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 No Fault Pending DTCs for this drive cycle No Pass DTCs for this drive cycle No Fault Active DTC Components powered AND Battery Voltage between Engine Speed between for Start-up transmission fluid temperature is available Transmission fluid temperature between ECT is not defaulted	P0711 P0716 P0717 P0721 P0722 P0742 P0716 P0717 P0721 P0722 P0711 P0711 9 V and 18 V 200 RPM and 7500 RPM 5 seconds -39 deg. C and 149 deg. C		B
			Case 1 (Stuck sensor after cold start-up)				300 seconds	

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			Start-up temperature change	<= 2 deg. C	Start-up transmission fluid temperature between	-40 deg. C and 21 deg. C		
			for a time	>= 100 seconds				
			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 seconds		
					engine coolant temperature	>= 70 deg. C		
			Vehicle speed	>= 8 KPH	AND engine coolant temperature change from start-up	>= 55 deg. C		
			for a time	>= 300 seconds.				
			Case 3 (Noisy sensor)				7 seconds	

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			Change from previous temperature	>= 20 deg. C				
			for	14 events				
			in a time	< 7 seconds.				
			Case 4 (Doesn't warm up to at least 20 deg. C)		net engine torque	>= 150 Nm	2200 seconds	
			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 determined by a lookup table ranging from	250 seconds when start-up temperature is >= 20 deg. C	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 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	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	5 seconds		
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 for IF Engine run time THEN Engine Coolant Temperature AND not defaulted for a time	P0711 P0712 P0713 9 V and 18 V 200 RPM and 7500 RPM 5 seconds <= 600 seconds must be > 20 deg. C >= 20 seconds.	2.5 seconds	B
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	P0716 P0717 P0721 P0722		A

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					No Fault Pending DTCs for this drive cycle. Shifting complete	P0721 P0722		
			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 This test fails if both the Low Counter and the High Counter OR Low Counter OR High Counter	 80 <= -800 RPM >= 800 RPM >= 5 >= 5 >= 5	Input Speed for	> 200 RPM >= 0.5 seconds	2 seconds	
			For Case 3: (Wires to speed sensors swapped) Increment counter when range attained and range commanded are neutral for a time		Input speed AND Engine speed for a time	> 100 RPM > 100 RPM >= 0.2 seconds	4 seconds	

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
				<= 3.5 seconds				
			AND		Hydraulic system pressurized			
			when ratio of engine speed and input speed	>= 3				
			Arm test when counter	>=20				
			OR when time	> 3.5 seconds				
			Malfunction is reported when, for a time	> 0.5 seconds				
			the range commanded is NOT neutral					
			AND the on-coming clutch control is complete					
			AND input speed	> 100 RPM				
			AND engine speed	< 100 RPM				
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.	Failure pending if transmission input speed	< 61 RPM	Not Test Failed This Key On	P0717 P0729 P0731 P0732	1 second	A
			This test fails if input speed	< 61 RPM				
			AND output speed	> 500 RPM		P0733 P0734		
			for a time	> 1 second.		P0735 P0736 P0721 P0722		
					No Fault Pending DTCs	P0721		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
						P0722		
					Reverse-to-Neutral shift not in process			
					Shifting complete			
					Range attained is not neutral			
					Transmission fluid temperature	> -25 deg. C		
					Engine speed	>= 400 RPM		
					Transmission output speed	>= 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)		All Cases		Case 1:	A
					Not Test Failed This Key On	P0716	0.65 seconds	
			Change in output speed	>= 500 RPM		P0717		
			for a time	>= 0.15 seconds		P0721		
						P0722		
			Case 2: (Noisy output speed)				Case 2:	
			For sample size	80	No Fault Pending DTCs for this drive cycle	P0716 P0717	2 seconds	
			IF the change in output speed	<= -500 RPM				
			THEN the Low Counter is incremented.					
					Output Speed	> 200 RPM		
			IF the change in output speed	>= 500 RPM	for a time	>= 0.5 seconds		
			THEN the High Counter is incremented.					

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Shift complete			
			Test fails if both the Low Counter and the High Counter	>= 5	AND range attained NOT neutral			
			OR the Low Counter	>= 5				
			OR 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			A
					Not Test Failed This Key On	P0721		
			Case 1: (Unrealistically large change in output speed)		Test enabled when output speed	>= 600 RPM	1 second	
			Failure pending if		for a time	>= 1 seconds		
			change in output speed	>= 600 RPM				
			Failure sets if range attained is Neutral		Test disabled when output speed	<= 600 RPM		
					for a time	> 1 seconds		
			Case 2: (Unrealistically low value of output speed)				4 seconds	
			Failure pending if output speed	< 61 RPM	Not Test Failed This Key On	P0731		
			Failure sets if not monitoring for low speed neutral and output speed	< 61 RPM		P0732 P0733 P0734		
			AND range is 3rd, 4th, 5th, or 6th			P0735 P0736		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			for a time	> 1 second		P0716		
						P0717		
			Failure sets if not monitoring for low speed neutral and output speed		No Fault Pending DTCs for this drive cycle	P0716		
						P0717		
			AND	< 61 RPM				
			((net engine torque	< -100 Nm	Engine is running			
			OR		Shift not in process			
			net engine torque)	> 100 Nm	Range attained is not Neutral			
			OR (turbine speed	> 1500 RPM	Reverse to Neutral shift not in process			
			AND		Transmission fluid temperature	> -25 deg. C		
			range is 2nd))		Transmission input speed	>= 1050 RPM		
			for a time	>= 4 seconds.	Not waiting for Manual Selector Valve to attain forward range			
					PRNDL State is NOT D4, NOT 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				2.25 seconds	A
					Not Test Failed This Key On	P0877		
				>= 2 second				
			Timer accumulates when transmission is in forward or reverse range			P0878 P0721 P0722		
			AND output speed	>= 100 RPM		P0716 P0717		
			AND gear slip	> 100 RPM	No Fault Pending DTC for this drive	P0717		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					cycle.			
			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)		Hydraulic System Pressurized			
				>= 230 RPM				
			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 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				2.25 seconds	A
				>= 2 second	Not Test Failed This Key On	P0877		
			Timer accumulates when transmission is in forward or reverse range			P0878 P0721 P0722		
			AND output speed	>= 100 RPM		P0716 P0717		
			AND gear slip	> 100 RPM	No Fault Pending DTC for this drive	P0717		

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

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					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 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.	>= 2 second >= 100 RPM > 100 RPM	Not Test Failed This Key On No Fault Pending DTC for this drive cycle. No range switch response active	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
			During this command, this test fails if Abs(Converter Slip)	>= 230 RPM for > 10 samples.	Hydraulic System Pressurized Shift complete Output speed No hydraulic default condition present Normal powertrain shutdown not in process Normal powertrain initialization is complete	>= 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 Shift complete Output speed No hydraulic default condition present Normal powertrain shutdown not in process	P0877 P0878 P0721 P0722 P0716 P0717 P0717 >= 200 RPM	2 seconds	A

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Normal powertrain initialization is complete			
Gear 6 Incorrect Ratio	P0729	This test verifies transmission operating ratio while 6th 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	2.25 seconds	A
			Timer accumulates when transmission is in forward or reverse range			P0878 P0721 P0722 P0716 P0717		
			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			
					Normal powertrain shutdown not in process			
					Normal powertrain initialization is complete			
Torque Converter Clutch								
Torque Converter Clutch Circuit Performance or Stuck Off	P0741	This test detects the torque converter being stuck off (unlocked).	TCC Slip	>= 80 RPM	Not Test Failed This Key On	P2761	15 seconds	B
			for a time	>= 15 seconds.		P2763		
						P2764 P0721 P0722 P0716 P0717		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					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		
					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	P0742	This test detects the torque						B

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
Clutch Circuit Stuck On		converter being stuck on (locked).	Case 1: (High Torque condition)		Not Test Failed This Key On	P2761	Case 1:	
			Set fault pending when throttle	>= 70%		P2763	2 Seconds	
			AND net engine torque	>= 275 Nm.		P2764 P0721		
			Report malfunction when fault pending exists continuously for a time	>= 2 seconds.		P0722 P0716 P0717 U0100		
			Case 2: (High Acceleration condition)		No Fault Pending DTCs for this drive cycle.	P2761 P2763	Case 2: 5 Seconds	
			Set fault pending when output shaft acceleration	>= 100 RPM/second		P2764 P0721		
			Report malfunction when fault pending exists continuously for a time	>= 5 seconds.		P0722 P0716 P0717 U0100		
					Components powered			
			Case 3: (Accel/Decel/Accel condition)		AND Battery Voltage between	9 V and 18 V	Case 3: 4 Seconds	
			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		Engine Speed between	200 RPM and 7500 RPM		
					for	5 seconds		
					Must be in forward range			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			for a time	>= 40 RPM/second >= 4 seconds	TCC is commanded off			
					TCC Slip	>=-20 RPM and <= 20 RPM		
			An output deceleration event occurs when output shaft acceleration is					
			for a time	<=-40 RPM/second >= 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:					
			For Case 1 (electrical malfunction),					

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			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.	P0973 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 switch feedback. (part of the S1 valve timeout test).	S1 valve commanded from stroked to destroked and the PS1 pressure switch indication remains stroked for a time WITH	> 6.2 seconds	S1 valve commanded 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
			transmission fluid temperature	>= 0 deg. C.				
			(Time increases as temperature decreases with maximum time at transmission fluid temperature)	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	> 0.07 seconds	S1 valve is stroked		70 ms	A
			IF a main pressure dropout is suspected then time limit increases to	5 seconds	NOT Cold initialization unless transmission fluid temperature	> -25 deg. C		
			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.		Shutdown NOT in process			
			For Case 1 (electrical malfunction), SS1 Control Circuit Low reports failure, also.	P0973				
			For Case 2 (mechanical malfunction), Shift Solenoid 1 (SS1) Valve Performance – Stuck Off reports failure, also.	P0751				
			For Case 3 (intermittent malfunction),					

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			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 malfunction), S2 valve retry attempted AND PS2 pressure switch continues to indicate stroked.	> 0.04004 seconds 0.2998 seconds P0976 P0757 2 times	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
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 commanded from stroked to destroked		6.5 sec	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	> 0.30 seconds	S2 valve is stroked		300 ms	A

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					NOT Cold initialization unless transmission fluid temperature	> -25 deg. C		
			IF a main pressure dropout is suspected, THEN time limit increases to	5 seconds				
			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.		Shutdown NOT in process			
			For Case 1 (electrical malfunction),					
			SS2 Control Circuit Low reports failure, also.	P0976				
			For Case 2 (mechanical malfunction),					
			Shift Solenoid 2 Valve Performance – Stuck Off reports failure, also.	P0756				
			For Case 3 (intermittent malfunction),					
			S2 valve retry attempted	2 times				
			AND PS2 pressure switch continues to indicate destroked.					
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		20 ms	A
					NOT Cold initialization unless transmission fluid temperature	> -25 deg. C		

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.		Shutdown is NOT in process			
			For Case 1 (electrical malfunction),					
			SS3 Control Circuit Low reports failure, also.	P0979				
			For Case 2 (mechanical malfunction),					
			Shift Solenoid 3 Valve Performance – Stuck On reports failure, also.	P0762				
			For Case 3 (intermittent malfunction),					
			S3 valve retry attempted	2 times				
			AND PS3 pressure switch continues to indicate stroked.					
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	>= 5 seconds	S3 valve commanded from destroked to stroked.		5 seconds	A
			WITH transmission fluid temperature	>= 0 deg. C.				
			(Time increases as temperature decreases with maximum time	12 seconds				
			at transmission fluid temperature)	<= -40 deg. C.				

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	> 6.5 seconds	S3 valve commanded from stroked to destroked		6.6 seconds	A
			WITH transmission fluid temperature	>= 0 deg. C.				
			(Time increases as temperature decreases with maximum time	22 seconds				
			at transmission fluid temperature)	>= -40 deg. C.				
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	> 0.30 seconds	S3 valve is stroked		300 ms	A
			IF a main pressure dropout is suspected THEN time limit increases to	5 seconds	NOT Cold initialization unless transmission fluid temperature Shutdown NOT in process	> -25 deg. C		
			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.	P0979				

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)	100 samples 255 samples >= 1 seconds 30 seconds	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	P0877 P0878 P0708 P0708 9 V and 18 V 200 RPM and 7500 RPM	5 seconds	A

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			Case 2: (Range indefinite)		for	5 seconds		
			For a sample size,	20 samples				
			net engine torque	>= 100 Nm	Transmission Fluid Temperature	>= 0 deg. C		
			AND PRNDL is indefinitely D3 or another forward range		Hydraulic System Pressurized			
			for a time	> 1 second				
					Reverse Pressure Switch State 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)		Not Test Failed This Key On	P0877 P0878	3 seconds	
			For sample size	40 samples				
			PRNDL is REVERSE			P0708		
			AND RPS indicates NOT REVERSE		No Fault Pending DTC for this drive cycle.	P0708		
			after a time	>= 1 second				
					Battery Voltage between	9 V and 18 V		
					No range switch response active			
			For Case 2: (RPS Shutdown Test)		Ignition Key State is NOT RUN		60 seconds	

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			If RPS indicates	not Reverse	Engine Stopped or Stalled			
			for a time	> 40 seconds				
			at transmission fluid temperature	0 deg. C.	End of Trip timer	>= 5 seconds		
			during engine shutdown					
			This time varies with transmission fluid temperature, from time	25 seconds	Engine had been cranking or running this drive cycle			
			at transmission fluid temperature	> 35 deg. C				
			to time	60 seconds	Engine speed	< 50 RPM		
			at transmission fluid temperature	< -20 deg. C.	Turbine speed	< 50 RPM		
					Output speed	< 50 RPM		
On-coming/Off-going Ratio								
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	>= 2 seconds	Not Test Failed This Key On	P0721	2.25 seconds	A

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			(For rough road conditions, use)	2 seconds		P0722		
			Timer accumulates when transmission is shifting, output speed	>= 60 RPM		P0716 P0717 P0877 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			
				>= 230 RPM	Normal powertrain shutdown not in process			
			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			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
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		
			Timer accumulates when transmission is shifting, output speed	>= 60 RPM		P0716 P0717 P0877 P0878		
			AND commanded gear slip speed	> 75 RPM	Output Speed	>= 125 RPM		
			(For rough road conditions, use)	150 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)	>= 230 RPM	Hydraulic System Pressurized			
			for sample size	> 10 samples	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			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
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	>= 0.2998 seconds	Not Test Failed This Key On	P0721	3 seconds	A
			for forward range upshift;			P0722		
			OR accumulated fail timer	>= 3.0 seconds		P0716		
			for direction change shifts;			P0717		
			OR accumulated fail timer	>= 0.500 seconds		P0877		
			for forward range closed throttle downshift;			P0878		
			OR accumulated fail timer	>= 1.0 second	No Fault Pending DTC for this drive cycle.	P0717		
			for forward downshifts above closed throttle.					
					Output Speed	>= 200 RPM		
			Fail timer accumulates during range to range shifts when attained gear slip speed		Turbine Speed	>= 200 RPM		
				<= 25 RPM	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			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
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	>= 0.2998 seconds	Not Test Failed This Key On	P0721	3 seconds	A
			for forward range upshift;			P0722		
			OR accumulated fail timer	>= 3.0 seconds		P0716		
			for direction change shifts;			P0717		
			OR accumulated fail timer	>= 0.500 seconds		P0877		
			for forward range closed throttle downshift;			P0878		
			OR accumulated fail timer	>= 1.0 second	No Fault Pending DTC for this drive cycle.	P0717		
			for forward downshifts above closed throttle.					
					Output Speed	>= 200 RPM		
			Fail timer accumulates during range to range shifts when attained gear slip speed		Turbine Speed	>= 200 RPM		
				<= 25 RPM	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			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
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):		Components powered		Case 1:	A
			Illegal electrical state for a time	>= 1 second	AND		1 second	
					Battery Voltage between	9 V and 18 V		
			For Case 2 (Long-term Parity):				Case 2:	
			There are 3 counters for long-term parity. These counters are updated at the end of each drive cycle, immediately prior to TCM shutdown.		Engine Speed between	200 RPM and 7500 RPM	5th occurrence	
					for	5 seconds		
			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.					

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			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,	>= 5 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 a time;	>= 30 seconds;				
			Motion Detected is defined as output speed	>= 200 RPM				
			for a time;	>= 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 the 4-bit PRNDL indicates Valid Park for a time	>= 0.2 seconds				
			and output speed;	<= 20 RPM				
			Valid Reverse Detected is defined as the 4-bit PRNDL indicates Valid Reverse					
			for a time;	>= 15 seconds;				
			Valid Neutral Detected is defined as the					

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			4-bit PRNDL indicates Valid Neutral					
			for a time	>= 0.2 seconds				
			and output speed	<= 20 RPM				
			OR for a time.	>= 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,	> 7 samples	Not Test Failed This Key On	P0706	200 ms	B
			PRNDL C input is closed OR PRNDL P is NOT closed.		Battery voltage between	9V and 18V		
					Powertrain State is READY or CRANKING			
					Engine speed	> 100 RPM and < 350 RPM.		
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				1050 ms	A
			IF hardware fault is present for a sample size	>= 40 samples	Not Test Failed This Key On	P0657 P0658 P0659		
			AND Engine speed	>= 15 RPM	Components powered			
			THEN initiate intrusive test by opening low side driver		AND 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			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
				>= 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 P0658 P0659 P0960 P0961 P0962		
			AND					
			Actual Duty Cycle	>= 40%				
			For a sample size,	>= 40 samples				
			THEN report malfunction					
			Case 2:		No Fault Pending DTC for this drive cycle.	P0960 P0962		
			Desired current	>= 500 mA				
			AND		Components powered			
			Actual Duty Cycle	<= 10%				
			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			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Shift Complete Lockup Apply Complete OR 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	3 consecutive samples	Not Test Failed This Key On	P0657	75 ms	A

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			AND Engine speed	 >=15 RPM		P0658 P0659		
					Components powered			
					AND Battery voltage between	 9V and 18V		
					If Engine Cranking, then			
					Crank Time	< 4 seconds		
					AND Battery Voltage	 > 10 V		
					High side driver 1 enabled			
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
			AND		Components powered			
			Engine speed	>= 15 RPM	AND Battery voltage between	 9V and 18V		
			THEN initiate intrusive test by opening low side driver.		If Engine Cranking, then			
			IF intrusive test indicates no short to ground exists for a sample size,	 >= 3 samples	Crank Time AND Battery Voltage	< 4 seconds > 10 V		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			THEN report malfunction					
					High Side Driver 2 Enabled			
Pressure Control Solenoid 2 Control Circuit Performance	P0965	This test detects the performance of the solenoid by comparing desired current to actual duty cycle	Case 1: Desired current AND Actual Duty Cycle For a sample size, THEN report malfunction	<= 50 mA >= 40% >= 10 samples	Not Test Failed This Key On	P2669 P2670 P2671 P0964 P0965 P0966	250ms	A
			Case 2: Desired current AND Actual Duty Cycle For a sample size, THEN report malfunction	>= 500 mA <= 15% >= 10 samples	No Fault Pending DTC for this drive cycle. Components powered AND Battery voltage between If Engine Cranking, then Crank Time AND Battery Voltage High Side Driver 2 Enabled Shift Complete	P0964 P0966 9V and 18V < 4 seconds > 10 V		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Lockup Apply Complete OR Lockup Release Complete			
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	P2669 P2670 P2671 P0967	75 ms	A

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Components powered			
					AND Battery Voltage between	9 V and 18 V		
					If Engine Cranking, then			
					Crank Time	< 4 seconds		
					AND Battery Voltage	> 10 V		
					High Side Driver 2 Enabled			
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	>= 5 samples	Not Test Failed This Key On	P0657 P0658 P0659	200 ms	A
			AND Engine speed	>= 15 RPM	Components powered			
			THEN initiate intrusive test by opening low side driver.		AND Battery Voltage between	9 V and 18 V		
			IF intrusive test indicates no short to ground exists for a sample size,		If Engine Cranking, then			
					Crank Time	< 4 seconds		
				>= 3 samples	AND			
			THEN report malfunction		Battery Voltage	> 10 V		

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 Performance	P2728	This test detects the performance of the solenoid by comparing desired current to actual duty cycle	Case 1: Desired current AND Actual Duty Cycle For a sample size, THEN report malfunction	<= 50 mA >= 40% >= 10 samples	Not Test Failed This Key On	P0657 P0658 P0659 P2727 P2728 P2729	250ms	A
			Case 2: Desired current AND Actual Duty Cycle For a sample size, THEN report malfunction	>= 500 mA <= 15% >= 10 samples	No Fault Pending DTC for this drive cycle. Components powered AND Battery voltage between If Engine Cranking, then Crank Time AND Battery Voltage High Side Driver 1 Enabled Shift Complete Lockup Apply Complete OR	P2727 P2729 9V and 18V < 4 seconds > 10 V		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Lockup Release Complete			
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 High side driver 1 enabled	P0657 P0658 P0659 9 V and 18 V < 4 seconds > 10 V	175 ms	A
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	P0657 P0658 P0659 P2730	75 ms	A

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Battery Voltage between	9 V and 18 V		
					If Engine Cranking, then			
					Crank Time	< 4 seconds		
					AND Battery Voltage	> 10 V		
					High side driver 1 enabled			
Shift Solenoid 1 Control Circuit Open	P0972	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	>= 10 samples	Not Test Failed This Key On	P2669 P2670 P2671	325 ms	A
			AND Engine speed	>= 15 RPM	Components powered			
			THEN initiate intrusive test by opening low side driver.		AND Battery Voltage between	9 V and 18 V		
			IF intrusive test indicates no short to ground exists for a sample size,		If Engine Cranking, then			
					Crank Time	< 4 seconds		
				>= 3 samples	AND			
			THEN report malfunction		Battery Voltage	> 10 V		
					High side driver 2 enabled			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
Shift Solenoid 1 Control Circuit Low	P0973	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 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	P2669 P2670 P2671 P0974 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	< 4 seconds		
					AND			
					Battery Voltage	> 10 V		
					High side driver 2 enabled			
Shift Solenoid 2 Control Circuit Open	P0975	This test detects solenoid electrical open circuit malfunctions.	Fault pending is set a single hardware fault occurrence		Not Test Failed This Key On	P2669 P2670 P2671	325 ms	A
			IF hardware fault is present for a sample size	>= 10 samples				
			AND					
			Engine speed	>= 15 RPM	Components powered			
					AND			
			THEN initiate intrusive test by opening low side driver.		Battery Voltage between	9 V and 18 V		
			IF intrusive test indicates no short to ground exists for a sample size,		If Engine Cranking, then			
					Crank Time	< 4 seconds		
				>= 3 samples	AND			
			THEN report malfunction		Battery Voltage	> 10 V		
					High side driver 2 enabled			
Shift Solenoid 2 Control Circuit Low	P0976	This test detects solenoid electrical ground circuit malfunctions.	Fault pending is set at single hardware fault occurrence		Not Test Failed This Key On	P2669 P2670	300 ms	A
			IF hardware fault is present for a sample					

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			size	>= 10 samples		P2671		
			AND Engine speed	>= 15 RPM	Components powered			
					AND Battery Voltage between	9 V and 18 V		
			THEN initiate intrusive test by opening low side driver.					
			IF intrusive test indicates short to ground exists for a sample size		If Engine Cranking, then			
				>= 2 samples	Crank Time	< 4 seconds		
			THEN report malfunction		AND			
					Battery Voltage	> 10 V		
					High side driver 2 enabled			
Shift Solenoid 2 Control Circuit High	P0977	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for	3 consecutive samples	Not Test Failed This Key On	P2669	75 ms	A
			AND Engine speed	>= 15 RPM		P2670 P2671		
						P0977		
					Components powered			
					AND Battery Voltage between	9 V and 18 V		
					If Engine Cranking, then			

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

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			Engine speed	>= 15 RPM		P2671		
						P0980		
					Components powered			
					AND			
					Battery Voltage between	9 V and 18 V		
					If Engine Cranking, then			
					Crank Time	< 4 seconds		
					AND			
					Battery Voltage	> 10 V		
					High side driver 2 enabled			
					Commanded gear NOT Reverse Trim, NOT 5th, NOT 6th			
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	>= 3	Not Test Failed This Key On	P0657	75 ms	A
			AND					
			Engine speed	>= 15 RPM	HSD1 is commanded ON			
			A failure event occurs when the number of failed solenoids connected to HSD1		Components powered			
					AND			
				>= 2	Battery Voltage between	9 V and 18 V		
			AND					
			HSD1 voltage	>= 6V	If Engine Cranking, then			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Crank Time	< 4 seconds		
					AND Battery Voltage	> 10 V		
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	>= 3 times	Not Test Failed This Key On HSD1 is commanded ON	P0658	75 ms	A
			AND Engine speed	>= 15 RPM	Components powered			
					AND Battery Voltage between	9 V and 18 V		
					If Engine Cranking, then			
					Crank Time	< 4 seconds		
					AND Battery Voltage	> 10 V		
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	>= 3 times	During initialization		18.75 ms	A
			A failure event occurs when HSD1 voltage	>= 6V				
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	>= 3	Not Test Failed This Key On	P2669	75 ms	A
			AND Engine speed	>= 15 RPM	HSD2 is commanded ON			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			A failure event occurs when the number of failed solenoids connected to HSD2	>= 2	Components powered AND Battery Voltage between	9 V and 18 V		
			AND HSD2 voltage	>= 6V	If Engine Cranking, then Crank Time AND Battery Voltage	< 4 seconds > 10 V		
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	>= 3 times	Not Test Failed This Key On HSD2 is commanded ON	P2670	75 ms	A
			AND Engine speed	>= 15 RPM	Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage	9 V and 18 V < 4 seconds > 10 V		
Actuator Supply 2 (HSD2) Voltage High	P2671	This test detects if 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	>= 3 times	During initialization		18.75 ms	A
			A failure event occurs when HSD1					

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			voltage	>= 6V				
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 Performance	P2762	This test detects the performance of the solenoid by comparing desired current to actual duty cycle	Case 1: Desired current AND Actual Duty Cycle For a sample size, THEN report malfunction Case 2: Desired current AND	 <= 0 mA >= 40% >= 40 samples >= 500 mA 	 Not Test Failed This Key On No Fault Pending DTC for this drive cycle.	 P0657 P0658 P0659 P2761 P2762 P2763 P2761 P2763	1000 ms	B

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Components powered			
			Actual Duty Cycle For a sample size,	<= 10% >= 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 Lockup Release Complete			
TCC Pressure Control Solenoid Control Circuit High	P2763	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for	3 consecutive samples	Not Test Failed This Key On	P0657	75 ms	B
			AND Engine speed	>= 15 RPM		P0658 P0659		
					Components powered	P2763		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					AND Battery Voltage between	9 V and 18 V		
					If Engine Cranking, then			
					Crank Time	< 4 seconds		
					AND Battery Voltage	> 10 V		
					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				3050 ms	B
					Not Test Failed This Key On	P0657 P0658 P0659		
			IF hardware fault is present for a sample size	>= 120 samples				
			AND Engine speed	>= 15 RPM	Components powered			
					AND Battery Voltage between	9 V and 18 V		
			THEN initiate intrusive test by opening low side driver					
			IF intrusive test indicates short to ground exists for a sample size		If Engine Cranking, then			
				>= 2 samples	Crank Time	< 4 seconds		
			THEN report malfunction		AND			
					Battery Voltage	> 10 V		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					High side driver 1 enabled			
Miscellaneous								
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.	Case 1 (Stuck Off) This test fails when, for number of occurrences, the transfer case 4WD switch indicates High range and the calculated transfer case range is Low range for a time	>= 200 >= 5 seconds	All Cases Not Test Failed This Key On No Fault Active DTCs for this drive cycle	P2771 P0721 P0722 P2771 P0721 P0722	5 seconds	B
			Case 2 (Stuck On) This test fails when, for number of occurrences, the transfer case 4WD switch indicates Low range and the calculated transfer case range is High range for a time	>= 200 >= 5 seconds.	No Fault Pending DTCs for this drive cycle Output Speed Transfer Case is NOT Neutral Transmission fluid temperature Engine Speed between Shift complete AND range attained NOT Neutral	P0721 P0722 > 60 RPM > 20 deg. C and < 130 deg. C 200 RPM and 7500 RPM		
Transmission Component	P0894	This test detects the number of turbine slip events during	For this ignition cycle, when the number of Neutral Locked Turbine (NLT) Slip				8075 ms	B

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
Slipping		the Neutral Locked Turbine (NLT) request from engine controller.	events, then report fail Where number of NLT Slip events for this ignition cycle = Number of accumulated NLT Slip events – Number of NLT Slip events from previous ignition cycles. And, where number of accumulated NLT Slip events is incremented when commanded gear or attained gear is NLT AND turbine speed for a time	>= 3 > 50 RPM > 3 seconds.	Components powered AND Battery Voltage between Engine Speed between for	9 V and 18 V 200 RPM and 7500 RPM 5 seconds		
Ignition Switch Run/Start Circuit	P2534	Out of range low.	Ignition voltage for a time	< 5 volts >= 30 seconds	Not Test Failed This Key On Components powered AND Battery Voltage between Engine Speed between for	P2534 9 V and 18 V 200 RPM and 7500 RPM 5 seconds	35 seconds	A

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
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	B
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 out of a number of samples, report fail. Case 2 (intermittent): Report fail, when the failure counter	 >= 5 samples 7 samples > 0 counts	All Cases Components powered AND Battery Voltage between Engine Speed between for Ignition Key State is RUN GMLAN message $191 is received from ECM	 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
					Enable criteria met for a time	> 3 seconds		
			for a number of sample windows	< 5 samples				
Brake Switch Circuit	P0571	This test counts how many vehicle acceleration events occur while the brake switch indicates "ON" or the number of vehicle deceleration events while the brake switch indicates "OFF"			All Cases			C
			Case 1:		Not Test Failed This Key On	P0571		
			The number of vehicle accelerations with the brake switch "on"	>= 10		P0721 P0722	10 Acceleration Events	
					No Fault Pending DTCs	P0721		
						P0722		
			Case 2: The number of vehicle decelerations with the brake switch "off"	>= 10	Not Fault Active Components powered	P0703	10 Deceleration Events	
					AND Battery Voltage between	9 V and 18 V		
					Engine Speed between	200 RPM and 7500 RPM		
					for	5 seconds		
Brake Pedal Possition Switch Signal Rolling Count	P0703	This test detects rolling count failures for the Brake Switch GMLAN Message					15 seconds	C
			The failure count increments when the GMLAN message is not received or the rolling counter does not agree with the expected value		Components powered AND Battery Voltage between	9 V and 18 V		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Engine Speed between	200 RPM and 7500 RPM		
			When the failure counter is	> 5				
			for a time of	> 10 seconds	for	5 seconds		
			Report Failure					
Upshift Switch Circuit	P0815	This test detects the upshift switch ON					603 seconds	C
			When PRNDL state is N, P or R		Not Test Failed This Key On	P0826		
			and has been unchanged			P0708		
			for a time	>= 2.5 seconds				
			AND		Components powered			
			upshift switch state is ON		AND			
			for a time	>= 3 seconds.	Battery Voltage between	9 V and 18 V		
			AND		Engine Speed between	200 RPM and 7500 RPM		
			When PRNDL state is a forward range and has been unchanged for a time	>= 2.5 seconds	for	5 seconds		
			AND					

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			upshift switch state is ON for a time	 >= 600 seconds.				
Downshift Switch Circuit	P0816	This test detects the downshift switch ON.	 When PRNDL state is N, P or R and has been unchanged for a time AND downshift switch state is ON for a time. AND When PRNDL state is a forward range and has been unchanged for a time AND downshift switch state is ON for a time	 >= 2.5 seconds >= 3 seconds. >= 2.5 seconds >= 600 seconds.	 Not Test Failed This Key On Components powered AND Battery Voltage between Engine Speed between for	 P0826 P0708 9 V and 18 V 200 RPM and 7500 RPM 5 seconds	603 Seconds	C
Up and Down Shift Switch Circuit	P0826	This test detects upshift/downshift switch circuit at an illegal state.	Switch state is ILLEGAL for a time	>= 10 seconds.	Not Test Failed This Key On	P0826	10 seconds	C

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Components powered			
					AND			
					Battery Voltage between	9 V and 18 V		
					Engine Speed between	200 RPM and 7500 RPM		
					for	5 seconds		
Upshift and Downshift Switch Signal Rolling Count	P1761	This test detects rolling count failures for the Upshift and Downshift GMLAN Message	The failure count increments when the GMLAN message is not received or the rolling counter does not agree with the expected value		Components powered		15 seconds	C
					AND			
					Battery Voltage between	9 V and 18 V		
			When the failure counter is	> 5	Engine Speed between	200 RPM and 7500 RPM		
			for a time of	> 10 seconds				
			Report Failure		for	5 seconds		

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 P077C P077D P07BF P07C0		B
					No Fault Pending DTCs for this drive cycle	P0716 P0717 P0721 P0722 P077C P077D P07BF P07C0		
					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) Start-up temperature change for a time AND Vehicle speed for a time	 <= 2 deg. C >= 100 seconds >= 8 KPH >= 300 seconds.	Start-up transmission fluid temperature between TCC Slip for a time engine coolant temperature AND engine coolant temperature change from start-up	-40 deg. C and 21 deg. C >= 120 RPM >= 300 seconds >= 70 deg. C >= 15 deg. C	300 seconds	
			Case 2 (Stuck sensor after warm start-up) Start-up temperature change for a time AND	 <= 3 deg. C >= 100 seconds	Start-up transmission fluid temperature between TCC Slip for a time engine coolant temperature	115 deg. C and 150 deg. C. >= 120 RPM >= 300 seconds >= 70 deg. C	300 seconds	

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					AND			
			Vehicle speed	>= 8 KPH	engine coolant temperature change			
			for a time	>= 300 seconds.	from start-up	>= 55 deg. C		
			Case 3 (Noisy sensor)				7 seconds	
			Change from previous temperature	>= 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	
			Time Enabled Criteria met AND		net engine torque	>= 150 Nm		
			AND		and	<= 1492 Nm		
			Transmission Fluid Temperature	< 20 deg. C.	vehicle speed	>= 22 KPH		
					and	<= 511 KPH		
			Time Enabled Criteria is determined by	250 seconds when start-up	%throttle	>= 10.0%		
			a lookup table ranging from	temperature is >= 20 deg. C	and	<= 100%		
			to	2200 seconds when start-up	engine speed	>= 500 RPM		
				temperature is <= -40 deg. C.	and	<= 6500 RPM		
					engine coolant temperature	>= -39 deg. C		
					and	<= 149 deg. C		
			Case 5 (Reasonableness at start-up):				2 seconds	
					Intake Air Temperature is not			
			Engine Speed	> 500 RPM	defaulted			
			AND					
			Engine Coolant Temperature	> -39 deg. C				
			AND	< 50 deg. C				
			for	>= 2 seconds				
			AND					
			((ABS(IAT-ECT)	<= 6 deg. C				
			AND					
			(TFT-ECT))	> 40 deg. C				
			OR					
			(ABS(IAT-ECT)	> 6 deg. C				
			AND					
			(TFT-ECT)))	> 60 deg. C.				
Transmission Fluid Temperature Sensor Circuit Low Input	P0712	Out of range low.	transmission fluid temperature	>= 140 deg. C	Not Test Failed This Key On	P0711 P0712	2.5 seconds	B
			for a time	> 2.5 seconds.		P0713		
					Components powered			
					AND			
					Battery Voltage between	9 V and 18 V		
					Engine Speed between	200 RPM and 7500 RPM		
					for	5 seconds		
Transmission Fluid Temperature Sensor Circuit High Input	P0713	Out of range high.	transmission fluid temperature	<= - 40 deg. C	Not Test Failed This Key On	P0711 P0712	2.5 seconds	B
			for a time	> 2.5 seconds		P0713		
					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
					IF Engine run time THEN Engine Coolant Temperature AND not defaulted for a time	<= 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. Not Low Voltage Disable	P0716 P0717 P07BF P07C0 		A
			Case 1: (Unrealistically large changes in input speed) Change of Input Speed between samples for AND NOT Low Voltage Response	 >= 800 RPM >= 0.15 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 This test fails if both the Low Counter and the High Counter OR Low Counter OR High Counter	 80 <= -800 RPM >= 800 RPM >= 5 >= 5 >= 5			2 seconds	
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.	Failure pending if transmission input speed This test fails if input speed AND output speed for a time AND NOT Low Voltage Response	 < 61 RPM < 61 RPM > 500 RPM > 1 second. 	Not Test Failed This Key On	P0717 P0729 P0731 P0732 P0733 P0734 P0735 P0736 P0721 P0722 P0716 P07BF	1 second	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
						P07C0 P077C P077D		
					No Fault Pending DTCs	P0721 P0722 P07BF P07C0 P077C P077D		
					NOT Low Voltage Disable			
					Engine is running 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 AND NOT Low Voltage Response	 >= 500 RPM >= 0.15 seconds	All Cases Not Test Failed This Key On	 P0721 P0722	Case 1: 0.15 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 Test fails if both the Low Counter and OR the Low Counter OR the High Counter	 80 <= -500 RPM >= 500 RPM >= 5 >= 5 >= 5	No Fault Pending DTCs for this drive cycle NOT Low Voltage Disable range attained NOT neutral	P077C P077D	Case 2: 2 seconds	
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 No Fault Pending DTCs for this drive NOT Low Voltage Disable	 P0721 P0722 P077C P077D P077C P077D		A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			Case 1: (Unrealistically large change in output speed)		Test enabled when output speed	>= 600 RPM	1 second	
			Failure pending if change in output speed	>= 600 RPM	for a time	>= 1 seconds		
			Failure sets if range attained is Neutral		Test disabled when output speed	<= 600 RPM		
					for a time	> 1 seconds		
			Case 2: (Unrealistically low value of output speed)				4 seconds	
			Failure pending if output speed	< 61 RPM	Not Test Failed This Key On	P0729		
			Failure sets if not monitoring for low speed neutral and output speed			P0731		
						P0732		
				< 61 RPM		P0733		
			AND			P0734		
			range is 3rd, 4th, 5th, or 6th			P0735		
			for a time	> 1 second		P0736		
			AND			P0716		
			NOT Low Voltage Response			P0717		
						P07BF		
						P07C0		
			Failure sets if not monitoring for low speed neutral and output speed		No Fault Pending DTCs for this drive	P0716		
						P0717		
						P07BF		
						P07C0		
			AND	< 61 RPM				
			((net engine torque	< -100 Nm	Engine is running			
			OR		Shift not in process			
			net engine torque)	> 100 Nm	Range attained is not Neutral			
			OR		Reverse to Neutral shift not in process			
			(turbine speed	> 1500 RPM				
			AND		Transmission fluid temperature	> -25 deg. C		
			range is 2nd))		Transmission input speed	>= 1050 RPM		
			for a time	>= 4 seconds.	Not waiting for Manual Selector Valve to attain forward range			
			AND					
			NOT Low Voltage Response		PRNDL State is NOT D4, NOT Transitional D4			
Input/Turbine Speed Sensor Ckt Voltage Low	P07BF	This test detects either open or short to ground circuit malfunctions.	IF voltage	<= 0.25 volts	Not Test Failed This Key On	P07BF	0.8 sec	A
					OR			
			for	0.2 second	No Fault Active DTC	P07BF		
			THEN increment fail timer		No Fault Active DTC	P07C0		
			IF fail timer	>= 4 counts				
			AND		NOT Low Voltage Disable			
			Engine Speed	>= 20 rpm				
			AND					
			NOT Low Voltage Response					
			THEN report malfunction					
Input/Turbine Speed Sensor Ckt Voltage High	P07C0	This test detects either open or short to ground circuit malfunctions.	IF voltage	>= 4.75	Not Test Failed This Key On	P07C0	0.8 sec	A
					OR			
					No Fault Active DTC	P07C0		
			for	0.2 second				
			THEN increment fail timer		No Fault Active DTC	P07BF		
			IF fail timer	>= 4 counts				
			AND		Components powered			
			Engine Speed	>= 20 rpm	AND			
			THEN report malfunction		Battery Voltage between	9 V and 18 V		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
Output Speed Sensor Ckt Voltage Low	P077C	This test detects either open or short to ground circuit malfunctions.	IF voltage	<= 0.25 volts	Not Test Failed This Key On	P077C	0.8 sec	A
					OR			
					No Fault Active DTC	P077C		
			for	0.2 second				
			THEN increment fail timer					
			IF fail timer	>= 4 counts	No Fault Active DTC	P077D		
			AND					
			Engine Speed	>= 20 rpm	NOT Low Voltage Disable			
			AND					
			NOT Low Voltage Response					
			THEN report malfunction					
Output Speed Sensor Ckt Voltage High	P077D	This test detects either open or short to ground circuit malfunctions.	IF voltage	>= 4.75	Not Test Failed This Key On	P077D	0.8 sec	A
					OR			
					No Fault Active DTC	P077D		
			for	0.2 second				
			THEN increment fail timer		No Fault Active DTC	P077C		
			IF fail timer	>= 4 counts				
			AND		Components powered			
			Engine Speed	>= 20 rpm	AND			
			THEN report malfunction		Battery Voltage between	9 V and 18 V		
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	>= 2 second			2.25 seconds	A
					Not Test Failed This Key On (except if dropout suspected or detected)	P0877		
			IF main pressure dropout is suspected			P0878		
			THEN accumulated event timer is	>= 1 second				
			IF main pressure dropout is detected		Not Fault Pending with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			THEN accumulated event timer is	>= 0.75 second				
			Timer accumulates when transmission is in forward or reverse range		Not Fault Active with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			AND					
			output speed	>= 100 RPM				
			AND					
			gear slip	> 100 RPM	Not Test Failed This Key On	P0721		
						P0722		
			In response to pending failure, a diagnostic response range is commanded.			P0716		
						P0717		
						P07BF		
						P07C0		
			During this command, this test fails if Abs(Converter Slip)	>= 250 RPM		P077C		
			for	> 10 samples.		P077D		
					No Fault Pending DTC for this drive cycle.	P0717		
						P07BF		
						P07C0		
					NOT Low Voltage Disable			
					No range switch response active			
					Hydraulic System Pressurized			

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			
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 second			2.25 seconds	A
			IF main pressure dropout is suspected		Not Test Failed This Key On (except if dropout suspected or detected)	P0877 P0878		
			THEN accumulated event timer is	>= 1 second				
			IF main pressure dropout is detected		Not Fault Pending with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			THEN accumulated event timer is	>= 0.75 second				
			Timer accumulates when transmission is in forward or reverse range		Not Fault Active with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			AND output speed	>= 100 RPM				
			AND		Not Test Failed This Key On	P0721		
			gear slip	> 100 RPM		P0722 P0716		
			In response to pending failure, a diagnostic response range is commanded.			P0717 P07BF P07C0 P077C		
			During this command, this test fails if Abs(Converter Slip)	>= 250 RPM		P077D		
			for	> 10 samples.	No Fault Pending DTC for this drive cycle.	P0717 P07BF P07C0		
					NOT Low Voltage Disable			
					No range switch response active			
					Hydraulic System Pressurized			
					Shift complete			
					Output speed	>= 200 RPM		
					No hydraulic default condition present			
					Normal powertrain shutdown not in process			
					Normal powertrain initialization is complete			

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
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 IF main pressure dropout is suspected THEN accumulated event timer is IF main pressure dropout is detected THEN accumulated event timer is 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 >= 1 second >= 0.75 second >= 100 RPM > 100 RPM >= 250 RPM > 10 samples.	Not Test Failed This Key On (except if dropout suspect or detected) Not Fault Pending with cmd gear Rev_Logic1 and RPS/PRNDL conflict Not Fault Active with cmd gear Rev_Logic1 and RPS/PRNDL conflict Not Test Failed This Key On No Fault Pending DTC for this drive cycle. NOT Low Voltage Disable 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 P0877 P0877 P0721 P0722 P0716 P0717 P07BF P07C0 P077C P077D P0717 P07BF P07C0 >= 200 RPM	2.25 seconds	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 IF main pressure dropout is suspected THEN accumulated event timer is IF main pressure dropout is detected THEN accumulated event timer is Timer accumulates when transmission is in forward or reverse range AND output speed AND	>= 2 second >= 1 second >= 0.75 second >= 100 RPM	Not Test Failed This Key On (except if dropout suspect or detected.) Not Fault Pending with cmd gear Rev_Logic1 and RPS/PRNDL conflict Not Fault Active with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877 P0878 P0877 P0877	2.25 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			gear slip	> 100 RPM				
					Not Test Failed This Key On	P0721 P0722 P0716 P0717 P07BF P07C0 P077C P077D		
			In response to pending failure, a diagnostic response range is commanded.					
			During this command, this test fails if Abs(Converter Slip) for	>= 250 RPM > 10 samples.				
					No Fault Pending DTC for this drive cycle.	P0717 P07BF P07C0		
					NOT Low Voltage Disable			
					No range switch response active			
					Hydraulic System Pressurized			
					Shift complete			
					Output speed	>= 200 RPM		
					No hydraulic default condition present			
					Normal powertrain shutdown not in process			
					Normal powertrain initialization is complete			
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 second			2.25 seconds	A
			IF main pressure dropout is suspected THEN accumulated event timer is	>= 1 second	Not Test Failed This Key On (except if dropout suspect or detected.)	P0877 P0878		
			IF main pressure dropout is detected THEN accumulated event timer is	>= 0.75 second	Not Fault Pending with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			Timer accumulates when transmission is in forward or reverse range					
			AND		Not Fault Active with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			output speed	>= 100 RPM				
			gear slip	> 100 RPM				
			In response to pending failure, a diagnostic response range is commanded.		Not Test Failed This Key On	P0721 P0722 P0716 P0717 P07BF P07C0 P077C P077D		
			During this command, this test fails if Abs(Converter Slip) for	>= 250 RPM > 10 samples.				
					No Fault Pending DTC for this drive cycle.	P0717 P07BF P07C0		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					NOT Low Voltage Disable			
					No range switch response active			
					Hydraulic System Pressurized			
					Shift complete			
					Output speed	>= 200 RPM		
					No hydraulic default condition present			
					Normal powertrain shutdown not in process			
					Normal powertrain initialization is complete			
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 IF main pressure dropout is suspected THEN accumulated event timer is IF main pressure dropout is detected THEN accumulated event timer is	>= 2 seconds >= 1 second >= 0.75 second	Not Test Failed This Key On (except if dropout suspect or detected.)	P0877 P0878	2 seconds	A
					Not Fault Pending with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			Timer accumulates when transmission is in forward or reverse range AND output speed AND gear slip	 >= 100 RPM > 100 RPM	Not Fault Active with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
					Not Test Failed This Key On	P0721 P0722 P0716 P0717 P07BF P07C0 P077C P077D		
					No Fault Pending DTC for this drive cycle.	P0717 P07BF P07C0		
					NOT Low Voltage Disable			
					No range switch response active			
					Hydraulic System Pressurized			
					Shift complete			
					Output speed	>= 200 RPM		
					No hydraulic default condition present			
					Normal powertrain shutdown not in			

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					process Normal powertrain initialization is complete			
Gear 6 Incorrect Ratio	P0729	This test verifies transmission range while 6th range is commanded by comparing computed ratio to the commanded ratio.	Pending failure occurs when accumulated event timer IF main pressure dropout is suspected THEN accumulated event timer is IF main pressure dropout is detected THEN accumulated event timer is 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 >= 1 second >= 0.75 second >= 100 RPM > 100 RPM >= 250 RPM > 10 samples.	Not Test Failed This Key On (except if dropout suspect or detect) Not Fault Pending with cmd gear Rev_Logic1 and RPS/PRNDL conflict Not Fault Active with cmd gear Rev_Logic1 and RPS/PRNDL conflict Not Test Failed This Key On No Fault Pending DTC for this drive cycle. NOT Low Voltage Disable 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 P0877 P0877 P0721 P0722 P0716 P0717 P07BF P07C0 P077C P077D P0717 P07BF P07C0 >= 200 RPM	2.25 seconds	A
Torque Converter Clutch								
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 P077C P077D	15 seconds	B

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
						P07BF P07C0		
					No Fault Pending DTCs for this drive cycle.	P2761 P2763 P2764 P0721 P0722 P0716 P0717 P077C P077D P07BF P07C0		
					Components powered AND Battery Voltage between	 9 V and 18 V		
					Engine Speed between for	200 RPM and 7500 RPM 5 seconds		
					Must be in forward range			
					% Throttle	> 10 % and <= 90 %		
					Transmission fluid temperature	> 5 deg. C and < 130 deg. C		
					Time Since Range Change AND TCC apply is complete AND TCC pressure	>= 6 seconds >= 1000 kPa		
Torque Converter Clutch Circuit Stuck On	P0742	This test detects the torque converter being stuck on (locked).	Case 1: (High Torque condition) Set fault pending when throttle AND net engine torque Report malfunction when fault pending exists continuously for a time	 >= 70% >= 275 Nm. >= 2 seconds.	Not Test Failed This Key On	P2761 P2763 P2764 P0721 P0722 P0716 P0717 U0100 P077C P077D P07BF P07C0	Case 1: 2 Seconds	B
			Case 2: (High Acceleration condition) Set fault pending when output shaft acceleration Report malfunction when fault pending exists continuously for a time	 >= 100 RPM/second >= 5 seconds.	No Fault Pending DTCs for this drive cycle.	P2761 P2763 P2764 P0721 P0722 P0716 P0717 U0100 P077C	Case 2: 5 Seconds	

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
						P077D P07BF P07C0		
					Components powered			
			Case 3: (Accel/Decel/Accel condition)		AND		Case 3:	
					Battery Voltage between	9 V and 18 V	4 Seconds	
			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		Engine Speed between	200 RPM and 7500 RPM		
					for	5 seconds		
					Engine speed not defaulted			
					Must be in forward range			
				>= 40 RPM/second				
			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		80 ms	A
					NOT Cold initialization unless transmission fluid temperature	> -25 deg. C		
					NOT Low Voltage Disable			
			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:		NOT Shutdown with Active Diag			
					Hydraulic System Pressurized			
					NOT Hydraulic Default Cmd			
			For Case 1 (electrical malfunction),					
			SS1 Circuit Low reports failure, also.	P0973				
			For Case 2 (mechanical malfunction),					
			Shift Solenoid 1 (SS1) Valve Performance – Stuck On reports failure, also.	P0752				
			For Case 3 (intermittent malfunction),					
			SS1 valve retry attempted AND PS1 pressure switch continues to indicate stroked.	15 times				

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
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 NOT Low Voltage Disable NOT Shutdown with Active Diag Hydraulic System Pressurized NOT Hydraulic Default Cmd		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 switch feedback. (part of the S1 valve timeout test).	S1 valve commanded from stroked to destroked and the PS1 pressure switch indication remains stroked for a time WITH transmission fluid temperature (Time increases as temperature decreases with maximum time at transmission fluid temperature)	> 6.2 seconds >= 0 deg. C. 10 seconds <= -40 deg. C	S1 valve commanded from stroked to destroked NOT Low Voltage Disable NOT Shutdown with Active Diag Hydraulic System Pressurized NOT Hydraulic Default Cmd		6.6 seconds	A
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. For Case 3 (intermittent malfunction), S1 valve retry attempted AND PS1 pressure switch continues to	> 0.07 seconds 5 seconds P0973 P0751 15 times	S1 valve is stroked NOT Cold initialization unless transmission fluid temperature NOT Low Voltage Disable NOT Shutdown with Active Diag Hydraulic System Pressurized NOT Hydraulic Default Cmd	> -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
			indicate destroked.					
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 malfunction), S2 valve retry attempted AND PS2 pressure switch continues to indicate stroked.	> 0.04004 seconds 0.2998 seconds P0976 P0757 2 times	S2 valve is destroked NOT Cold initialization unless transmission fluid temperature NOT Low Voltage Disable NOT Shutdown with Active Diag Hydraulic System Pressurized NOT Hydraulic Default Cmd	> -25 deg. C	40 ms	A
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. NOT Low Voltage Disable NOT Shutdown with Active Diag Hydraulic System Pressurized NOT Hydraulic Default Cmd		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 commanded from stroked to destroked NOT Low Voltage Disable NOT Shutdown with Active Diag Hydraulic System Pressurized NOT Hydraulic Default Cmd		6.5 sec	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
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 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.	> 0.30 seconds 5 seconds P0976 P0756 2 times	S2 valve is stroked NOT Cold initialization unless transmission fluid temperature NOT Low Voltage Disable NOT Shutdown with Active Diag Hydraulic System Pressurized NOT Hydraulic Default Cmd	> -25 deg. C	300 ms	A
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 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.	> 0.0195 seconds P0979 P0762	S3 valve is destroked NOT Cold initialization unless transmission fluid temperature NOT Low Voltage Disable NOT Shutdown with Active Diag Hydraulic System Pressurized NOT Hydraulic Default Cmd	> -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
			For Case 3 (intermittent malfunction), S3 valve retry attempted AND PS3 pressure switch continues to indicate stroked.	 2 times				
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. NOT Low Voltage Disable NOT Shutdown with Active Diag Hydraulic System Pressurized NOT Hydraulic Default Cmd		5 seconds	A
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 commanded from stroked to NOT Low Voltage Disable NOT Shutdown with Active Diag Hydraulic System Pressurized NOT Hydraulic Default Cmd		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. For Case 2 (mechanical malfunction), Shift Solenoid 3 Valve Performance – Stuck Off reports failure, also.	 > 0.30 seconds 5 seconds P0979 P0761	S3 valve is stroked NOT Cold initialization unless transmission fluid temperature NOT Low Voltage Disable NOT Shutdown with Active Diag Hydraulic System Pressurized NOT Hydraulic Default Cmd	 > -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 3 (intermittent malfunction), S3 valve retry attempted AND PS3 pressure switch continues to indicate destroked.	 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)	 100 samples 255 samples >= 1 seconds 30 seconds	All Cases Not Test Failed This Key On No Fault Pending DTCs for this drive cycle Engine had been cranking or running this drive cycle Components powered AND Ignition Voltage between Engine Speed between for	 P0877 P0878 P0708 P0708 9 V and 18 V 200 RPM and 7500 RPM 5 seconds	5 seconds	A
			Case 2: (Range indefinite) For a sample size, net engine torque AND PRNDL is indefinitely D3 or another forward range for a time	 20 samples >= 100 Nm > 1 second	Transmission Fluid Temperature Hydraulic System Pressurized Reverse Pressure Switch State indicates REVERSE	>= 0 deg. C		
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		Not Test Failed This Key On No Fault Pending DTC for this drive cycle. No range switch response active	P0877 P0878 P0708 P0708		A
			Case 1: (RPS State and Gear Ratio do not agree) IF Rev Gear Ratio and RPS indicates for AND Engine Torque for report malfunction	 not Reverse >= 0.5 second >= 100 Nm >= 1 second	 NOT Fault Active Ignition Voltage between First Range Commanded Shift Complete Output Speed	 P0878 9 V and 18 V >= 100 rpm	 1.5 seconds	
			For Case 2: (RPS Shutdown Test) If RPS indicates for a time	 not Reverse > 10 seconds	 Power Mode is NOT Off Transmission Fluid Temperature	 >= 0 deg. C	10 seconds	

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			at transmission fluid temperature	0 deg. C.				
			during engine shutdown		Engine had been cranking or running this drive cycle			
			This time varies with transmission fluid	3 seconds				
			at transmission fluid temperature	> 35 deg. C	Engine speed	< 50 RPM		
			to time	12 seconds	Turbine speed	< 50 RPM		
			at transmission fluid temperature	< -20 deg. C.	Output speed	< 50 RPM		
			report malfunction at Init					
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	>= 2 seconds	Not Test Failed This Key On	P0721 P0722 P0716 P0717 P0877 P0878 P07BF P07C0 P077C P077D	2.25 seconds	A
			(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)	>= 250 RPM	Output Speed Turbine Speed	>= 125 RPM >= 60 RPM		
			for sample size	> 10 samples	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			
					NOT Low Voltage Disable			
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 P0722 P0716 P0717 P0877 P0878 P07BF P07C0	2.25 seconds	A
			(For rough road conditions, use)	2 seconds				
			Timer accumulates when transmission is shifting, output speed	>= 60 RPM				
			AND commanded gear slip speed	> 75 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)	150 RPM.		P077C P077D		
			In response of pending failure, a diagnostic response range is commanded. During this command, this test fails if ABS(Converter slip)		Output Speed Turbine Speed	>= 125 RPM >= 60 RPM		
				>= 250 RPM	Hydraulic System Pressurized			
			for sample size	> 10 samples				
					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			
					NOT Low Voltage Disable			
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	P0721 P0722 P0716 P0717 P0877 P0878 P07BF P07C0 P077C P077D	3 seconds	A
			Fail timer accumulates during range to range shifts when attained gear slip speed	<= 25 RPM	Output Speed Turbine Speed	>= 200 RPM >= 200 RPM		
					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			
					NOT Low Voltage Disable			

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
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 Output Speed 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 NOT Low Voltage Disable	P0721 P0722 P0716 P0717 P0877 P0878 P07BF P07C0 P077C P077D >= 200 RPM >= 200 RPM	3 seconds	A
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	>= 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. 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. 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; Motion Detected is defined as output speed for a time; Valid Drive Detected is defined as the 4-bit DL indicates Valid Drive for a time; Valid Park Detected is defined as 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.	>= 5 counts >= 5 counts >= 30 seconds; >= 200 RPM >= 10 seconds >= 3 seconds >= 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 Ignition voltage between Powertrain State is READY or CRANKING	P0706 9V and 18 V	200 ms	B

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Engine speed	> 100 RPM and < 350 RPM.		
Solenoid Electrical								
Main Modulation/Line Pressure Control Solenoid Control Circuit Open	P0960	This test detects solenoid electrical open circuit malfunctions.	Fault pending is set on a single occurrence of hardware ground or open fault. IF either hardware faults are present for THEN initiate intrusive test by opening low side driver IF intrusive test indicates open for THEN report malfunction	 >= 3 counts >= 2 counts	Not Test Failed This Key On Components powered AND Battery voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 2 Enabled	P2669 P2670 P2671 9V and 18 V < 4 seconds > 10 V >= 20 RPM	125 ms	A
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	 IF delta(desired current - actual current) FOR For a sample size THEN report malfunction	 >= 0.5 amps >= 40 counts < 80 samples	Not Test Failed This Key On No Fault Pending DTC for this drive cycle. Components powered AND Battery voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 2 Enabled Shift Complete Lockup Apply Complete OR Lockup Release Complete	P2669 P2670 P2671 P0960 P0961 P0962 P0960 P0962 9 V and 18 V < 4 seconds > 10 V >= 20 RPM	1000 ms	A
Main Modulation/Line	P0962	This test detects					125 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
Pressure Control Solenoid Control Circuit Low		solenoid electrical ground circuit malfunctions.	Fault pending is set on a single occurrence of hardware ground or open fault. IF either hardware faults are present for THEN initiate intrusive test by opening low side driver IF intrusive test indicates grnd for THEN report malfunction	 >= 3 counts >= 2 counts	Not Test Failed This Key On Components powered AND Battery voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 2 Enabled	P2669 P2670 P2671 9 V and 18 V < 4 seconds > 10 V >= 20 RPM		
Main Modulation/Line Pressure Control Solenoid Control Circuit High	P0963	This test detects solenoid electrical short to power circuit malfunctions.	Short to power fault present for	> = 3 counts	Not Test Failed This Key On Components powered AND Battery voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 2 Enabled	P2669 P2670 P2671 9 V and 18 V < 4 seconds > 10 V >= 20 RPM	75 ms	A
Pressure Control Solenoid 2 Control Circuit Open	P0964	This test detects solenoid electrical open circuit malfunctions.	Fault pending is set on a single occurrence of hardware ground or open fault. IF either hardware faults are present for THEN initiate intrusive test by opening low side driver IF intrusive test indicates open for THEN report malfunction	 >= 3 counts >= 2 counts	Not Test Failed This Key On Components powered AND Battery voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 1 Enabled	P0657 P0658 P0659 9 V and 18 V < 4 seconds > 10 V >= 20 RPM	125 ms	A
Pressure Control Solenoid 2 Control Circuit Performance	P0965	This test detects the performance of the solenoid by comparing desired current to actual duty	IF delta(desired current - actual current) FOR	>= 0.5 amps >= 10 counts	Not Test Failed This Key On	P0657 P0658 P0659 P0964	250ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		cycle	For a sample size THEN report malfunction	< 20 samples	 No Fault Pending DTC for this drive cycle. Components powered AND Battery voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 1 Enabled Shift Complete Lockup Apply Complete OR Lockup Release Complete	P0965 P0966 P0964 P0966 9 V and 18 V < 4 seconds > 10 V >= 20 RPM		
Pressure Control Solenoid 2 Control Circuit Low	P0966	This test detects solenoid electrical ground circuit malfunctions.	Fault pending is set on a single occurrence of hardware ground or open fault. IF either hardware faults are present for THEN initiate intrusive test by opening low side driver IF intrusive test indicates grnd for THEN report malfunction	 >= 3 counts >= 2 counts	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 1 Enabled	P0657 P0658 P0659 9 V and 18 V < 4 seconds > 10 V >= 20 RPM	125 ms	A
Pressure Control Solenoid 2 Control Circuit High	P0967	This test detects solenoid electrical short to power circuit malfunctions.	Short to power fault present for	> = 3 counts	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND	P0657 P0658 P0659 P0967 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
					Battery Voltage Engine speed High Side Driver 1 Enabled High Side Driver 1 Enabled	> 10 V >= 20 RPM		
Pressure Control Solenoid 1 Control Circuit Open	P2727	This test detects solenoid electrical open circuit malfunctions.	Fault pending is set on a single occurrence of hardware ground or open fault. IF either hardware faults are present for THEN initiate intrusive test by opening low side driver IF intrusive test indicates open for THEN report malfunction	 >= 3 counts >= 2 counts	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 2 Enabled	P2669 P2670 P2671 9 V and 18 V < 4 seconds > 10 V >= 20 RPM	125 ms	A
Pressure Control Solenoid 1 Control Circuit Performance	P2728	This test detects the performance of the solenoid by comparing desired current to actual duty cycle	IF delta(desired current - actual current) FOR For a sample size THEN report malfunction	>= 0.5 amps >= 10 counts < 20 samples	Not Test Failed This Key On No Fault Pending DTC for this drive cycle. Components powered AND Battery voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 2 Enabled Shift Complete Lockup Apply Complete OR Lockup Release Complete	P2669 P2670 P2671 P2727 P2728 P2729 P2727 P2729 9 V and 18 V < 4 seconds > 10 V >= 20 RPM	250 ms	A
Pressure Control Solenoid 1 Control Circuit Low	P2729	This test detects solenoid electrical ground circuit malfunctions.	Fault pending is set on a single occurrence of hardware ground or open fault.		Not Test Failed This Key On	P2669 P2670 P2671	125 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			IF either hardware faults are present for THEN initiate intrusive test by opening low side driver IF intrusive test indicates grnd for THEN report malfunction	>= 3 counts >= 2 counts	Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 2 Enabled	 9 V and 18 V < 4 seconds > 10 V >= 20 RPM 		
Pressure Control Solenoid 1 Control Circuit High	P2730	This test detects solenoid electrical short to power circuit malfunctions.	Short to power fault present for	> = 3 counts	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 2 Enabled	P2669 P2670 P2671 P2730 9 V and 18 V < 4 seconds > 10 V >= 20 RPM 	75 ms	A
Shift Solenoid 1 Control Circuit Low/Open	P0973	This test detects solenoid electrical ground and open circuit malfunctions.	Fault pending is set on a single occurrence of hardware ground or open fault. IF either hardware fault is present for THEN report malfunction	 >= 10 counts	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 1 Enabled	P0657 P0658 P0659 9 V and 18 V < 4 seconds > 10 V >= 20 RPM 	250 ms	A
Shift Solenoid 1 Control Circuit High	P0974	This test detects solenoid electrical short to power circuit malfunctions.	Short to power fault present for	> = 3 counts	Not Test Failed This Key On Components powered AND Battery Voltage between	P0657 P0658 P0659 P0974 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 Engine speed High Side Driver 1 Enabled	 < 4 seconds > 10 V >= 20 RPM 		
Shift Solenoid 2 Control Circuit Low/Open	P0976	This test detects solenoid electrical ground or open circuit malfunctions.	Fault pending is set on a single occurrence of hardware ground IF either hardware fault is present for THEN report malfunction	 >= 10 counts	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 1 Enabled	P0657 P0658 P0659 9 V and 18 V < 4 seconds > 10 V >= 20 RPM 	250 ms	A
Shift Solenoid 2 Control Circuit High	P0977	This test detects solenoid electrical short to power circuit malfunctions.	Short to power fault present for	> = 3 counts	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 1 Enabled	P0657 P0658 P0659 P0977 9 V and 18 V < 4 seconds > 10 V >= 20 RPM 	75 ms	A
Shift Solenoid 3 Control Circuit Low/Open	P0979	This test detects solenoid electrical ground or open circuit malfunctions.	Fault pending is set on a single occurrence of hardware ground or open fault. IF either hardware fault is present for THEN report malfunction	 >= 10 counts	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then	P0657 P0658 P0659 P0979 9 V and 18 V 	250 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 Engine speed High Side Driver 1 Enabled	< 4 seconds > 10 V >= 20 RPM		
Shift Solenoid 3 Control Circuit High	P0980	This test detects solenoid electrical short to power circuit malfunctions.	Short to power fault present for	> = 3 counts	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 1 Enabled	P0657 P0658 P0659 P0980 9 V and 18 V < 4 seconds > 10 V >= 20 RPM	75 ms	A
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.	IF HSD1 fault is indeterminate THEN initiate intrusive test Command intrusive gear. Override pressure control solenoid 2 THEN exit intrusive test after Report malfunction when the number of failure events A failure event occurs when the number of failed solenoids connected to HSD1	 >= 0.075 sec > 0.050 sec >= 3 >= 2	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 Engine speed	P0657 9 V and 18 V < 4 seconds > 10 V >= 20 RPM	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	>= 3 times	Not Test Failed This Key On HSD1 is commanded ON	P0658	75 ms	A
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	>= 3 times	During initialization Battery Voltage	 >= 9V	18.75 ms	A
Actuator Supply2 (HSD2)	P2669	This test detects if					75 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
Voltage Open		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 A failure event occurs when the number of failed solenoids connected to HSD1	>= 3 >= 2	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 Engine Speed	P2669 9 V and 18 V < 4 seconds > 10 V >= 20 rpm		
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	>= 3 times	Not Test Failed This Key On HSD2 is commanded ON	P2670	75 ms	A
Actuator Supply 2 (HSD2) Voltage High	P2671	This test detects if 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	>= 3 times	During initialization Battery Voltage	 >= 9	18.75 ms	A
TCC Pressure Control Solenoid Control Circuit Open	P2761	This test detects torque converter solenoid electrical open circuit malfunctions.	Fault pending is set on a single occurrence of hardware ground or open fault. IF either hardware faults are present for THEN initiate intrusive test by opening low side driver IF intrusive test indicates open for THEN report malfunction	 >= 3 counts >= 2 counts	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine Speed High Side Driver 2 Enabled	P2669 P2670 P2671 9 V and 18 V < 4 seconds > 10 V >= 20 rpm	125 ms	B
TCC Pressure Control Solenoid Control Circuit Performance	P2762	This test detects the performance of the solenoid by comparing desired current to actual duty cycle	IF delta(desired current - actual current) FOR For a sample size THEN report malfunction	>= 0.5 amps >= 40 counts < 80 samples	Not Test Failed This Key On No Fault Pending DTC for this drive cycle.	P2669 P2670 P2671 P2761 P2762 P2764 P2761 P2763	1000 ms	B

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Components powered AND Battery voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine Speed High Side Driver 2 Enabled Shift Complete Lockup Apply Complete OR Lockup Release Complete	9 V and 18 V < 4 seconds > 10 V >= 20 rpm		
TCC Pressure Control Solenoid Control Circuit High	P2763	This test detects solenoid electrical short to power circuit malfunctions.	Short to power fault present for	> = 3 counts	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine Speed High Side Driver 2 Enabled	P2669 P2670 P2671 P2763 9 V and 18 V < 4 seconds > 10 V >= 20 rpm	75 ms	B
TCC Pressure Control Solenoid Control Circuit Low	P2764	This test detects solenoid electrical ground circuit malfunctions.	Fault pending is set on a single occurrence of hardware ground or open fault. IF either hardware faults are present for THEN initiate intrusive test by opening low side driver IF intrusive test indicates grnd for THEN report malfunction	 >= 3 counts >= 2 counts	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage Engine Speed High Side Driver 2 Enabled	P2669 P2670 P2671 9 V and 18 V < 4 seconds > 10 V >= 20 rpm	125 ms	B
Miscellaneous								

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
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.	Case 1 (Stuck Off) This test fails when, for number of occurrences, the transfer case 4WD switch indicates High range and the calculated transfer case range is Low range for a time	 >= 1 >= 0.5 second	All Cases Not Test Failed This Key On No Fault Active DTCs for this drive cycle No Fault Pending DTCs for this drive cycle NOT Tranfer Case failure suspect Transfer Case is NOT Neutral or defaulted Transmission fluid temperature Engine Speed between for Shift complete AND range attained NOT Neutral	 P2771 P0721 P0722 P077C P077D P2771 P0721 P0722 P077C P077D P0721 P0722 P077C P077D > 20 deg. C and < 130 deg. C 200 RPM and 7500 RPM 5 seconds	0.5 second	B
Transmission Component Slipping	P0894	This test detects the number of turbine slip events during the Neutral Locked Turbine (NLT) request from engine controller.	For this ignition cycle, when the number of Neutral Locked Turbine (NLT) Slip events, then report fail Where number of NLT Slip events for this ignition cycle = Number of accumulated NLT Slip events – Number of NLT Slip events from previous ignition cycles. And, where number of accumulated NLT Slip events is incremented when commanded gear or attained gear is NLT AND turbine speed for a time	>= 3 > 50 RPM > 3 seconds.	Components powered AND Battery Voltage between Engine Speed between for	 9 V and 18 V 200 RPM and 7500 RPM 5 seconds	8075 ms	B
Ignition Switch Run/Start Circuit	P2534	Out of range low.	Ignition voltage THEN increment fail counter IF fail counter AND (BattChargeSysStable TRUE OR NOT P0882) THEN report malfunction	< 5 volts >= 200 counts	Not Test Failed This Key On Components powered AND Battery Voltage between Engine Speed between for	P2534 9 V and 18 V 200 RPM and 7500 RPM 5 seconds	5 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
GMLAN Bus Reset Counter Overrun	U0073	This test detects if the GMLAN bus is off for a calibration duration.	CAN Hardware Circuitry Detects a Bus Voltage Error (CAN bus off)	= TRUE (Boolean)	>= 3 counts			B
			Bus off delay time (use if Bus if Off from Bus Indeterminate State)	>= 4 sec	>= 5 counts			
					all conditions A and (B or C) below must occur for stabilization time			
					Bus Stabilization time	>= 3 seconds		
					A) Service mode $04 active and end of trip pocessing active	= FALSE (Boolean)		
					A) normal serial data communication enabled	= TRUE (Boolean)		
					A) U0073 status not	= fault active		
					B) secured controller or emission critical then use ignition voltage	= CeCANR_e_OBDII_Dsbl (Boolean)		
					B) secured controller or emission critical Ignition Voltage	>= 11 volts		
					B) Power Mode	= Run		
					C) ignition off enable	= TRUE (Boolean)		
					C) Power Mode	= accessory		
					C) battery voltage	>11 volts		
GMLAN ECM Controller State of Health Failure	U0100	This test detects GMLANbus failures by detecting State of Health failures in GMLAN messages $191, $0BE, $0C9,$1A1, $287, $2C3, $3B9, $3D1,$3E9, $3F9, $4C1, and $4F1 from ECM.	TCM Rx message missed frame		fail times are caculated based on Rx message enable calibration set to CeCANR e BusA ECM	Tx controller		B
			TCM Rx frame message missed frame	= TRUE (Boolean)	TCM Rx frame calibration enabled	(see Table 1 in supporting document) enumeration	>= 10 seconds	
					Frame recovery stabilization delay	>= 0.4 seconds		
					all conditions A and (B or C) below must occur for stabilization time			
					Bus Stabilization time	>= 3 seconds		
					A) Service mode $04 active and end of trip pocessing active	= FALSE (Boolean)		
					A) normal serial data communication enabled	= TRUE (Boolean)		
					A) U0073 status not	= fault active		
					B) secured controller or emission critical then use ignition voltage	= CeCANR_e_OBDII_Dsbl (Boolean)		
					B) secured controller or emission critical Ignition Voltage	>= 11 volts		
					B) Power Mode	= Run		
					C) ignition off enable	= TRUE (Boolean)		
					C) Power Mode	=accessory		
					C) battery voltage	>11 volts		
					U0100 fault status is not Not Test Failed This Key On	= fault active U0073		
Lost Communication with GMLAN ABS Control Module	U0121	This test detects CAN (GMLAN) bus failures by detecting State of Health (SOH) failures in the following GMLAN messages $0C1, $0C5, $0D0, $1E9, and $2F9 from Antilock Brake	TCM Rx message missed frame		fail times are caculated based on Rx message enable calibration set to CeCANR_e_BusA_ABS	Tx controller		C
			TCM Rx frame message missed frame	= TRUE (Boolean)	TCM Rx frame calibration enabled	(see Table 1 in supporting document) enumeration	>= 10 seconds	
					Frame recovery stabilization delay	>= 0.4 seconds		
					all conditions A and (B or C) below must occur for stabilization time			
					Bus Stabilization time	>= 3 seconds		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		System (ABS) Control Module.			A) Service mode $04 active and end of trip pocessing active A) normal serial data communication enabled A) P0073 status not B) secured controller or emission critical then use ignition voltage B) secured controller or emission critical Ignition Voltage B) Power Mode C) ignition off enable C) Power Mode C) battery voltage U0121 fault status is not Not Test Failed This Key On	= FALSE (Boolean) = TRUE (Boolean) = fault active = CeCANR_e_OBDII_Dsbl (Boolean) >= 11 volts = Run = TRUE (Boolean) =accessory > 11 volts = fault active U0073		
Lost Communication With Body Control Module	U0140	This test detects CAN (GMLAN) bus failures by detecting State of Health (SOH) failures in the following GMLAN messages $0F1, $1E1, $1F3, and $3F1 from the Truck Body Computer (TBC) Control	TCM Rx message missed frame TCM Rx frame message missed frame	= TRUE (Boolean)	fail times are caculated based on Rx message enable calibration set to CeCANR_e_BusA_BCM TCM Rx frame calibration enabled	Tx controller (see Table 1 in supporting document) enumeration	>= 10 seconds	C
					Frame recovery stabilization delay all conditions A and (B or C) below must occur for stabilization time Bus Stabilization time A) Service mode $04 active and end of trip pocessing active A) normal serial data communication enabled A) P0073 status not B) secured controller or emission critical then use ignition voltage B) secured controller or emission critical Ignition Voltage B) Power Mode C) ignition off enable C) Power Mode C) battery voltage U0140 fault status is not Not Test Failed This Key On	>= 0.4 seconds >= 3 seconds = FALSE (Boolean) = TRUE (Boolean) = fault active = CeCANR_e_OBDII_Dsbl (Boolean) >= 11 volts = Run = TRUE (Boolean) =accessory >11 volts = fault active U0073		
Brake Switch Circuit	P0571	This test counts how many vehicle acceleration events occur while the brake switch indicates "ON" or the number of vehicle deceleration events while the brake switch indicates "OFF"	Case1: The number of vehicle accelerations with the brake switch "on" Case 2: The number of vehicle decelerations with the brake switch "off"	>= 10 >= 10	All Cases NOT Test Failed This Key On No Fault Pending DTCs	P0571 P0716 P0717 P07BF P07C0 P0721 P0722 P077C P077D	10 Acceleration Events	C

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Not Fault Active Components powered AND Battery Voltage between Engine Speed between for	P0703 9 V and 18 V 200 RPM and 7500 5 seconds	10 Deceleration Events	
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
Upshift Switch Circuit	P0815	This test detects the upshift switch ON	When PRNDL state is N, P or R and has been unchanged for a time AND upshift switch state is ON for a time AND When PRNDL state is a forward range and has been unchanged for a time AND upshift switch state is ON for a time	 >= 2.5 seconds >= 3 seconds. >= 2.5 seconds >= 600 seconds.	Not Test Failed This Key On Components powered AND Battery Voltage between Engine Speed between for	P0826 P0708 9 V and 18 V 200 RPM and 7500 RPM 5 seconds	603 seconds	C
Downshift Switch Circuit	P0816	This test detects the downshift switch ON.	When PRNDL state is N, P or R and has been unchanged for a time AND downshift switch state is ON for a time. AND When PRNDL state is a forward range and has been unchanged for a time AND downshift switch state is ON for a time	 >= 2.5 seconds >= 3 seconds. >= 2.5 seconds >= 600 seconds.	Not Test Failed This Key On Components powered AND Battery Voltage between Engine Speed between for	P0826 P0708 9 V and 18 V 200 RPM and 7500 RPM 5 seconds	603 Seconds	C
Up and Down Shift Switch Circuit	P0826	This test detects upshift/downshift switch circuit at an illegal state.	Switch state is ILLEGAL for a time	 >= 10 seconds.	Not Test Failed This Key On Components powered AND Battery Voltage between Engine Speed between	P0826 9 V and 18 V 200 RPM and 7500 RPM	10 seconds	C

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					for	5 seconds		
Controller Memory								
Tool_name Control Module Read Only Memory (ROM)	P0601	This test performs a check for ECC fault at controller intiaization and a checksum test of all areas of ROM code using a CRC16 table driven method in background.	Incorrect program/calibrations checksum	= TRUE (Boolean)	Not Test Failed This Key On	P0601	= 1 Fail Counts first pass after reset (background task continuous)	A
							>= 5 Fail Counts after first pass (background task continuous)	
			Errors in the software and calibration segments in the flash, detected by the micro's hardware based fault detection	= TRUE Boolean			>= 254 counts (Controller Initialization)	
Control Module Long Term Memory Reset	P0603	This function tests for error flags from the NVDP and logs a code if an error was detected.	fault condition exists that affects the validity of the copy of battery independent non-volatile data kept in RAM.	= TRUE (Boolean)	Not Test Failed This Key On	P0603	every controller initialization	A
			latest copy of the battery independent non-volatile data may have been lost.	= TRUE (Boolean)			>= 3 counts (controller initialization)	
					NVI_TestDiagEnbl	TRUE		
Control Module Random Access Memory (RAM)	P0604	RAM diagnostic	Test fails for any of following.		Not Test Failed This Key On	P0604		A
			secondary micro processor RAM error	= TRUE (Boolean)			1000 ms cont.	
			OR					
			dual store RAM write time out error	= TRUE (Boolean)			> 175 ms ((interrupt driven based on calling functions)	
			OR					
			errors in the system RAM segment detected by the micro's hardware based fault detection	= TRUE (Boolean)			>= 254 counts (controller initialization)	
			OR					
			parity errors in cache memory detected by the micro's hardware based fault detection	= TRUE (Boolean)			>= 3 counts (controller initialization)	
			OR					
			signature faults detected in the TPU microcode by the micro's hardware based fault detection	= TRUE (Boolean)			>= 5 counts (controller initialization)	
			OR		Service mode $04 active or end of trip processing active	FALSE		
			write attempt occurred during RAM lock	= TRUE (Boolean)			> 655534 counts (background task continuous)	

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
Control Module Internal Performance	P0606	Processor integrity test.			Not Test Failed This Key On	P0606		A
			main processor RAM error detection circuit hardware failure	= TRUE (Boolean)	RAM diagnotic test enable	= 1 (Boolean)	>= 5 counts (controller initialization)	
					hardware reset source is controller power up reset	= TRUE (Boolean)		
			OR main processor flash EPROM error detection circuit hardware failure	= TRUE (Boolean)	flash EPROM diagnotic test enable	= 1 (Boolean)	>= 5 counts (controller initialization)	
					hardware reset source is controller power up reset	= TRUE (Boolean)		
			OR main processor memory stack failure	= TRUE (Boolean)	diagnostic system enabled (diagnostic code clear not in progress AND all of the diag loops have completed their re-enable paths).	= TRUE (Boolean)	>= 5 counts (100 msec continuous)	
					main processor memory stack test enable	= 1 (Boolean)		
			OR secondary processor memory stack failure	= TRUE (Boolean)	Post code clear diagnostitc disabled	= FALSE (Boolean)	two consecutive counts continuously upon receival from secondary(every 12.5 ms)	
			OR main processor ROM first test complete	= FALSE (Boolean)			>= 35 counts (controller power up 12.5 msec continuous)	
			OR no new seed from secondary processor to main processor seed	= TRUE (Boolean)	main processor to secondary processor serial peripheral interface error (main or 2dry detected)	= FALSE (Boolean)	for more than 0.5 seconds	
					battery voltage ignition voltage	> 11 Volts >= 8 Volts		
			OR seed sequence error	≠ FALSE (Boolean)	main processor to secondary processor serial peripheral interface error (main or 2dry detected)	= FALSE (Boolean)	3 counts out of 17 (on the 12.5 msec loop)	
					battery voltage ignition voltage	> 11 Volts >= 8 Volts		
			OR seed key fault received from 2ndry	= TRUE (Boolean)	Post code clear diagnostic disabled	= FALSE (Boolean)	two consecutive counts (on the 12.5 ms loop)	
			OR normalize 0-5 volt (absolute value (analog to digital test voltage commanded - actual analog to digital voltage feedback))	> 3 percent	diagnostic system enabled (diagnostic code clear not in progress AND all of the diag loops have completed their re-enable paths)	= TRUE (Boolean)	3 out of 8 counts OR continuous for 0.2 sec (50 ms)	
					analog to digital voltage test enabled	= TRUE (Boolean)		
					ignition voltage	>= 7 Volts		
					analog to digital voltage channel enabled	TRUE (Boolean)		
					analog to digital test voltage command	5 Volts		
			OR					

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			arithmatic logic unit test pass	= FALSE (Boolean)	arithmatic logic unit test enable	= 1 (Boolean)	two consecutive counts at controller initialization, then two consecutive counts continuously every 12.5 ms	
					diagnostic system enabled (diagnostic code clear not in progress AND all the diag loops have completed their re-enable paths)	= TRUE (Boolean)		
					A and B and C must occur			
					A: starter motor engaged	= TRUE (Boolean)		
					B: ignition voltage	> 11 Volts		
					C: starter motor engaged time	> 15 sec		
			OR					
			secondary processor arithmatic logic unit fault	= TRUE (Boolean)	Post code clear diagnostitc disabled	= FALSE (Boolean)	two consecutive counts continuously upon receival from secondary(every 12.5 ms)	
			OR					
			clock test fail	= TRUE (Boolean)	clock test enable	= 1 (Boolean)	two consecutive counts at controller initialization, then two consecutive counts continuously every 12.5 ms	
					diagnostic system enabled (diagnostic code clear not in progress AND all the diag loops have completed their re-enable paths)	=TRUE (Boolean)		
					A and B and C must occur			
					A: starter motor engaged	= TRUE (Boolean)		
					B: ignition voltage	> 11 Volts		
					C: starter motor engaged time	> 15 sec		
			OR					
			configuration register test fail	= TRUE (Boolean)	configuration register test enable	= 1 (Boolean)	two consecutive counts at controller initialization, then two consecutive counts continuously every 12.5 ms	
					diagnostic system enabled (diagnostic code clear not in progress AND all the diag loops have completed their re-enable paths)	= TRUE (Boolean)		
					A and B and C must occur			
					A: starter motor engaged	= TRUE (Boolean)		
					B: ignition voltage	> 11 Volts		
					C: starter motor engaged time	> 15 sec		
			OR					
			secondary processor configuration register fault	= TRUE (Boolean)	Post code clear diagnostitc disabled	= FALSE (Boolean)	two consecutive counts continuously upon receival from secondary(every 12.5 ms)	
			OR					
			main SOH discrete fault	= TRUE (Boolean)	Post code clear diagnostitc disabled	= FALSE (Boolean)	two consecutive counts continuously upon receival from secondary(every 12.5 ms)	
			OR					
			secondary processor reports SPI communication fault	= TRUE (Boolean)	Post code clear diagnostic enabled	= FALSE (Boolean)	two consecutive counts continuously upon received from secondary (every 12.5 ms)	
			OR					
			SPI valid messsage received by main micro processor	= FALSE (Boolean)	A and B and C and D must occur		39 continuous counts after init OR 39 continuous counts after valid message received OR 159 counts out of 399 total	
					A: starter motor engaged	= TRUE (Boolean)		

15 OBDG11 TCM Summary Tables (T87)

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					B: ignition voltage C: starter motor engaged time D:equivalent to "Loss or invalid message of SPI communicaton from the secondary processor detected by the primary processor" message protocol error OR SPI message checksum fault OR type of message received same as type of message sent	<= 11 Volts < 15 sec ≠ FALSE (Boolean) ≠ FALSE (Boolean) ≠ FALSE (Boolean)		
Control Module Long Term Memory Performance	P062F	Tests non volatile memory long term performance.			Not Test Failed This Key On	P062F		A
			TCM Non-Volatile Memory read or write error (every controller intialization).	= TRUE (Boolean)			every controller intialization	
			assembly calibration integrity (every controller initialization)	= TRUE (Boolean)			every controller intialization	
					NVM write error diagnotic enable	TRUE		

15 OBDG11 TCM Diagnostic Table

Table 1

KaCANG_RxDeviceIndx
KaCANG_RxDeviceIndx

Axis	CeCANG_e_RcvMsg_0BB	CeCANG_e_RcvMsg_0C1_BusA	CeCANG_e_RcvMsg_0C5_BusA	CeCANG_e_RcvMsg_0C9_BusA	CeCANG_e_RcvMsg_0D0_BusA	CeCANG_e_RcvMsg_0F1_BusA	CeCANG_e_RcvMsg_191_BusA	frame
Curve	CeCANR_e_BusA_ECM	CeCANR_e_BusA_ABS	CeCANR_e_BusA_ABS	CeCANR_e_BusA_ECM	CeCANR_e_BusA_ABS	CeCANR_e_BusA_BCM	CeCANR_e_BusA_ECM	enable or invalid
		CeCANG_e_RcvMsg_1A1_BusA	CeCANG_e_RcvMsg_1CF_BusA	CeCANG_e_RcvMsg_1E1_BusA	CeCANG_e_RcvMsg_1E9_BusA	CeCANG_e_RcvMsg_1F3_BusA	CeCANG_e_RcvMsg_1F9_BusA	frame
		CeCANR_e_BusA_ECM	CeCANR_e_InvalidRxDevice	CeCANR_e_BusA_BCM	CeCANR_e_BusA_ABS	CeCANR_e_BusA_BCM	CeCANR_e_BusA_PTO	enable or invalid
		CeCANG_e_RcvMsg_1FC_BusA	CeCANG_e_RcvMsg_287_BusA	CeCANG_e_RcvMsg_2C3_BusA	CeCANG_e_RcvMsg_2D1_BusA	CeCANG_e_RcvMsg_2F9_BusA	CeCANG_e_RcvMsg_3B9_BusA	frame
		CeCANR_e_InvalidRxDevice	CeCANR_e_BusA_ECM	CeCANR_e_BusA_ECM	CeCANR_e_InvalidRxDevice	CeCANR_e_BusA_ABS	CeCANR_e_BusA_ECM	enable or invalid
		CeCANG_e_RcvMsg_3D1_BusA	CeCANG_e_RcvMsg_3E9_BusA	CeCANG_e_RcvMsg_3F1_BusA	CeCANG_e_RcvMsg_3F9_BusA	CeCANG_e_RcvMsg_4C1_BusA	CeCANG_e_RcvMsg_4F1_BusA	frame
		CeCANR_e_BusA_ECM	CeCANR_e_BusA_ECM	CeCANR_e_BusA_BCM	CeCANR_e_BusA_ECM	CeCANR_e_BusA_ECM	CeCANR_e_BusA_ECM	enable or invalid