717 P0877	2.25 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		range shift.	output speed	>= 60 RPM		P0878		
			AND commanded gear slip speed	> 75 RPM				
			(For rough road conditions, use)	150 RPM.	Output Speed	>= 125 RPM		
					Turbine Speed	>= 60 RPM		
			In response of pending failure, a diagnostic response range is commanded. During this command, this test fails if ABS(Converter slip)		Hydraulic System Pressurized			
					Normal powertrain shutdown not in process			
				>= 230 RPM				
			for sample size	> 10 samples	Normal or Cold powertrain initialization is complete			
					No range switch response active			
					No Cold Mode operation			
					No abusive garage shift to 1st range detected			
					On-coming clutch control enabled			
					Power downshift abort to previous range NOT active			
Pressure Control Solenoid 2 Controlled Clutch Stuck Off	P0776	This test determines if the on-coming clutch energized by Pressure Control Solenoid 2 engages during a forward range shift.	Pending failure occurs when accumulated event timer	>= 2 seconds	Not Test Failed This Key On	P0721	2.25 seconds	A
			(For rough road conditions, use)	2 seconds		P0722		
						P0716		
			Timer accumulates when transmission is shifting,			P0717		
						P0877		
			output speed	>= 60 RPM		P0878		
			AND commanded gear slip speed					
				> 75 RPM	Output Speed	>= 125 RPM		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			(For rough road conditions, use) In response of pending failure, a diagnostic response range is commanded. During this command, this test fails if ABS(Converter slip) for sample size	150 RPM. >= 230 RPM > 10 samples	Turbine Speed Hydraulic System Pressurized Normal powertrain shutdown not in process Normal or Cold powertrain initialization is complete No range switch response active No Cold Mode operation No abusive garage shift to 1st range detected On-coming clutch control enabled Power downshift abort to previous range NOT active	>= 60 RPM		
Pressure Control Solenoid 1 Controlled Clutch Stuck On	P2724	This test determines if the off-going clutch energized by Pressure Control solenoid 1 remains engaged during a forward range shift.	Accumulated fail timer for forward range upshift; OR accumulated fail timer for direction change shifts; OR accumulated fail timer for forward range closed throttle downshift; OR accumulated fail timer for forward downshifts above closed throttle.	>= 0.2998 seconds >= 3.0 seconds >= 0.500 seconds >= 1.0 second	Not Test Failed This Key On No Fault Pending DTC for this drive cycle. Output Speed	P0721 P0722 P0716 P0717 P0877 P0878 P0717 >= 200 RPM	3 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			Fail timer accumulates during range to range shifts when attained gear slip speed	<= 25 RPM	Turbine Speed Normal powertrain shutdown not in process Normal or Cold powertrain initialization is complete No range switch response active No Cold Mode operation No abusive garage shift to 1st range detected	>= 200 RPM		
Pressure Control Solenoid 2 Controlled Clutch Stuck On	P0777	This test determines if the off-going clutch energized by Pressure Control solenoid 2 remains engaged during a forward range shift.	Accumulated fail timer for forward range upshift; OR accumulated fail timer for direction change shifts; OR accumulated fail timer for forward range closed throttle downshift; OR accumulated fail timer for forward downshifts above closed throttle. Fail timer accumulates during range to range shifts when attained gear slip speed	>= 0.2998 seconds >= 3.0 seconds >= 0.500 seconds >= 1.0 second <= 25 RPM	Not Test Failed This Key On No Fault Pending DTC for this drive cycle. Output Speed Turbine Speed Normal powertrain shutdown not in process Normal or Cold powertrain initialization is complete	P0721 P0722 P0716 P0717 P0877 P0878 P0717 >= 200 RPM >= 200 RPM	3 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					No range switch response active No Cold Mode operation No abusive garage shift to 1st range detected			
PRNDL/IMS								
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 a time 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 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	>= 1 second >= 15 counts	Components powered AND Battery Voltage between Engine Speed between for	9 V and 18 V 200 RPM and 7500 RPM 5 seconds	Case 1: 1 second Case 2: 5th occurrence	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			Park/Neutral Detected AND Valid Drive Detected AND Motion Detected.					
			IF Counter 2, THEN report failure.	>= 5 counts				
			For Counter 3, increment Counter 3 IF Parity Error Detected while in Reverse AND No Valid Reverse Detected AND Motion Detected. Decrement Counter 3 IF No Parity Error Detected AND Valid Reverse Detected AND Motion Detected.					
			IF Counter 3, THEN report failure.	>= 5 counts				
			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 a time;	>= 30 seconds;				
			Motion Detected is defined as output speed for a time;	>= 200 RPM >= 10 seconds				
			Valid Drive Detected is defined as the 4-bit DL indicates Valid Drive for a time;	>= 3 seconds				
			Valid Park Detected is defined as					

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			the 4-bit PRNDL indicates Valid Park for a time and output speed; Valid Reverse Detected is defined as the 4-bit PRNDL indicates Valid Reverse for a time; Valid Neutral Detected is defined as the 4-bit PRNDL indicates Valid Neutral for a time and output speed OR for a time.	>= 0.2 seconds <= 20 RPM >= 15 seconds; >= 0.2 seconds <= 20 RPM >= 3 seconds				
Transmission Range Sensor Circuit Range/Performance	P0706	This test monitors the transmission range switch inputs at engine start to determine that it is indicating a valid starting position (Park or Neutral).	For sample size, PRNDL C input is closed OR PRNDL P is NOT closed.	> 7 samples	Not Test Failed This Key On Battery voltage between Powertrain State is READY or CRANKING Engine speed	P0706 9V and 18V > 100 RPM and < 350 RPM.	200 ms	B
Solenoid Electrical								
Main Modulation/Line Pressure Control Solenoid Control Circuit Open	P0960	This test detects solenoid electrical open circuit malfunctions.	Fault pending is set at single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed	 >= 40 samples >= 15 RPM	Not Test Failed This Key On Components powered	P0657 P0658 P0659	1050 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					AND			
			THEN initiate intrusive test by opening low side driver		Battery voltage between	9V and 18V		
					If Engine Cranking, then			
			IF intrusive test indicates no short to ground exists for a sample size,		Crank Time	< 4 seconds		
					AND			
				>= 2 samples	Battery Voltage	> 10 V		
			THEN report malfunction					
					High Side Driver 1 Enabled			
Main Modulation/Line Pressure Control Solenoid Control Circuit Performance	P0961	This test detects the performance of the solenoid by comparing desired current to actual duty cycle	Case 1:				1000 ms	A
			Desired current	<= 0 mA	Not Test Failed This Key On	P0657		
			AND			P0658		
			Actual Duty Cycle	>= 40%		P0659		
			For a sample size,	>= 40 samples		P0960		
						P0961		
			THEN report malfunction			P0962		
			Case 2:		No Fault Pending DTC for this	P0960		
			Desired current	>= 500 mA	drive cycle.	P0962		
			AND					
			Actual Duty Cycle	<= 10%	Components powered			
			For a sample size,	>= 40 samples	AND			
					Battery voltage between	9V and 18V		
			THEN report malfunction					
					If Engine Cranking, then			
					Crank Time	< 4 seconds		
					AND			
					Battery Voltage	> 10 V		
					High Side Driver 1 Enabled			
					Shift Complete			
					Lockup Apply Complete			
					OR			

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Lockup Release Complete			
Main Modulation/Line Pressure Control Solenoid Control Circuit Low	P0962	This test detects solenoid electrical ground circuit malfunctions.	Fault pending is set at single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed THEN initiate intrusive test by opening low side driver. IF intrusive test indicates short to ground exists for a sample size THEN report malfunction	 >= 40 samples >= 15 RPM >= 2 samples	Not Test Failed This Key On Components powered AND Battery voltage between If Engine Cranking, then Crank Time AND Battery Voltage High Side Driver 1 Enabled	P0657 P0658 P0659 9V and 18V < 4 seconds > 10 V	1050 ms	A
Main Modulation/Line Pressure Control Solenoid Control Circuit High	P0963	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for AND Engine speed	3 consecutive samples >=15 RPM	Not Test Failed This Key On Components powered AND Battery voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 1 enabled	P0657 P0658 P0659 9V and 18V < 4 seconds > 10 V	75 ms	A
Pressure Control Solenoid 2 Control Circuit Open	P0964	This test detects solenoid electrical open circuit malfunctions.	Fault pending is set a single hardware fault occurrence IF hardware fault is present for a sample size	 >= 6 samples	Not Test Failed This Key On	P2669 P2670 P2671	225 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			AND Engine speed THEN initiate intrusive test by opening low side driver. IF intrusive test indicates no short to ground exists for a sample size, THEN report malfunction	 >= 15 RPM >= 3 samples	Components powered AND Battery voltage between If Engine Cranking, then Crank Time AND Battery Voltage High Side Driver 2 Enabled	 9V and 18V < 4 seconds > 10 V		
Pressure Control Solenoid 2 Control Circuit Low	P0966	This test detects solenoid electrical ground circuit malfunctions.	Fault pending is set at single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed THEN initiate intrusive test by opening low side driver. IF intrusive test indicates short to ground exists for a sample size THEN report malfunction.	 >= 6 samples >= 15 RPM >= 2 samples	 Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High Side Driver 2 Enabled	 P2669 P2670 P2671 9 V and 18 V < 4 seconds > 10 V	200 ms	A
Pressure Control Solenoid 2 Control Circuit High	P0967	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for AND Engine speed	3 consecutive samples >= 15 RPM	Not Test Failed This Key On Components powered AND Battery Voltage between	P2669 P2670 P2671 P0967 9 V and 18 V	75 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					If Engine Cranking, then Crank Time AND Battery Voltage High Side Driver 2 Enabled	 < 4 seconds > 10 V		
Pressure Control Solenoid 1 Control Circuit Open	P2727	This test detects solenoid electrical open circuit malfunctions.	Fault pending is set a single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed THEN initiate intrusive test by opening low side driver. IF intrusive test indicates no short to ground exists for a sample size, THEN report malfunction	 >= 5 samples >= 15 RPM >= 3 samples	 Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 1 enabled	 P0657 P0658 P0659 9 V and 18 V < 4 seconds > 10 V	200 ms	A
Pressure Control Solenoid 1 Control Circuit Low	P2729	This test detects solenoid electrical ground circuit malfunctions.	Fault pending is set at single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed THEN initiate intrusive test by opening low side driver. IF intrusive test indicates short to ground exists for a sample size THEN report malfunction	 >= 5 samples >= 15 RPM >= 2 samples	 Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage	 P0657 P0658 P0659 9 V and 18 V < 4 seconds > 10 V	175 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					High side driver 1 enabled			
Pressure Control Solenoid 1 Control Circuit High	P2730	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for AND Engine speed	3 consecutive samples >= 15 RPM	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 1 enabled	P0657 P0658 P0659 P2730 9 V and 18 V < 4 seconds > 10 V	75 ms	A
Shift Solenoid 1 Control Circuit Open	P097A	This test detects solenoid electrical open circuit malfunctions.	Fault pending is set a single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed THEN initiate intrusive test by opening low side driver. IF intrusive test indicates no short to ground exists for a sample size, THEN report malfunction	 >= 10 samples >= 15 RPM >= 3 samples	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 2 enabled	P2669 P2670 P2671 9 V and 18 V < 4 seconds > 10 V	325 ms	A
Shift Solenoid 1 Control Circuit Low	P0973	This test detects solenoid electrical ground circuit	Fault pending is set at single hardware fault occurrence IF hardware fault is present for a		Not Test Failed This Key On	P2669 P2670	300 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		malfunctions.	sample size AND Engine speed THEN initiate intrusive test by opening low side driver. IF intrusive test indicates short to ground exists for a sample size THEN report malfunction	>= 10 samples >= 15 RPM >= 2 samples	 Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 2 enabled	P2671 9 V and 18 V < 4 seconds > 10 V		
Shift Solenoid 1 Control Circuit High	P0974	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for AND Engine speed	3 consecutive samples >= 15 RPM	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 2 enabled	P2669 P2670 P2671 P0974 9 V and 18 V < 4 seconds > 10 V	75 ms	A
Shift Solenoid 2 Control Circuit Open	P097B	This test detects solenoid electrical open circuit malfunctions.	Fault pending is set a single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed	 >= 10 samples >= 15 RPM	 Not Test Failed This Key On Components powered AND	 P2669 P2670 P2671 	325 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			THEN initiate intrusive test by opening low side driver. IF intrusive test indicates no short to ground exists for a sample size, THEN report malfunction	 >= 3 samples	Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 2 enabled	9 V and 18 V < 4 seconds > 10 V		
Shift Solenoid 2 Control Circuit Low	P0976	This test detects solenoid electrical ground circuit malfunctions.	Fault pending is set at single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed THEN initiate intrusive test by opening low side driver. IF intrusive test indicates short to ground exists for a sample size THEN report malfunction	 >= 10 samples >= 15 RPM >= 2 samples	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 2 enabled	P2669 P2670 P2671 9 V and 18 V < 4 seconds > 10 V	300 ms	A
Shift Solenoid 2 Control Circuit High	P0977	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for AND Engine speed	3 consecutive samples >= 15 RPM	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time	P2669 P2670 P2671 P0977 9 V and 18 V < 4 seconds	75 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					AND Battery Voltage High side driver 2 enabled	 > 10 V		
Shift Solenoid 3 Control Circuit Low	P0979	This test detects solenoid electrical ground circuit malfunctions.	Fault pending is set at single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed THEN report malfunction	 >= 6 samples >= 15 RPM	 Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 2 enabled Commanded gear NOT Reverse Trim, NOT 5th, NOT 6th	 P2669 P2670 P2671 P0979 9 V and 18 V < 4 seconds > 10 V	150 ms	A
Shift Solenoid 3 Control Circuit High	P0980	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for AND Engine speed	3 consecutive samples >= 15 RPM	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then	P2669 P2670 P2671 P0980 9 V and 18 V	75 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Crank Time AND Battery Voltage High side driver 2 enabled Commanded gear NOT Reverse Trim, NOT 5th, NOT 6th	< 4 seconds > 10 V		
Actuator Supply 1 (HSD1) Voltage Open	P0657	This test detects if the voltage measured at the HSD1 detection circuit shows that multiple low side detection circuits indicate open, but the high side detection circuit indicates high voltage.	Report malfunction when the number of failure events AND Engine speed A failure event occurs when the number of failed solenoids connected to HSD1 AND HSD1 voltage	>= 3 >= 15 RPM >= 2 >= 6V	Not Test Failed This Key On HSD1 is commanded ON Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage	P0657 9 V and 18 V < 4 seconds > 10 V	75 ms	A
Actuator Supply 1 (HSD1) Voltage Low	P0658	This test detects low voltage when high voltage is expected indicating a short to ground at the circuit.	Report malfunction when short to ground is detected for a number of events AND Engine speed	>= 3 times >= 15 RPM	Not Test Failed This Key On HSD1 is commanded ON Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage	P0658 9 V and 18 V < 4 seconds > 10 V	75 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
Actuator Supply 1 (HSD1) Voltage High	P0659	This test detects if the voltage measured at the HSD 1 detection circuit indicates high during initialization (when the circuit is off)	During initialization, report malfunction when the number of failure events A failure event occurs when HSD1 voltage	>= 3 times >= 6V	During initialization		18.75 ms	A
Actuator Supply2 (HSD2) Voltage Open	P2669	This test detects if the voltage measured at the HSD2 detection circuit shows that multiple low side detection circuits indicate open, but the high side detection circuit indicates high voltage.	Report malfunction when the number of failure events AND Engine speed A failure event occurs when the number of failed solenoids connected to HSD2 AND HSD2 voltage	>= 3 >= 15 RPM >= 2 >= 6V	Not Test Failed This Key On HSD2 is commanded ON Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage	P2669 9 V and 18 V < 4 seconds > 10 V	75 ms	A
Actuator Supply2 (HSD2) Voltage Low	P2670	This test detects low voltage when high voltage is expected indicating a short to ground at the circuit.	Report malfunction when short to ground is detected for a number of events AND Engine speed	>= 3 times >= 15 RPM	Not Test Failed This Key On HSD2 is commanded ON Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage	P2670 9 V and 18 V < 4 seconds > 10 V	50 ms	A
Actuator Supply 2	P2671	This test detects if					18.75 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
(HSD2) Voltage High		the voltage measured at the HSD 2 detection circuit indicates high during initialization (when the circuit is off)	During initialization, report malfunction when the number of failure events A failure event occurs when HSD1 voltage	>= 3 times >= 6V	During initialization			
TCC Pressure Control Solenoid Control Circuit Open	P2761	This test detects torque converter solenoid electrical open circuit malfunctions.	Fault pending is set a single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed THEN initiate intrusive test by opening low side driver. IF intrusive test indicates no short to ground exists for a sample size, THEN report malfunction	>= 120 samples >= 15 RPM >= 3 samples	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 1 enabled	P0657 P0658 P0659 9 V and 18 V < 4 seconds > 10 V	3075 ms	B
TCC Pressure Control Solenoid Control Circuit High	P2763	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for AND Engine speed	3 consecutive samples >= 15 RPM	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage	P0657 P0658 P0659 P2763 9 V and 18 V < 4 seconds > 10 V	75 ms	B

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					High side driver 1 enabled			
TCC Pressure Control Solenoid Control Circuit Low	P2764	This test detects solenoid electrical ground circuit malfunctions.	Fault pending is set at single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed THEN initiate intrusive test by opening low side driver IF intrusive test indicates short to ground exists for a sample size THEN report malfunction	 >= 120 samples >= 15 RPM >= 2 samples	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 1 enabled	P0657 P0658 P0659 9 V and 18 V < 4 seconds > 10 V	3050 ms	B
Miscellaneous								
GMLAN Bus Reset Counter Overrun	U0073	This test detects if the GMLAN bus is off for a calibration duration.	CANB_bus is off for a time	>= 3 seconds	Components powered AND Battery Voltage between Engine Speed between for	 9 V and 18 V 200 RPM and 7500 RPM 5 seconds	8 seconds	C
GMLAN ECM Controller State of Health Failure	U0100	This test detects CAN (GMLAN) bus failures by detecting State of Health failures in GMLAN message $191 from ECM.	Case 1 (x out of y): The failure counter increments when a State of Health (SOH) failure is detected. A SOH failure occurs when message is missing. When the failure counter is a number of samples	 >= 5 samples	All Cases Components powered AND Battery Voltage between Engine Speed between for	 9 V and 18 V 200 RPM and 7500 RPM 5 seconds	8 seconds	B

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			out of a number of samples, report fail. Case 2 (intermittent): Report fail, when the failure counter for a number of sample windows	7 samples > 0 counts < 5 samples	Ignition Key State is RUN GMLAN message $191 is received from ECM Enable criteria met for a time	 > 3 seconds		
Brake Pedal Possition Switch Signal Rolling Count	P0703	This test detects rolling count failures for the Brake Switch GMLAN Message	The failure count increments when the GMLAN message is not received or the rolling counter does not agree with the expected value When the failure counter is for a time of Report Failure	 > 5 > 10 seconds	Components powered AND Battery Voltage between Engine Speed between for	 9 V and 18 V 200 RPM and 7500 RPM 5 seconds	15 seconds	C