Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
Transmission Fluid Temperature								
Transmission Fluid Temperature Sensor Circuit Range/Performance	P0711	This test detects performance of the transmission fluid temperature sensor by comparing changes in temperature from start up and between samples to calibration values.	All 5 Cases		Not Test Failed This Key On	P0711 P0716 P0717 P0721 P0722 P0742		B
					No Fault Pending DTCs for this drive cycle	P0716 P0717 P0721 P0722		
					No Pass DTCs for this drive cycle	P0711		
					No Fault Active DTC	P0711		
					Components powered AND Battery Voltage between	 9 V and 18 V		
					Engine Speed between for	200 RPM and 7500 RPM 5 seconds		
					Start-up transmission fluid temperature is available			
					Transmission fluid temperature between ECT is not defaulted	-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 1 (Stuck sensor after cold start-up)				300 seconds	
			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		
					AND			
			Vehicle speed	>= 8 KPH	engine coolant temperature change from start-up	>= 55 deg. C		
			for a time	>= 300 seconds.				
			Case 3 (Noisy sensor)				7 seconds	
			Change from previous 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	
					net engine torque	>= 150 Nm		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			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		
			Case 5 (Reasonableness at start-up):		Intake Air Temperature is not defaulted		2 seconds	
			Engine Speed	> 500 RPM				
			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	>=150 deg. C	Not Test Failed This Key On	P0711 P0712	2.5 seconds	B
			for a time	> 2.5 seconds.		P0713		

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		
Transmission Fluid Temperature Sensor Circuit High Input	P0713	Out of range high.			Not Test Failed This Key On	P0711	2.5 seconds	B
			transmission fluid temperature	<= -45 deg. C		P0712		
			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		
					IF Engine run time	<= 600 seconds		
					THEN			
					Engine Coolant Temperature	must be > 20 deg. C		
					AND			
					not defaulted for a time	>= 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	P0716		A
						P0717		
						P0721		
						P0722		

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		Input speed AND Engine speed	> 100 RPM > 100 RPM	4 seconds	

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			commanded are neutral for a time	<= 3.5 seconds	for a time	>= 0.2 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 P0733 P0734 P0735 P0736 P0721 P0722	1 second	A
			This test fails if input speed	< 61 RPM				
			AND					
			output speed	> 500 RPM				
			for a time	> 1 second.				

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					No Fault Pending DTCs	P0721 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
			Change in output speed	>= 500 RPM	Not Test Failed This Key On	P0716 P0717 P0721 P0722	0.65 seconds	
			for a time	>= 0.15 seconds				
			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 THEN the Low Counter is incremented.	<= -500 RPM	Output Speed	> 200 RPM		
			IF the change in output speed THEN the High Counter is incremented.	>= 500 RPM	for a time	>= 0.5 seconds		
			Test fails if both the Low Counter and the High Counter	>= 5	Shift complete AND range attained NOT neutral			
			OR					
			the Low Counter	>= 5				

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			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			P0732		
						P0733		
				< 61 RPM		P0734		
			AND			P0735		
			range is 3rd, 4th, 5th, or 6th			P0736		
			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			

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			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			
					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 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		
			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.		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		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					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 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

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 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 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	>= 2 second	Not Test Failed This Key On	P0877 P0878 P0721 P0722 P0716	2.25 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			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.		No range switch response active			
			During this command, this test fails if Abs(Converter Slip)	>= 230 RPM	Hydraulic System Pressurized			
			for	> 10 samples.	Shift complete			
					Output speed	>= 200 RPM		
					No hydraulic default condition present			
					Normal powertrain shutdown not in process			
					Normal powertrain initialization is complete			
Gear 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	Not Test Failed This Key On	P0877	2.25 seconds	A
			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					

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

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

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

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					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		
					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		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					

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			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),					
			SS1 Circuit Low reports failure, also.	P0793				
			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	15 times				
			AND					
			PS1 pressure switch continues to indicate stroked.					
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	>= 5 seconds	S1 valve commanded from destroked to stroked.		5 seconds	A
			WITH					
			transmission fluid temperature	>= 0 deg. C				

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			(Time increases as temperature decreases with maximum time at transmission fluid temperature)	12 seconds <= -40 deg. C				
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 changes from stroked to destroked		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	> 0.07 seconds 5 seconds	S1 valve is stroked NOT Cold initialization unless transmission fluid temperature	> -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
			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.	P0793				
			For Case 2 (mechanical malfunction),					
			Shift Solenoid 1 (SS1) Valve Performance – Stuck Off reports failure, also.	P0751				
			For Case 3 (intermittent malfunction),					
			S1 valve retry attempted	15 times				
			AND					
			PS1 pressure switch continues to indicate destroked.					
Pressure Switch Solenoid 2 Circuit Low	P0847	This test compares the commanded valve position to the PS2 pressure switch	Pending failure occurs when PS2 pressure switch indicates stroked for a time	> 0.04004 seconds	S2 valve is destroked		40 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		feedback (part of the S2 valve integrity test).	IF a main pressure dropout is suspected then time limit increases to	0.2998 seconds	NOT Cold initialization unless transmission fluid temperature	> -25 deg. C		
			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.		Shutdown is 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 On reports failure, also.	P0757				
			For Case 3 (intermittent malfunction),					
			S2 valve retry attempted	2 times				
			AND					
			PS2 pressure switch continues to indicate stroked.					
Shift Solenoid 2 Valve Performance –	P0756	This test compares the change of state of the	If the S2 valve is commanded from destroked		S2 valve commanded from destroked to stroked.		5 seconds	A

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

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			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 AND PS2 pressure switch continues to indicate destroked.	2 times				
Pressure Switch Solenoid 3 Circuit Low	P0872	This test compares the commanded valve position to the PS3 pressure switch feedback. (part of S3 valve integrity test)	Pending failure occurs when PS3 pressure switch indicates stroked for a time	> 0.0195 seconds	S3 valve is destroked NOT Cold initialization unless transmission fluid temperature		20 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		valve integrity test)			transmission fluid temperature	> -25 deg. C		
			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	If the S3 valve is commanded from destroked to stroked and the PS3 pressure switch indication remains destroked for a time		S3 valve commanded from destroked to stroked.		5 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		S3 valve timeout test)		>= 5 seconds				
			WITH					
			transmission fluid temperature	>= 0 deg. C.				
			(Time increases as temperature decreases with maximum time at	12 seconds				
			transmission fluid temperature)	<= -40 deg. C.				
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 changes from stroked to destroked		6.6 seconds	A
			WITH					
			transmission fluid	>= 0 deg. C.				
			(Time increases as temperature decreases with maximum time at	22 seconds				
			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	> -25 deg. C		
					Shutdown NOT in process			

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 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. For Case 3 (intermittent malfunction), S3 valve retry attempted AND PS3 pressure switch continues to indicate destroked.	 P0979 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)	 100 samples 255 samples	All Cases Not Test Failed This Key On	P0877 P0878 P0708	5 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		PRNDL switch state.	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)	 >= 1 seconds 30 seconds	No Fault Pending DTCs for this drive cycle Engine is Running Components powered AND Battery Voltage between Engine Speed between for	P0708 9 V and 18 V 200 RPM and 7500 RPM 5 seconds		
			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		Transmission Fluid Temperature	>= 0 deg. C		A
			Case 1: (RPS State and PRNDL State do not agree) For sample size PRNDL is REVERSE AND RPS indicates NOT REVERSE after a time	 40 samples >= 1 second	Not Test Failed This Key On No Fault Pending DTC for this drive cycle. Battery Voltage between	P0877 P0878 P0708 P0708 9 V and 18 V	3 seconds	

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					No range switch response active			
			For Case 2: (RPS Shutdown Test)		Ignition Key State is NOT RUN		60 seconds	
			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		Engine had been cranking or running this drive cycle			
			This time varies with transmission fluid temperature, from time	25 seconds				
			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-								
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
			(For rough road conditions, use)	2 seconds		P0722		
						P0716		
			Timer accumulates when transmission is shifting,			P0717		
						P0877		
			output speed	>= 60 RPM		P0878		
			AND commanded gear slip	> 75 RPM				
			(For rough road conditions, use)	150 RPM.	Output Speed	>= 125 RPM		
					Turbine Speed	>= 60 RPM		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			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 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			
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	2.25 seconds	A
			(For rough road conditions, use) Timer accumulates when transmission is shifting, output speed AND commanded gear slip speed	2 seconds >= 60 RPM > 75 RPM	Output Speed	>= 125 RPM		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			(For rough road conditions, use)	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 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			
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;	>= 0.2998 seconds >= 3.0 seconds >= 0.500 seconds	Not Test Failed This Key On	P0721 P0722 P0716 P0717 P0877 P0878	3 seconds	A

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

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			during range to range shifts when attained gear slip speed	<= 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			
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	>= 1 second	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

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			AND No Motion Detected.					
			IF Counter 1	>= 15 counts				
			THEN report failure.					
			For Counter 2, increment counter IF Parity Error Detected AND (No Valid Drive Detected OR No Valid Park/Neutral Detected) AND Motion Detected; decrement counter IF No Parity Error Detected AND Valid Park/Neutral Detected AND Valid Drive Detected AND Motion Detected.					
			IF Counter 2,	>= 5 counts				
			THEN report failure.					
			For Counter 3, increment Counter 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.					

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			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 4-bit PRNDL indicates Valid Neutral					
			for a time	>= 0.2 seconds				
			and output speed	<= 20 RPM				
			OR for a time.	>= 3 seconds				

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
Transmission Range Sensor Circuit Range/Performance	P0706	This test monitors the transmission range switch inputs at engine start to determine that it is indicating a valid starting position (Park or Neutral).	For sample size, PRNDL C input is closed OR PRNDL P is NOT closed.	> 7 samples	Not Test Failed This Key On Battery voltage between Powertrain State is READY or CRANKING Engine speed	P0706 9V and 18V > 100 RPM and < 350 RPM.	200 ms	B
Solenoid Electrical								
Main Modulation/Line Pressure Control Solenoid Control Circuit Open	P0960	This test detects solenoid electrical open circuit malfunctions.	Fault pending is set at single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed 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	>= 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 Performance	P0961	This test detects the performance of the solenoid by comparing desired current to actual duty cycle	Case 1: Desired current AND Actual Duty Cycle	<= 0 mA >= 40%	Not Test Failed This Key On	P0657 P0658 P0659	1000 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			For a sample size, THEN report malfunction	>= 40 samples		P0960 P0961 P0962		
			Case 2: Desired current AND Actual Duty Cycle For a sample size, THEN report malfunction	>= 500 mA <= 10% >= 40 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 Lockup Release Complete	P0960 P0962 9V and 18V < 4 seconds > 10 V		
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.	>= 40 samples >= 15 RPM	Not Test Failed This Key On Components powered AND Battery voltage between	P0657 P0658 P0659 9V and 18V	1050 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			
			IF intrusive test indicates short to ground exists for a sample size	>= 2 samples	Crank Time AND	< 4 seconds		
			THEN report malfunction		Battery Voltage	> 10 V		
					High Side Driver 1 Enabled			
Main Modulation/Line Pressure Control Solenoid Control Circuit High	P0963	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for AND Engine speed	3 consecutive samples >=15 RPM	Not Test Failed This Key On Components powered AND Battery voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 1 enabled	P0657 P0658 P0659 9V and 18V < 4 seconds > 10 V	75 ms	A
Pressure Control Solenoid 2 Control Circuit Open	P0964	This test detects solenoid electrical open circuit malfunctions.	Fault pending is set a single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed THEN initiate intrusive test by opening low side driver. IF intrusive test indicates no	 >= 6 samples >= 15 RPM	Not Test Failed This Key On Components powered AND Battery voltage between If Engine Cranking, then Crank Time	P2669 P2670 P2671 9V and 18V < 4 seconds	225 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			short to ground exists for a sample size, THEN report malfunction	>= 3 samples	AND Battery Voltage High Side Driver 2 Enabled	 > 10 V		
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 Case 2: Desired current AND Actual Duty Cycle For a sample size, THEN report malfunction	<= 50 mA >= 40% >= 10 samples >= 500 mA <= 15% >= 10 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 High Side Driver 2 Enabled Shift Complete Lockup Apply Complete OR Lockup Release Complete	P2669 P2670 P2671 P0964 P0965 P0966 P0964 P0966 9V and 18V < 4 seconds > 10 V	250ms	A
Pressure Control Solenoid 2 Control	P0966	This test detects solenoid electrical	Fault pending is set at single hardware fault occurrence				200 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
Solenoid 2 Control Circuit Low		solenoid electrical ground circuit malfunctions.	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		
Pressure Control Solenoid 2 Control Circuit High	P0967	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for AND Engine speed	3 consecutive samples >= 15 RPM	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High Side Driver 2 Enabled	P2669 P2670 P2671 P0967 9 V and 18 V < 4 seconds > 10 V	75 ms	A
Pressure Control Solenoid 1 Control	P2727	This test detects solenoid electrical	Fault pending is set a single hardware fault occurrence				200 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
Solenoid 1 Control Circuit Open		solenoid electrical open circuit malfunctions.	hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed THEN initiate intrusive test by opening low side driver. IF intrusive test indicates no short to ground exists for a sample size, THEN report malfunction	 >= 5 samples >= 15 RPM >= 3 samples	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 1 enabled	P0657 P0658 P0659 9 V and 18 V < 4 seconds > 10 V		
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 Case 2: Desired current AND Actual Duty Cycle For a sample size, THEN report malfunction	 <= 50 mA >= 40% >= 10 samples >= 500 mA <= 15% >= 10 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	P0657 P0658 P0659 P2727 P2728 P2729 P2727 P2729 9V and 18V < 4 seconds	250ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					Battery Voltage	> 10 V		
					High Side Driver 1 Enabled			
					Shift Complete			
					Lockup Apply Complete OR 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		Not Test Failed This Key On	P0657 P0658 P0659	175 ms	A
			IF hardware fault is present for a sample size	>= 5 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 short to ground exists for a sample size		If Engine Cranking, then Crank Time	< 4 seconds		
			THEN report malfunction	>= 2 samples	AND			
					Battery Voltage	> 10 V		
					High side driver 1 enabled			
Pressure Control Solenoid 1 Control Circuit High	P2730	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for	3 consecutive samples	Not Test Failed This Key On	P0657 P0658 P0659 P2730	75 ms	A
			AND					
			Engine speed	>= 15 RPM				
					Components powered			

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			
Shift Solenoid 1 Control Circuit Open	P0972	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,	>= 3 samples	If Engine Cranking, then			
					Crank Time	< 4 seconds		
					AND			
			THEN report malfunction		Battery Voltage	> 10 V		
					High side driver 2 enabled			
Shift Solenoid 1 Control Circuit Low	P0973	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 P2671	300 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		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			by opening low side driver. IF intrusive test indicates short to ground exists for a sample size THEN report malfunction	>= 2 samples	If Engine Cranking, then Crank Time AND Battery Voltage High side driver 2 enabled	< 4 seconds > 10 V		
Shift Solenoid 1 Control Circuit High	P0974	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for AND Engine speed	3 consecutive samples >= 15 RPM	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 2 enabled	P2669 P2670 P2671 P0974 9 V and 18 V < 4 seconds > 10 V	75 ms	A
Shift Solenoid 2 Control Circuit Open	P0975	This test detects solenoid electrical open circuit malfunctions.	Fault pending is set a single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed THEN initiate intrusive test by opening low side driver	>= 10 samples >= 15 RPM	Not Test Failed This Key On Components powered AND Battery Voltage between	P2669 P2670 P2671 9 V and 18 V	325 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			by opening low side driver. IF intrusive test indicates no short to ground exists for a sample size, THEN report malfunction	 >= 3 samples	If Engine Cranking, then Crank Time AND Battery Voltage High side driver 2 enabled	 < 4 seconds > 10 V		
Shift Solenoid 2 Control Circuit Low	P0976	This test detects solenoid electrical ground circuit malfunctions.	Fault pending is set at single hardware fault occurrence IF hardware fault is present for a sample size AND Engine speed THEN initiate intrusive test by opening low side driver. IF intrusive test indicates short to ground exists for a sample size THEN report malfunction	 >= 10 samples >= 15 RPM >= 2 samples	Not Test Failed This Key On Components powered AND Battery Voltage between If Engine Cranking, then Crank Time AND Battery Voltage High side driver 2 enabled	P2669 P2670 P2671 9 V and 18 V < 4 seconds > 10 V	300 ms	A
Shift Solenoid 2 Control Circuit High	P0977	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for AND Engine speed	3 consecutive samples >= 15 RPM	Not Test Failed This Key On Components powered AND Battery Voltage between	P2669 P2670 P2671 P0977 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 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	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		
			Engine speed	>= 15 RPM		P2671		
						P0980		

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			
					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	>= 2	Components powered AND Battery Voltage between	9 V and 18 V		
			AND HSD1 voltage	>= 6V	If Engine Cranking, then 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

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

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		indicating a short to ground at the circuit.	short to ground is detected for a number of events AND Engine speed	>= 3 times >= 15 RPM	HSD2 is commanded ON 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 A failure event occurs when HSD1 voltage	>= 3 times >= 6V	During initialization		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 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	P0657 P0658 P0659 9 V and 18 V < 4 seconds > 10 V	3075 ms	B

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
					High side driver 1 enabled			
TCC Pressure Control Solenoid Control Circuit 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 Actual Duty Cycle For a sample size, THEN report malfunction	<= 0 mA >= 40% >= 40 samples >= 500 mA <= 10% >= 40 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 High Side Driver 1 Enabled Shift Complete Lockup Apply Complete OR Lockup Release Complete	P0657 P0658 P0659 P2761 P2762 P2763 P2761 P2763 9V and 18V < 4 seconds > 10 V	1000 ms	B
TCC Pressure Control Solenoid Control Circuit High	P2763	This test detects solenoid electrical short to power circuit malfunctions.	Short to power is present for AND	3 consecutive samples	Not Test Failed This Key On	P0657 P0658	75 ms	B

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			Engine speed	>= 15 RPM		P0659 P2763		
					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 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		Not Test Failed This Key On	P0657 P0658 P0659	3050 ms	B
			IF hardware fault is present for a sample size	>= 120 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 short to ground exists for a sample size	>= 2 samples	If Engine Cranking, then			
					Crank Time	< 4 seconds		
			THEN report malfunction		AND			
					Battery Voltage	> 10 V		
					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	Case 1 (Stuck Off)		All Cases		5 seconds	B
			This test fails when, for number of occurrences,	>= 200	Not Test Failed This Key On	P2771 P0721		
			the transfer case 4WD switch indicates High range			P0722		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		state range to calculated range.	switch indicates High range and the calculated transfer case range is Low range for a time	>= 5 seconds	No Fault Active DTCs for this drive cycle	P2771 P0721 P0722		
			Case 2 (Stuck On) This test fails when, for number of occurrences,	>= 200	No Fault Pending DTCs for this drive cycle	P0721 P0722		
			the transfer case 4WD switch indicates Low range and the calculated transfer case range is High range for a time	>= 5 seconds.	Output Speed Transfer Case is NOT Neutral Transmission fluid temperature Engine Speed between Shift complete AND range attained NOT Neutral	> 60 RPM > 20 deg. C and < 130 deg. C 200 RPM and 7500 RPM		
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	>= 3	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

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			accumulated NLT Slip events is incremented when commanded gear or attained gear is NLT AND turbine speed for a time	 > 50 RPM > 3 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
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		All Cases Components powered AND Battery Voltage between Engine Speed between	 9 V and 18 V 200 RPM and 7500 RPM	8 seconds	B

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

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		Message	when the GMLAN message is not received or the rolling counter does not agree with the expected value		AND Battery Voltage between	9 V and 18 V		
					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					
Trans Mode Switch A	P071A	This test detects the trans mode switch A ON	The switch is active continuously for a time	>= 20 seconds	Not test failed this key on	P1762 P071A	25 seconds	C
					Components powered AND			
					Battery Voltage between	9 V and 18 V		
					Engine Speed between	200 RPM and 7500 RPM		
					for	5 seconds		
Upshift Switch Circuit	P0815	This test detects the upshift switch ON	When PRNDL state is N, P or R		Not Test Failed This Key On	P0826	603 seconds	C
			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		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
			AND 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 Components powered AND Battery Voltage between Engine Speed between for	P0826 9 V and 18 V 200 RPM and 7500 RPM 5 seconds	10 seconds	C
Upshift and Downshift Switch Signal Rolling Count	P1761	This test detects rolling count failures for the Upshift and Downshift	The failure count increments when the GMLAN message is not received or the rolling		Components powered		15 seconds	C

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum
		GMLAN Message	counter does not agree with the expected value		AND Battery Voltage between	9 V and 18 V		
			When the failure counter is for a time of Report Failure	> 5 > 10 seconds	Engine Speed between for	200 RPM and 7500 RPM 5 seconds		
Trans Mode Switch A Signal Rolling Count	P1762	This test detects rolling count failures for the Trans Mode Switch A 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 AND Battery Voltage between	9 V and 18 V	15 seconds	C
			When the failure counter is for a time of Report Failure	> 5 > 10 seconds	Engine Speed between for	200 RPM and 7500 RPM 5 seconds		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	= TRUE Boolean **Disable Conditions:**	**MIL not Illuminated for DTC's:**	TCM: P0601 ECM: None	>= 5 Fail Counts	One Trip
Transmission Control Module (TCM)	P0603	Transmission Electro-Hydraulic Control Module Long-Term Memory Reset	Non-volatile memory (static or dynamic) checksum failure at Powerup	= TRUE Boolean **Disable Conditions:**	**MIL not Illuminated for DTC's:**	TCM: P0603 ECM: None	Runs Continously	One Trip
Transmission Control Module (TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access Memory	RAM Read/Write Failure (Single Word)	= TRUE Boolean **Disable Conditions:**	**MIL not Illuminated for DTC's:**	TCM: P0604 ECM: None	>= 5 Fail Counts = 16 Sample Counts	One Trip
Transmission Control Module (TCM)	P062F	Transmission Electro-Hydraulic Control Module Long Term Memory Performance	TCM Non-Volatile Memory bit Incorrect flag at Powerdown	= TRUE Boolean			Runs Continously	One Trip

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P062F ECM: None		
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 142.10156 ºC			>= 5 Fail Time (Sec)	One Trip
			Fail Case 2 Substrate Temperature	>= 50 ºC			>= 2 Fail Time (Sec)	
			Ignition Voltage	>= 18 Volts				
			Note: either fail case can set the DTC					
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Substrate Temp Lo	>= 0 ºC		
					Substrate Temp Hi	<= 170 ºC		
					Substrate Temp Between Temp Range for Time	>= 0.25 Sec		
					P0634 Status is	≠ Test Failed This Key On or Fault Active		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
High Side Driver 1	P0658	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (open or ground short) error flag	= TRUE Boolean			>= 4 Fail Counts out of 6 Sample Counts	One Trip
				P0658 Status is not	= Test Failed This Key On or Fault Active			
				High Side Driver 1 On	= True Boolean			
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Transmission Control Module (TCM)	P0667	TCM Internal Temp (substrate) Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	> Refer to Table 19 in supporting documents ºC				Two Trips

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If TCM substrate temp to power up temp Δ	> Refer to Table 20 in supporting documents °C				
			Both conditions above required to increment fail counter Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.				>= 3000 Fail Counts (100ms loop) Out of 3750 Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until				>= 700 Pass Counts (100ms loop) Out of 875 Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Brake torque active	= TRUE Boolean = TRUE Boolean >= 8.6 Volts <= 32 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = FALSE		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					Below describes the brake torque entry criteria					
					Engine Torque	>=	90	N*m		
					Throttle	>=	30	Pct		
					Transmission Input Speed	<=	200	RPM		
					Vehicle Speed	<=	8	Kph		
					Transmission Range	≠	Park			
					Transmission Range	≠	Neutral			
					PTO	=	Not Active			
					Set Brake Torque Active TRUE if above conditions are met for:	>=	7	sec		
					Below describes the brake torque exit criteria					
					Brake torque entry criteria	=	Not Met			
					Clutch hydraulic pressure	≠	Clutch Hydraulic Air Purge Event			
					Clutch used to exit brake torque active	=	CeTFTD_e_C3_RatlEnbl			
					The above clutch pressure is greater than this value for one loop	>=	600	kpa		
					Set Brake Torque Active FALSE if above conditions are met for:	>=	20	Sec		
					P0667 Status is	≠	Test Failed This Key On or Fault Active			

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Control Module (TCM)	P0668	TCM internal temperature (substrate) thermistor failed at a low voltge	Type of Sensor Used	= CeTFTI_e_VoltageDirectProp				Two Trips
			If TCM Substrate Temperature Sensor = Direct Proportional and Temp	<= -249 ºC				
			If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	>= -249 ºC				
			Either condition above will satisfy the fail conditions				>= 60 Fail Timer (Sec)	
					Ignition Voltage Lo	>= 8.6 Volts		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0668 Status is	≠ Test Failed This Key On or Fault Active		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Transmission Control Module (TCM)	P0669	TCM internal temperature (substrate) thermistor failed at a high voltage	Type of Sensor Used	= CeTFTI_e_VoltageDirectProp				Two Trips
			If TCM Substrate Temperature Sensor = Direct Proportional and Temp	>= 249 ºC				
			If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	<= 249 ºC				
			Either condition above will satisfy the fail conditions				>= 60 Fail Timer (Sec)	
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0669 Status is	≠ Test Failed This Key On or Fault Active		
					For Hybrids, below conditions must also be met			
					Estimated Motor Power Loss	>= 0 kW		
					Estimated Motor Power Loss greater than limit for time	>= 0 Sec		
					Lost Communication with Hybrid Processor Control Module	= FALSE		
					Estimated Motor Power Loss Fault	= FALSE		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723 ECM: None		
Transmission Control Module (TCM)	P06AC	TCM Power-up Temp Sensor Circuit Range/Performance	If TCM power-up temp to substrate temp Δ	> Refer to Table 20 in supporting documents °C				Two Trips

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If transmission oil temp to power up temp Δ	> Refer to Table 18 in supporting documents °C				
			Both conditions above required to increment fail counter Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.				>= 3000 Fail Counts (100ms loop) Out of 3750 Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until				>= 700 Pass Counts (100ms loop) Out of 875 Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	= TRUE Boolean = TRUE Boolean >= 8.6 Volts <= 32 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Brake torque active = FALSE			
					Below describes the brake torque entry criteria			
					Engine Torque >= 90 N*m			
					Throttle >= 30 Pct			
					Transmission Input Speed <= 200 RPM			
					Vehicle Speed <= 8 Kph			
					Transmission Range ≠ Park			
					Transmission Range ≠ Neutral			
					PTO = Not Active			
					Set Brake Torque Active TRUE if above conditions are met for: >= 7 sec			
					Below describes the brake torque exit criteria			
					Brake torque entry criteria = Not Met			
					Clutch hydraulic pressure ≠ Clutch Hydraulic Air Purge Event			
					Clutch used to exit brake torque active = CeTFTD_e_C3_RatlEnbl			
					The above clutch pressure is greater than this value for one loop >= 600 kpa			
					Set Brake Torque Active FALSE if above conditions are met for: >= 20 Sec			

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P06AC Status is	≠ Test Failed This Key On or Fault Active		
					Disable Conditions:	**MIL not Illuminated for DTC's:** TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Control Module (TCM)	P06AD	TCM power-up thermistor circuit voltage low	Power Up Temp	<= -59 ºC			>= 60 Fail Time (Sec)	Two Trips
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P06AD Status is	≠ Test Failed This Key On or Fault Active		
					For Hybrids, below conditions must also be met			
					Estimated Motor Power Loss	>= 0 kW		
					Estimated Motor Power Loss greater than limit for time	>= 0 Sec		
					Lost Communication with Hybrid Processor Control Module	= FALSE		
					Estimated Motor Power Loss Fault	= FALSE		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723 ECM: None		
Transmission Control Module (TCM)	P06AE	TCM power-up thermistor circuit voltage high	Power Up Temp	>= 164 ºC			>= 60 Fail Time (Sec)	Two Trips
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P06AE Status is ≠ Test Failed This Key On or Fault Active			
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Transmission Fluid Temperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	> Refer to Table 19 in supporting documents ºC				Two Trips
			If transmission oil temp to power up temp Δ	> Refer to Table 18 in supporting documents ºC				
			Both conditions above required to increment fail counter Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.				>= 3000 Fail Counts (100ms loop) Out of 3750 Sample Counts (100ms loop)	

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until				>= 700 Pass Counts (100ms loop) Out of 875 Sample Counts (100ms loop)	
					Engine Torque Signal Valid	= TRUE Boolean		
					Accelerator Position Signal Valid	= TRUE Boolean		
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Brake torque active	= FALSE		
					Below describes the brake torque entry criteria			
					Engine Torque	>= 90 N*m		
					Throttle	>= 30 Pct		
					Transmission Input Speed	<= 200 RPM		
					Vehicle Speed	<= 8 Kph		
					Transmission Range	≠ Park		
					Transmission Range	≠ Neutral		
					PTO	= Not Active		
					Set Brake Torque Active TRUE if above conditions are met for:	>= 7 sec		
					Below describes the brake torque exit criteria			
					Brake torque entry criteria	= Not Met		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Clutch hydraulic pressure ≠ Clutch Hydraulic Air Purge Event Clutch used to exit brake torque active = CeTFTD_e_C3_Ratl Enbl The above clutch pressure is greater than this value for one loop >= 600 kpa Set Brake Torque Active FALSE if above conditions are met for: >= 20 Sec P0711 Status is ≠ Test Failed This Key On or Fault Active		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Fluid Temperature Sensor (TFT)	P0712	Transmission fluid temperature thermistor failed at a low voltage	Type of Sensor Used	= CeTFTI_e_VoltageDirectProp				Two Trips
			If Transmission Fluid Temperature Sensor = Direct Proportional and Temp	<= -74 ºC				
			If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	>= -74 ºC				
			Either condition above will satisfy the fail conditions				>= 60 Fail Time (Sec)	
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0712 Status is	≠ Test Failed This Key On or Fault Active		
					For Hybrids, below conditions must also be met			
					Estimated Motor Power Loss	>= 0 kW		
					Estimated Motor Power Loss greater than limit for time	>= 0 Sec		
					Lost Communication with Hybrid Processor Control Module	= FALSE		
					Estimated Motor Power Loss Fault	= FALSE		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723 ECM: None		
Transmission Fluid Temperature Sensor (TFT)	P0713	Transmission fluid temperature thermistor failed at a high voltage	Type of Sensor Used	= CeTFTI_e_VoltageDirectProp				Two Trips
			If Transmission Fluid Temperature Sensor = Direct Proportional and Temp	>= 174 ºC				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	<= 174 ºC				
			Either condition above will satisfy the fail conditions				>= 60 Fail Time (Sec)	
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0713 Status is	≠ Test Failed This Key On or Fault Active		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0713, P0716, P0717, P0722, P0723 ECM: None		
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops	>= 900 RPM			>= 0.8 Fail Time (Sec)	One Trip
					Engine Torque is	>= 0 N*m		
					Engine Torque is	<= 8192 N*m		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Vehicle Speed is	>= 10 Kph		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Throttle Position is	>= 0 Pct		
					Transmission Input Speed is	>= 0 RPM		
					The previous requirement has been satisfied for	>= 0 Sec		
					The change (loop to loop) in transmission input speed is	< 8192 RPM/Loop		
					The previous requirement has been satisfied for	>= 0 Sec		
					Throttle Position Signal Valid	= TRUE Boolean		
					Engine Torque Signal Valid	= TRUE Boolean		
					Ignition Voltage	>= 8.6 Volts		
					Ignition Voltage	<= 32 Volts		
					P0716 Status is not	= Test Failed This Key On or Fault Active		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0717, P0752, P0973, P0974 ECM: P0101, P0102, P0103, P0121, P0122, P0123		
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	< 33 RPM			>= 4.5 Fail Time (Sec)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	< 653.125 RPM	Controller uses a single power supply for the speed sensors	= 1 Boolean		
					Engine Torque is	>= 120 N*m		
					Engine Torque is	<= 8192 N*m		
					Vehicle Speed	>= 12 Kph		
					Engine Torque Signal Valid	= TRUE Boolean		
					Ignition Voltage	>= 8.6 Volts		
					Ignition Voltage	<= 32 Volts		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0717 Status is not	= Test Failed This Key On or Fault Active		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0722, P0723 ECM: P0101, P0102, P0103		
Mode Switch	P071A	Transmission Mode Switch A Circuit	Tow Haul Mode Switch state	= TRUE Boolean			>= 600 Fail Time (Sec)	Special No MIL
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P1762 ECM: None		
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<= 35 RPM			>= 4.5 Fail Time (Sec)	One Trip
					P0722 Status is not	= Test Failed This Key On or Fault Active		
					Transmission Input Speed Check	= TRUE Boolean		
					Engine Torque Check	= TRUE Boolean		
					Throttle Position	>= 8 Pct		
					Transmission Fluid Temperature	>= -40 ºC		
					Disable this DTC if the PTO is active	= 1 Boolean		
					Engine Torque Signal Valid	= TRUE Boolean		
					Throttle Position Signal Valid	= TRUE Boolean		
					Ignition Voltage is	>= 8.6 Volts		
					Ignition Voltage is	<= 32 Volts		
					Engine Speed is	>= 400 RPM		
					Engine Speed is	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Enable_Flags Defined Below			

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					The Engine Torque Check is TRUE, if either of the two following conditions are TRUE					
					Engine Torque Condition 1					
					Range Shift Status	≠	Range shift completed	ENUM		
					OR					
					Transmission Range is	=	Park or Neutral			
					Engine Torque is	>=	8192	N*m		
					Engine Torque is	<=	8192	N*m		
					Engine Torque Condition 2					
					Engine Torque is	>=	54	N*m		
					Engine Torque is	<=	8192	N*m		

					The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE					
					TIS Check Condition 1					
					Transmission Input Speed is	>=	653.1	RPM		
					Transmission Input Speed is	<=	5350	RPM		
					TIS Check Condition 2					
					Engine Speed without the brake applied is	>=	3200	RPM		
					Engine Speed with the brake applied is	>=	3200	RPM		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Engine Speed is Controller uses a single power supply for the speed sensors Powertrain Brake Pedal is Valid	<= 8192 RPM = 1 Boolean = TRUE Boolean		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0723 ECM: P0101, P0102, P0103, P0121, P0122, P0123		
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed Output Speed Delta Output Speed Drop AND Transmission Range is	>= 105 RPM <= 8192 RPM > 650 RPM = Driven range (R,D)			>= 0 Enable Time (Sec) >= 0 Enable Time (Sec) >= 1.5 Output Speed Drop Recovery Fail Time (Sec)	One Trip
					---------- Range_Disable OR ---------- Neutral_Range_Enable	= FALSE See Below = TRUE See Below		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					And					
					Neutral_Speed_Enable	=	TRUE	See Below		
					are TRUE concurrently					

					Transmission_Range_Enable	=	TRUE	See Below		
					Transmission_Input_Speed_Enable	=	TRUE	See Below		
					No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds		
					P0723 Status is not	=	Test Failed This Key On or Fault Active			
					Disable this DTC if the PTO is active	=	1	Boolean		
					Ignition Voltage is	>=	8.6	Volts		
					Ignition Voltage is	<=	32	Volts		
					Engine Speed is	>=	400	RPM		
					Engine Speed is	<=	7500	RPM		
					Engine Speed is within the allowable limits for	>=	5	Sec		
					Enable_Flags Defined Below					
					Transmission_Input_Speed_Enable is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:					

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					TIS Condition 1 is TRUE when both of the following conditions are satsified for	>=	0	Enable Time (Sec)		
					Input Speed Delta	<=	4096	RPM		
					Raw Input Speed	>=	500	RPM		
					TIS Condition 2 is TRUE when ALL of the next two conditions are satisfied					
					Input Speed	=	0	RPM		
					A Single Power Supply is used for all speed sensors	=	TRUE	Boolean		

					Neutral_Range_Enable is TRUE when any of the next 3 conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
					Transmission Range is	=	Reverse/Neutral Transitional	ENUM		
					Transmission Range is	=	Neutral/Drive Transitional	ENUM		
					And when a drop occurs					
					Loop to Loop Drop of Transmission Output Speed is	>	650	RPM		

					Range_Disable is TRUE when any of the next three conditions are TRUE					
					Transmission Range is	=	Park	ENUM		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					Transmission Range is	=	Park/Reverse Transitional	ENUM		
					Input Clutch is not	=	ON (Fully Applied)	ENUM		

					Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified for	>	1.5	Seconds		
					Transmission Output Speed	>	130	RPM		
					The loop to loop change of the Transmission Output Speed is	<	20	RPM		
					The loop to loop change of the Transmission Output Speed is	>	-10	RPM		

					Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE					
					Transmission Range is	=	Neutral	ENUM		
					Transmission Range is	=	Reverse/Neutral Transitional	ENUM		
					Transmission Range is	=	Neutral/Drive Transitional	ENUM		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Time since a driven range (R,D) has been selected	>= Table Based Time Please Refer to Table 21 in supporting documents Sec		
					Transmission Output Speed Sensor Raw Speed	>= 500 RPM		
					Output Speed when a fault was detected	>= 500 RPM		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0973, P0974, P0976, P0977 ECM: P0101, P0102, P0103, P0121, P0122, P0123		
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure	>= 750 Kpa			>= 2 Enable Time (Sec)	Two Trips
			Either Condition (A) or (B) Must be Met					
			(A) TCC Slip Error @ TCC On Mode	>= Refer to Table 1 in Supporting Documents RPM			>= 5 Fail Time (Sec)	

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			(B) TCC Slip @ Lock On Mode If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter	>= 130 RPM			>= 5 Fail Time (Sec) >= 2 TCC Stuck Off Fail Counter	
					TCC Mode = On or Lock Ignition Voltage Lo >= 8.6 Volts Ignition Voltage Hi <= 32 Volts Engine Speed >= 400 RPM Engine Speed <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec Engine Torque Lo >= 50 N*m Engine Torque Hi <= 8192 N*m Throttle Position Lo >= 8 Pct Throttle Position Hi <= 100 Pct 2nd Gear Ratio Lo >= 2.195 Ratio 2nd Gear Ratio High <= 2.525 Ratio 3rd Gear Ratio Lo >= 1.423 Ratio 3rd Gear Ratio High <= 1.637 Ratio 4th Gear Ratio Lo >= 1.069 Ratio 4th Gear Ratio High <= 1.23 Ratio 5th Gear Ratio Lo >= 0.791 Ratio 5th Gear Ratio Hi <= 0.91 Ratio 6th Gear Ratio Lo >= 0.623 Ratio 6th Gear Ratio High <= 0.717 Ratio Transmission Fluid Temperature Lo >= -6.656 ºC Transmission Fluid Temperature Hi <= 130 ºC		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					PTO Not Active	= TRUE Boolean		
					Engine Torque Signal Valid	= TRUE Boolean		
					Throttle Position Signal Valid	= TRUE Boolean		
					Dynamic Mode	= FALSE Boolean		
					P0741 Status is	≠ Test Failed This Key On or Fault Active		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P0742, P2763, P2764 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed TCC Slip Speed	>= -50 RPM <= 13 RPM			>= 1.5 Fail Time (Sec)	One Trip

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter						>=	6	Fail Counter	
					TCC Mode	=	Off					
					Enable test if Cmnd Gear = 1stFW and value true	=	1	Boolean				
					Enable test if Cmnd Gear = 2nd and value true	=	0	Boolean				
					Engine Speed Hi	<=	6000	RPM				
					Engine Speed Lo	>=	500	RPM				
					Vehicle Speed HI	<=	511	KPH				
					Vehicle Speed Lo	>=	1	KPH				
					Engine Torque Hi	<=	8192	Nm				
					Engine Torque Lo	>=	80	Nm				
					Current Range	≠	Neutral	Range				
					Current Range	≠	Reverse	Range				
					Transmission Sump Temperature	<=	130	ºC				
					Transmission Sump Temperature	>=	18	ºC				
					Throttle Position Hyst High	>=	5	Pct				
					AND							
					Max Vehicle Speed to Meet Throttle Enable	<=	8	KPH				
					Once Hyst High has been met, the enable will remain while Throttle Position	>=	2	Pct				
					Disable for Throttle Position	>=	75	Pct				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					Disable if PTO active and value true	=	1	Boolean		
					Disable if in D1 and value true	=	1	Boolean		
					Disable if in D2 and value true	=	1	Boolean		
					Disable if in D3 and value true	=	1	Boolean		
					Disable if in D4 and value true	=	1	Boolean		
					Disable if in D5 and value true	=	1	Boolean		
					Disable if in MUMD and value true	=	1	Boolean		
					Disable if in TUTD and value true	=	1	Boolean		
					4 Wheel Drive Low Active	=	FALSE	Boolean		
					Disable if Air Purge active and value false	=	0	Boolean		
					RVT Diagnostic Active	=	FALSE	Boolean		
					Ignition Voltage	>=	8.6	V		
					Ignition Voltage	<=	32	V		
					Vehicle Speed	<=	511	KPH		
					Engine Speed	>=	400	RPM		
					Engine Speed	<=	7500	RPM		
					Engine Speed is within the allowable limits for	>=	5	Sec		
					Engine Torque Signal Valid	=	TRUE	Boolean		
					Throttle Position Signal Valid	=	TRUE	Boolean		
					P0742 Status is	≠	Test Failed This Key On or Fault Active			

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P0741, P2763, P2764 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400 RPM				Two Trips
			Commanded Gear	= 1st Lock rpm				
			Gear Ratio	<= 1.2095947			>= 0.2 Fail Tmr	
			Gear Ratio	>= 1.0943604			= 5 Fail Counts	
			If the above parameters are true				≠ 0 Neutral Timer (Sec) >= 0.3 Fail Timer (Sec) >= 8 Counts	
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Transmission Fluid Temperature	>= -6.656 ºC		
					Range Shift State	= Range Shift Completed ENUM		
					TPS	>= 0.5 %		
					OR			
					Output Speed	>= 67 RPM		
					Throttle Position Signal Valid from ECM	= TRUE Boolean		
					Engine Torque Signal Valid from ECM, High side driver is enabled	= TRUE Boolean		
					High-Side Driver is Enabled	= TRUE Boolean		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 400 RPM				One Trip

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Commanded Gear	= 3rd Gear				
			Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On	= TRUE Boolean				
			If the above parameters are true				>= Please Refer to Table 16 in Supporting Documents Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed	<= 400 RPM				
			If Gear Ratio	>= 3.8256836				
			And Gear Ratio	<= 4.2283936			>= 1.5 Fail Timer (Sec)	
							>= 5 Counts	
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					High-Side Driver is Enabled = TRUE Boolean Throttle Position Signal Valid from ECM = TRUE Boolean Output Speed >= 67 RPM OR TPS >= 0.5 % Range Shift State = Range Shift Completed ENUM Transmission Fluid Temperature >= -6.656 ºC Input Speed Sensor fault = FALSE Boolean Output Speed Sensor fault = FALSE Boolean Default Gear Option is not present = TRUE **Disable Conditions:**	**MIL not Illuminated for DTC's:** TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gear	= 1st Locked				One Trip

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Gear Box Slip	>= 400 RPM			>= Please Refer to Table 5 in Supporting Documents Neutral Timer (Sec)	
			Intrusive Shift to 2nd Commanded Gear Previous	= 1st Locked Gear				
			Gear Ratio	<= 2.4821777				
			Gear Ratio	>= 2.2458496				
			If the above parameters are true				>= 1 sec >= 3 counts	
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Output Speed	>= 67 RPM		
					OR			
					TPS	>= 0.5 %		
					Range Shift State	= Range Shift Completed ENUM		
					Transmission Fluid Temperature	>= -6.656 ºC		
					High-Side Driver is Enabled	= TRUE Boolean		
					Throttle Position Signal Valid from ECM	= TRUE Boolean		
					Input Speed Sensor fault	= FALSE Boolean		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1 Case: Steady State 3rd Gear				>= Please Refer to Table 16 in Supporting Documents Neutral Timer (Sec)	One Trip
			Commanded Gear	= 3rd Gear				
			Gearbox Slip	>= 400 RPM				
			Command 4th Gear once Output Shaft Speed	<= 400 RPM				
			If Gear Ratio	>= 1.0943604				

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			And Gear Ratio	<= 1.2095947			>= 3 Fail Timer (Sec)	
			It the above condiations are true, Increment 3rd gear fail counter				>= 3 3rd Gear Fail Counts	
			and C35R Fail counter				>= 14 or 3-5R Clutch Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear					
			Commanded Gear	= 5th Gear				
			Gearbox Slip	>= 400 Rpm			>= Please Refer to Table 5 in Supporting Documents Neutral Timer (Sec)	
			Intrusive Test: Command 6th Gear					
			If attained Gear=6th gear Time	>= Please refer to Table 3 in supporting documents Shift Time (Sec)				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			It the above condiations are true, Increment 5th gear fail counter				>= 3 5th Gear Fail Counts	
			and C35R Fail counter				or >= 14 3-5R Clutch Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for RVT	>= 67 RPM		
					A OR B			
					(A) Output speed enable	>= 67 RPM		
					(B) Accelerator Pedal enable	>= 0.5 Pct		
					Common Enable Criteria			
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Throttle Position Signal valid	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Transmission Fluid Temperature	>= -6.656 ºC		
					Input Speed Sensor fault	= FALSE Boolean		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1 Case: Steady State 1st					One Trip
			Attained Gear slip	>= 400 RPM				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec)				
			Intrusive test: (CBR1 clutch exhausted)					
			Gear Ratio	<= 1.6086426				
			Gear Ratio	>= 1.4554443				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 2 Fail Count in 1st Gear or >= 3 Total Fail Counts	
			Fail Case 2 Case: Steady State 2nd gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.6086426				
			Gear Ratio	>= 1.4554443				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 2nd Gear or Total >= 3 Fail Counts	
			Fail Case 3 Case: Steady State 4th gear					

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C1234 clutch exhausted)					
			Gear Ratio	<= 0.8946533				
			Gear Ratio	>= 0.8094482				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 4th Gear or Total >= 3 Fail Counts	
			Fail Case 4 Case: Steady State 6th gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 0.8946533			>= 1.1 Fail Timer (Sec)	
			Gear Ratio	>= 0.8094482			>= 3 counts	
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 6th Gear or Total	
							>= 3 Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		
					TPS validity flag	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Hydraulic_System_Pressurized	= TRUE Boolean		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					A OR B			
					(A) Output speed enable	>= 67 Nm		
					(B) Accelerator Pedal enable	>= 0.5 Nm		
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					if Attained Gear=1st FW Accelerator Pedal enable	>= 5 Pct		
					if Attained Gear=1st FW Engine Torque Enable	>= 5 Nm		
					if Attained Gear=1st FW Engine Torque Enable	<= 8192 Nm		
					Transmission Fluid Temperature	>= -6.656 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers)	=	TRUE	Boolean				One Trip
			Primary Oncoming Clutch Pressure Command Status	=	Maximum pressurized					
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command					
			Range Shift Status	≠	Initial Clutch Control					
			Attained Gear Slip	<=	40	RPM				
			If the above conditions are true run appropriate Fail 1 Timers Below:							
			fail timer 1 (3-1 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Throttle)	>=	0.2998047	Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (3-4 shifting with Throttle)	>=	0.2998047	Fail Time (Sec)				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (3-4shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (3-5 shifting with Throttle)	>=	0.2998047	Fail Time (Sec)				
			fail timer 1 (3-5 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (5-3 shifting with Throttle)	>=	0.2998047	Fail Time (Sec)				
			fail timer 1 (5-3 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Throttle)	>=	0.2998047	Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (5-6 shifting with Throttle)	>=	0.2998047	Fail Time (Sec)				
			fail timer 1 (5-6 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and Reference Supporting Table 15 for Fail Timer 2 sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			3rd gear fail counter				>= 3 3rd gear fail counts OR	
			5th gear fail counter				>= 3 5th gear fail counts OR	
			Total fail counter				>= 5 total fail counts	
					TUT Enable temperature	>= -6.656 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 150 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	One Trip

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Intrusive test: commanded 5th gear					
			If attained Gear ≠5th for time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 4th Gear Fail Counter				>= 3 4th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear					
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 6th gear					

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If attained Gear ≠ 6th for time	>= Please Refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 5th Gear Fail Counter				>= 3 5th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gear					
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear					
			If attained Gear ≠ 5th for time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			if the above conditions have been met Increment 6th Gear Fail Counter and C456 Fail Counter and C456 Fail Counter				>= 3 6th Gear Fail Count OR >= 14 C456 Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for RVT	>= 67 RPM		
					A OR B			
					(A) Output speed enable	>= 67 RPM		
					(B) Accelerator Pedal enable	>= 0.5 Pct		
					Common Enable Criteria			
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Throttle Position Signal valid	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Transmission Fluid Temperature	>= -6.656 ºC		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Input Speed Sensor fault	= FALSE Boolean		
					OutputSpeed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip If the Above is True for Time	 >= 400 RPM >= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec)				One Trip

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	 <= 1.2095947 >= 1.0943604			>= 1.1 Fail Timer (Sec) >= 2 Fail Count in 1st Gear or >= 3 Total Fail Counts	
			Fail Case 2 Case Steady State 2nd Max Delta Output Speed Hysteresis	 >= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.2095947				
			Gear Ratio	>= 1.0943604				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 2nd Gear or >= 3 Total fail counts	

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Fail Case 3 Case Steady State 3rd					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 1.2095947				
			Gear Ratio	>= 1.0943604				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 3rd Gear OR >= 3 Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		
					TPS validity flag	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Hydraulic_System_Pressurized	= TRUE Boolean		
					A OR B			
					(A) Output speed enable	>= 67 Nm		
					(B) Accelerator Pedal enable	>= 0.5 Nm		
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					if Attained Gear=1st FW Accelerator Pedal enable	>= 5 Pct		
					if Attained Gear=1st FW Engine Torque Enable	>= 5 Nm		
					if Attained Gear=1st FW Engine Torque Enable	<= 8192 Nm		
					Transmission Fluid Temperature	>= -6.656 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 11 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean				One Trip

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized				
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip	<= 40 RPM				
			If the above conditions are true increment appropriate Fail 1 Timers Below:					
			fail timer 1 (4-1 shifting with throttle)	>= 0.2998047 Fail Time (Sec)				
			fail timer 1 (4-1 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (4-2 shifting with throttle)	>= 0.2998047 Fail Time (Sec)				
			fail timer 1 (4-2 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (4-3 shifting with throttle)	>= 0.2998047 Fail Time (Sec)				
			fail timer 1 (4-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-3 shifting with throttle)	>= 0.2998047 Fail Time (Sec)				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (5-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (6-2 shifting with throttle)	>= 0.2998047 Fail Time (Sec)				
			fail timer 1 (6-2 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				>= Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			4th gear fail counter				>= 3 Fail Counter From 4th Gear OR	

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			5th gear fail counter				>= 3 Fail Counter From 5th Gear OR	
			6th gear fail counter				>= 3 Fail Counter From 6th Gear OR	
			Total fail counter				>= 5 Total Fail Counter	
					TUT Enable temperature	>= -6.656 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 150 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Case 1 — Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 0 Boolean				Special No MIL
			Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 0 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 3 Enabled	= 0 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 4 Enabled	= 0 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 0 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 6 Enabled	= 0 Boolean				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Park Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0 Boolean				
			Tap Up Switch ON	= TRUE Boolean			>= 1 Fail Time	
			Fail Case 2 Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 3 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 4 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 6 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 0 Boolean				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Tap Up Switch Stuck in the Up Position in Park Enabled	= 0 Boolean				
			Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0 Boolean				
			Tap Up Switch ON	= TRUE Boolean				
			NOTE: Both Failcase1 and Failcase 2 Must Be Met				>= 600 Fail Time (Sec)	
					Time Since Last Range Change	>= 1 Enable Time (Sec)		
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0815 Status is	≠ Test Failed This Key On or Fault Active		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0816, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None		
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 0 Boolean				Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 0 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 0 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 0 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 0 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 0 Boolean				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	= 0 Boolean				
			Tap Down Switch ON	= TRUE Boolean			>= 1 sec	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1 Boolean				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Neutral Enabled	= 0 Boolean				
			Tap Down Switch Stuck in the Down Position in Park Enabled	= 0 Boolean				
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	= 0 Boolean				
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	= TRUE Boolean			>= 600 sec	
					Time Since Last Range Change Ignition Voltage Lo Ignition Voltage Hi	>= 1 Enable Time (Sec) >= 8.6 Volts <= 32 Volts		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0816 Status is	≠ Test Failed This Key On or Fault Active		
					Disable Conditions: **MIL not Illuminated for DTC's:**	TCM: P0815, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None		
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	= TRUE Boolean			>= 60 Fail Time (Sec)	Special No MIL
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0826 Status is	≠ Test Failed This Key On or Fault Active		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P1761 ECM: None		
Variable Bleed Solenoid (VBS)	P0961	Pressure Control (PC) Solenoid A Control Circuit Rationality Test (Line Pressure VBS)	The HWIO reports an invalid voltage (out of range) error flag	= TRUE Boolean			>= 4.4 Fail Time (Sec) out of 5 Sample Time (Sec)	Two Trips
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= 8.6 Volts <= 32 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Variable Bleed Solenoid (VBS)	P0962	Pressure Control (PC) Solenoid A Control Circuit Low Voltage (Line Pressure VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 1.5 Fail Time (Sec) out of 1.875 Sample Time (Sec)	One Trip
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= 8.6 Volts <= 32 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Variable Bleed Solenoid (VBS)	P0963	Pressure Control (PC) Solenoid A Control Circuit High Voltage (Line Pressure VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 4.4 Fail Time (Sec) out of 5 Sample Time (Sec)	Two Trips
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= 8.6 Volts <= 32 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Variable Bleed Solenoid (VBS)	P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip
					Ignition Voltage Ignition Voltage Engine Speed	>= 8.6 Volts <= 32 Volts >= 400 RPM		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0966 Status is not	= Test Failed This Key On or Fault Active		
					MIL not Illuminated for DTC's:	TCM: None ECM: None		
				Disable Conditions:				
Variable Bleed Solenoid (VBS)	P0967	Pressure Control (PC) Solenoid B Control Circuit High Voltage (C35R VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip
					Ignition Voltage	>= 8.6 Volts		
					Ignition Voltage	<= 32 Volts		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0967 Status is not	= Test Failed This Key On or Fault Active		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Variable Bleed Solenoid (VBS)	P0970	Pressure Control (PC) Solenoid C Control Circuit Low Voltage (C456/CBR1 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip
					P0970 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 8.6 Volts		
					Ignition Voltage	<= 32 Volts		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Variable Bleed Solenoid (VBS)	P0971	Pressure Control (PC) Solenoid C Control Circuit High Voltage (C456/CBR1 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P0971 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 8.6 Volts		
					Ignition Voltage	<= 32 Volts		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Shift Solinoid	P0973	Shift Solenoid A Control Circuit Low (Mode 2 Solenoid)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 1.2 Fail Time (Sec) out of 1.5 Sample Time (Sec)	One Trip
					P0973 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 8.6 Volts		
					Ignition Voltage	<= 32 Volts		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Shift Solinoid	P0974	Shift Solenoid A Control Circuit High (Mode 2 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 1.2 Fail Time (Sec) out of 1.5 Sample Time (Sec)	Two Trips
					P0974 Status is not = Test Failed This Key On or Fault Active Ignition Voltage >= 8.6 Volts Ignition Voltage <= 32 Volts Engine Speed >= 400 RPM Engine Speed <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec			
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Mode 3 Multiplex Valve	P0977	Shift Solenoid B Control Circuit High (Mode 3 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 1.2 Sec	One Trip

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
							out of 1.5 Sec	
					P0977 Status is not = Test Failed This Key On or Fault Active			
					Ignition Voltage	>= 8.6 Volts		
					Ignition Voltage	<= 32 Volts		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM does not match expected value	= TRUE Boolean			>= 3 Fail Counter > 10 Sample Timer (Sec)	Special No MIL
					Tap Up Tap Down Message Health	= TRUE Boolean		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Mode Switch	P1762	Transmission Mode Switch Signal Circuit (rolling count)	Rolling count value received from BCM does not match expected value	= TRUE Boolean			>= 3 Fail Counter > 10 Sample Timer (Sec)	Special No MIL
					Pattern Switch Message Health Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	= TRUE Boolean >= 400 RPM <= 7500 RPM >= 5 Sec		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1 Current range Previous range	= Transition 1 (bit state 1110) Range ≠ CeTRGR_e_PRNDL_Drive6 Range				One Trip

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Previous range	≠ CeTRGR_e_PRNDL_Drive4 Range				
			Range Shift State	= Range Shift Completed ENUM				
			Absolute Attained Gear Slip	<= 50 rpm				
			Attained Gear	<= Sixth				
			Attained Gear	>= First				
			Throttle Position Available	= TRUE				
			Throttle Position	>= 8.0001831 pct				
			Output Speed	>= 200 rpm				
			Engine Torque	>= 50 Nm				
			Engine Torque	<= 8191.75 Nm				
			If the above conditions are met then Increment Fail Timer				>= 1 Fail Seconds	
			If Fail Timer has Expired then Increment Fail Counter				>= 5 Fail Counts	
			Fail Case 2 Output Speed	<= 70 rpm				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			The following PRNDL sequence events occur in this exact order:					
			PRNDL state	= Drive 6 (bit state 0110) Range				
			PRNDL state = Drive 6 for	>= 1 Sec				
			PRNDL state	= Transition 8 (bit state 0111) Range				
			PRNDL state	= Drive 6 (bit state 0110) Range				
			PRNDL state	= Transition 1 (bit state 1110) Range				
			Above sequencing occurs in	<= 1 Sec				
			Neutral Idle Mode	= Inactive				
			If all conditions above are met Increment delay Timer					
			If the below two conditions are met Increment Fail Timer				>= 3 Fail Seconds	
			delay timer	>= 1 Sec				
			Input Speed	>= 400 Sec				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If Fail Timer has Expired then Increment Fail Counter				>= 2 Fail Counts	
			Fail Case 3					
			Current range	= Transition 13 (bit state 0010) Range	Previous range	≠ CeTR GR_e_ PRNDL_Drive1		
			Engine Torque	>= -8192 Nm	Previous range	≠ CeTR GR_e_ PRNDL_Drive2		
			Engine Torque	<= 8191.75 Nm	IMS is 7 position configuration	= 1 Boolean		
			If the above conditions are met then, Increment Fail Timer		If the "IMS 7 Position config" = 1 then the "previous range" criteria above must also be satsified when the "current range" = "Transition 13"		>= 0.225 Seconds	
			If Fail Timer has Expired then Increment Fail Counter				>= 15 Fail Counts	
			Fail Case 4					
			Current range	= Transition 8 (bit state 0111) Range	Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8			
			Inhibit bit (see definition)	= FALSE	Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)			
			Steady State Engine Torque	>= 100 Nm				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Steady State Engine Torque	<= 8191.75 Nm				
			If the above conditions are met then Increment Fail Timer				>= 0.225 Seconds	
			If the above Condtions have been met, Increment Fail Counter				>= 15 Fail Counts	
			Fail Case 5 Throttle Position Available	= TRUE Boolean				
			The following PRNDL sequence events occur in this exact order:					
			PRNDL State	= Reverse (bit state 1100) Range				
			PRNDL State	= Transition 11 (bit state 0100) Range				
			PRNDL State	= Neutral (bit state 0101) Range				
			PRNDL State	= Transition 11 (bit state 0100) Range				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Above sequencing occurs in	<= 1 Sec				
			Then delay timer increments					
			Delay timer	>= 5 sec				
			Range Shift State	= Range Shift Complete				
			Absolute Attained Gear Slip	<= 50 rpm				
			Attained Gear	<= Sixth				
			Attained Gear	>= First				
			Throttle Position	>= 8.0001831 pct				
			Output Speed	>= 200 rpm				
			If the above conditions are met Increment Fail Timer				>= 20 Seconds	
			Fail Case 6 Current range	= Illegal (bit state 0000 or 1000 or 0001)	A Open Circuit Definition (flag set false if the following conditions are met):			
			and		Current Range	≠ Transition 11 (bit state 0100)		
			A Open Circuit (See Definition)	= FALSE Boolean	or			
					Last positive state	≠ Neutral (bit state 0101)		
					or			

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Previous transition state	≠ Transition 8 (bit state 0111)		
					Fail case 5 delay timer	= 0 sec		
			If the above Condtions are met then, Increment Fail timer				>= 6.25 Seconds	
			Fail Case 7 Current PRNDL State	= PRNDL circuit ABCP = 1101 Range				
			and					
			Previous PRNDL state	= PRNDL circuit ABCP =1111 Range				
			Input Speed	>= 150 RPM				
			Reverse Trans Ratio	<= 2.8458252 ratio				
			Reverse Trans Ratio	>= 3.2741699 ratio				
			If the above Condtions are met then, Increment Fail timer				>= 6.25 Seconds	
			P182E will report test fail when any of the above 7 fail cases are met					

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Engine Torque Signal Valid	= TRUE Boolean		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	PRNDL State is	≠ Park or Neutral Enumeration				One Trip
			The following events must occur Sequentially					
			Initial Engine speed	<= 50 RPM			>= 0.25 Enable Time	
			Then Engine Speed Between Following Cals					

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Engine Speed Lo Hist Engine Speed Hi Hist	>= 50 RPM <= 480 RPM			>= 0.0688 Enable Time	
			Then Final Engine Speed Final Transmission Input Speed	>= 525 RPM >= 100 RPM			>= 1.25 Fail Time (Sec)	
					DTC has Ran this Key Cycle? Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage Hyst High (enables above this value) Ignition Voltage Hyst Low (disabled below this value) Transmission Output Speed P1915 Status is	= FALSE Boolean >= 6 V <= 32 V >= 5 V <= 2 V <= 90 rpm ≠ Test Failed This Key On or Fault Active	
			Disable Conditions:	**MIL not Illuminated for DTC's:**		TCM: P0722, P0723 ECM: None		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below)	= FALSE Boolean				One Trip
			Ignition Voltage High Hyst (run crank goes true when above this value)	5 Volts			>= 280 Fail Counts (25ms loop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)	2 Volts			Out of 280 Sample Counts (25ms loop)	
					ECM run/crank active status available	= TRUE Boolean		
					ECM run/crank active status	= TRUE Boolean		
			Disable Conditions:		**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Transmission Control Module (TCM)	P2535	Ignition Switch Run/Start Position Circuit High	TCM Run crank active (based on voltage thresholds below)	= TRUE Boolean				One Trip
			Ignition Voltage High Hyst (run crank goes true when above this value)	5 Volts			>= 280 Fail Counts (25ms loop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)	2 Volts			Out of 280 Sample Counts (25ms loop)	
					ECM run/crank active status available	= TRUE Boolean		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					ECM run/crank active status	= FALSE Boolean		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Variable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D Stuck Off [CB26]	Fail Case 1 Case: Steady State 2nd Gear					One Trip
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 3rd gear					
			If attained Gear = 3rd for Time	>= Table Based Time Please see Table 2 in Supporting Documents Enable Time (Sec)				
			If Above Conditions have been met					
			Increment 2nd gear fail count				>= 3 2nd Gear Fail Count or	

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			and CB26 Fail Count				>= 14 CB26 Fail Count	
			Fail Case 2 Case: Steady State 6th Gear					
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear					
			If attained Gear = 5th For Time	>= Table Based Time Please see Table 2 in Supporting Documents Enable Time (Sec)				
			If Above Conditions have been met, Increment 5th gear fail counter				>= 3 5th Gear Fail Count	
			and CB26 Fail Count				or >= 14 CB26 Fail Count	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					TPS validity flag	=	TRUE	Boolean		
					Hydraulic System Pressurized	=	TRUE	Boolean		
					Minimum output speed for RVT	>=	0	RPM		
					A OR B					
					(A) Output speed enable	>=	67	RPM		
					(B) Accelerator Pedal enable	>=	0.5	Pct		
					Common Enable Criteria					
					Ignition Voltage Lo	>=	8.6	Volts		
					Ignition Voltage Hi	<=	32	Volts		
					Engine Speed Lo	>=	400	RPM		
					Engine Speed Hi	<=	7500	RPM		
					Engine Speed is within the allowable limits for	>=	5	Sec		
					Throttle Position Signal valid	=	TRUE	Boolean		
					HSD Enabled	=	TRUE	Boolean		
					Transmission Fluid Temperature	>=	-6.656	ºC		
					Input Speed Sensor fault	=	FALSE	Boolean		
					Output Speed Sensor fault	=	FALSE	Boolean		
					Default Gear Option is not present	=	TRUE			

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean				One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized				
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip	<= 40 RPM				

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If above coditons are true, increment appropriate Fail 1 Timers Below:							
			fail timer 1 (2-1 shifting with throttle)	>=	0.2998047	Fail Time (Sec)				
			fail timer 1 (2-1 shifting without throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (2-3 shifting with throttle)	>=	0.2998047	Fail Time (Sec)				
			fail timer 1 (2-3 shifting without throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (2-4 shifting with throttle)	>=	0.2998047	Fail Time (Sec)				
			fail timer 1 (2-4 shifting without throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (6-4 shifting with throttle)	>=	0.2998047	Fail Time (Sec)				
			fail timer 1 (6-4 shifting without throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (6-5 shifting with throttle)	>=	0.2998047	Fail Time (Sec)				
			fail timer 1 (6-5 shifting without throttle)	>=	0.5	Fail Time (Sec)				

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			2nd gear fail counter				>= 3 Fail Counter From 2nd Gear OR	
			6th gear fail counter				>= 3 Fail Counter From 6th Gear OR	
			total fail counter				>= 5 Total Fail Counter	

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					TUT Enable temperature	>= -6.656 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 150 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip	>= 400 RPM				One Trip

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the Above is True for Time	>= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec)				
			Intrusive test: (CBR1 clutch exhausted)					
			Gear Ratio	<= 2.4821777				
			Gear Ratio	>= 2.2458496				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 5 Fail Count in 1st Gear or Total >= 5 Fail Counts	
			Fail Case 2 Case: Steady State 3rd Gear					

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 2.4821777				
			Gear Ratio	>= 2.2458496				

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 3rd Gear or >= 5 Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C1234 clutch exhausted)					
			Gear Ratio	<= 0.7003174				
			Gear Ratio	>= 0.633667				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 4th Gear or >= 5 Total Fail Counts	
			Fail Case 4 Case: Steady State 5th Gear					

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 0.7003174				
			Gear Ratio	>= 0.633667				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 5th Gear or >= 5 Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		
					TPS validity flag	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Hydraulic_System_Pressurized	= TRUE Boolean		
					A OR B			
					(A) Output speed enable	>= 67 Nm		
					(B) Accelerator Pedal enable	>= 0.5 Nm		
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					if Attained Gear=1st FW Accelerator Pedal enable	>= 5 Pct		
					if Attained Gear=1st FW Engine Torque Enable	>= 5 Nm		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					if Attained Gear=1st FW	<= 8192 Nm		
					Engine Torque Enable			
					Transmission Fluid Temperature	>= -6.656 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2720	Pressure Control (PC) Solenoid D Control Circuit Low (CB26 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip
					P2770 Status is not	= Test Failed This Key On or Fault Active		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Ignition Voltage	>= 8.6 Volts		
					Ignition Voltage	<= 32 Volts		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Variable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip
					P2721 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 8.6 Volts		
					Ignition Voltage	<= 32 Volts		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Variable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1 Case: Steady State 1st Gear					One Trip
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 2nd gear					
			If attained Gear ≠ 2nd for Time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			If Above Conditions have been met, Increment 1st gear fail counter				>= 3 1st Gear Fail Count	
			and C1234 fail counter				or >= 14 C1234 Clutch Fail Count	
			Fail Case 2 Case: Steady State 2nd Gear					

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 3rd gear					
			If attained Gear ≠ 3rd for Time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			If Above Conditions have been met, Increment 2nd gear fail counter				>= 3 2nd Gear Fail Count	
			and C1234 fail counter				or >= 14 C1234 Clutch Fail Count	
			Fail Case 3 Case: Steady State 3rd Gear					
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Intrusive test: commanded 4th gear If attained Gear ≠ 4th for time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			If Above Conditions have been met, Increment 3rd gear fail counter and C1234 fail counter				>= 3 3rd Gear Fail Count or >= 14 C1234 Clutch Fail Count	
			Fail Case 4 Case: Steady State 4th Gear Gear slip Intrusive test: commanded 5th gear	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If attained Gear = 5th For Time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			If Above Conditions have been met, Increment 4th gear fail counter				>= 3 4th Gear Fail Count	
			and C1234 fail counter				or >= 14 C1234 Clutch Fail Count	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for RVT A OR B	>= 0 RPM		
					(A) Output speed enable	>= 67 RPM		
					(B) Accelerator Pedal enable	>= 0.5 Pct		
					Common Enable Criteria			
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Throttle Position Signal valid	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Transmission Fluid Temperature	>= -6.656 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean				One Trip

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized				
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip	<= 40 RPM				
			If the above conditions are true increment appropriate Fail 1 Timers Below:					
			fail timer 1 (2-6 shifting with throttle)	>= 0.2998047 sec				
			fail timer 1 (2-6 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (3-5 shifting with throttle)	>= 0.2998047 sec				
			fail timer 1 (3-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (4-5 shifting with throttle)	>= 0.2998047 sec				
			fail timer 1 (4-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (4-6 shifting with throttle)	>= 0.2998047 sec				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (4-6 shifting without throttle)	>= 0.5 sec			Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 >= sec	
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers					
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			2nd gear fail counter				>= 3 Fail Counter From 2nd Gear	
			3rd gear fail counter				>= 3 Fail Counter From 3rd Gear	

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			4th gear fail counter				>= 3 Fail Counter From 4th Gear	
			total fail counter				>= 5 Total Fail Counter	
					TUT Enable temperature	>= -6.656 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 150 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				One Trip
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 1.2095947				
			Gear Ratio	>= 1.0943604				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 5th Gear OR >= 3 Total Fail Counts	
			Fail Case 2 Case: 6th Gear					

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.2095947				
			Gear Ratio	>= 1.0943604				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 6th Gear OR Total >= 3 Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		
					TPS validity flag	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Hydraulic_System_Pressurized	= TRUE Boolean		
					A OR B			
					(A) Output speed enable	>= 67 Nm		
					(B) Accelerator Pedal enable	>= 0.5 Nm		
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					if Attained Gear=1st FW Accelerator Pedal enable	>= 5 Pct		
					if Attained Gear=1st FW Engine Torque Enable	>= 5 Nm		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					if Attained Gear=1st FW Engine Torque Enable	<= 8192 Nm		
					Transmission Fluid Temperature	>= -6.656 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2729	Pressure Control (PC) Solenoid E Control Circuit Low (C1234 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip
					P2729 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 8.6 Volt		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Ignition Voltage	<= 32 Volt		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Variable Bleed Solenoid (VBS)	P2730	Pressure Control (PC) Solenoid E Control Circuit High (C1234 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip
					P2730 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 8.6 Volt		
					Ignition Voltage	<= 32 Volt		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Variable Bleed Solenoid (VBS)	P2763	Torque Converter Clutch Pressure High	The HWIO reports a low pressure/high voltage (open or power short) error flag	= TRUE Boolean			>= 4.4 Fail Time (Sec) out of 5 Sample Time (Sec)	Two Trips
					P2763 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 8.6 Volt		
					Ignition Voltage	<= 32 Volt		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for High Side Driver Enabled	>= 5 Sec = TRUE Boolean		
			Disable Conditions:		**MIL not Illuminated for DTC's:**	TCM: P0658, P0659 ECM: None		
Variable Bleed Solenoid (VBS)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	The HWIO reports a high pressure/low voltage (ground short) error flag	= TRUE Boolean			>= 4.4 MPH out of 5 MPH	One Trip

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P2764 Status is not = Test Failed This Key On or Fault Active			
					Ignition Voltage >= 8.6 Volt			
					Ignition Voltage <= 32 Volt			
					Engine Speed >= 400 RPM			
					Engine Speed <= 7500 RPM			
					Engine Speed is within the allowable limits for >= 5 Sec			
					High Side Driver Enabled = TRUE Boolean			
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: P0658, P0659 ECM: None		
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error = TRUE Boolean				>= 62 Fail counts (≈ 10 seconds)	One Trip
			Delay timer >= 0.1125 sec				Out of 70 Sample Counts (≈ 11 seconds)	
					Stabilization delay >= 3 sec			
					Ignition Voltage >= 8.6 Volt			
					Ignition Voltage <= 32 Volt			
					Power Mode = Run			

13 OBDG09 Transmission Diagnostics

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None		
Communication	U0100	Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	= TRUE Boolean			>= 12 sec	One Trip
					Stabilization delay	>= 3 sec		
					Ignition Voltage	>= 8.6 Volt		
					Ignition Voltage	<= 32 Volt		
					Power Mode	= Run		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: U0073 ECM: None		

2013 Trans Diagnostic Summary Table--Look-up Tables--2D

Table 1

Axis	0.00	64.00	128.00	192.00	256.00	320.00	384.00	448.00	512.00	N*m
Curve	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	RPM

Table 2

Axis	-6.67	-6.66	40.00	°C
Curve	409.59	2.00	2.00	Sec

Table 3

Axis	-6.67	-6.66	40.00	°C
Curve	409.59	4.00	4.00	Sec

Table 4

Axis	-6.67	-6.66	40.00	°C
Curve	409.59	2.00	2.00	Sec

Table 5

Axis	-6.67	-6.66	40.00	°C
Curve	409.59	3.00	3.00	Sec

Table 6

Axis	-6.67	-6.66	40.00	80.00	120.00	°C
Curve	409.00	3.60	1.60	1.40	1.40	Sec

Table 7

Axis	-6.67	-6.66	40.00	80.00	120.00	°C
Curve	409.00	3.40	1.40	1.30	1.20	Sec

2013 Trans Diagnostic Summary Table--Look-up Tables--2D

Table 8

Axis	-6.67	-6.66	40.00	80.00	120.00	ºC
Curve	409.00	3.60	1.60	1.50	1.40	Sec

Table 9

Axis	-6.67	-6.66	40.00	80.00	120.00	ºC
Curve	409.00	3.30	1.30	1.20	1.10	Sec

Table 10

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	3.03	1.86	1.00	0.75	0.58	Sec

Table 11

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	1.72	1.11	0.60	0.36	0.22	Sec

Table 12

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	2.12	1.39	0.84	0.64	0.33	Sec

Table 13

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	2.51	0.95	0.50	0.29	0.13	Sec

Table 14

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	2.97	0.82	0.47	0.20	0.13	Sec

2013 Trans Diagnostic Summary Table--Look-up Tables--2D

Table 15

Axis	-40.00	-30.00	-20.00	-10.00	0.00	10.00	20.00	30.00	40.00	°C
Curve	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Sec

Table 16

Axis	-6.67	-6.66	40.00	°C
Curve	409.59	2.50	2.50	Sec

Table 17

Axis	-6.67	-6.66	40.00	°C
Curve	0.40	0.35	0.30	Sec

Table 18

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10	°C
Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00	°C

Table 19

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10	°C
Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00	°C

Table 20

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10	°C
Curve	256.00	10.00	8.00	8.00	8.00	8.00	8.00	8.00	256.00	°C

Table 21

Axis	-40.00	-20.00	40.00	°C
Curve	5.00	3.00	1.00	Sec

2013 Trans Diagnostic Summary Table--Look-up Tables--3D

3D_Table 1

X-Axis Calibration	%
Y-Axis Calibration	ºC
Table Calibration	RPM/Sec

	0.00	2.00	5.00	25.00	100.00
-6.67	8191.75	8191.75	8191.75	8191.75	8191.75
-6.66	8191.75	8191.75	8191.75	8191.75	8191.75
40.00	8191.75	8191.75	8191.75	8191.75	8191.75

3D_Table 2

X-Axis Calibration	%
Y-Axis Calibration	ºC
Table Calibration	RPM/Sec

	0.00	2.00	5.00	25.00	100.00
-6.67	8191.75	8191.75	8191.75	8191.75	8191.75
-6.66	500.00	500.00	300.00	300.00	300.00
40.00	500.00	500.00	300.00	300.00	300.00