Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
Transmission Fluid Ten	nperature		I					
	P0711	This test detects performance of the	All 5 Cases		Not Test Failed This Key On	D0711		В
		transmission fluid				P0716		
		temperature sensor				P0717		
		by comparing				P0721		
		changes in				P0722		
		temperature from				P0742		
		start up and between				P077C		
		samples to calibration				P077D		
		values.				P07BF		
						P07C0		
					No Fault Pending DTCs for this drive	P0716		
						P0717		
						P0721		
						P0722		
						P077C		
						P077D		
						P07BF		
						P07C0		
					No Pass DTCs for this drive cycle	P0711		
					No Fault Active DTC	P0711		
					Components powered			
					AND			
					Battery Voltage	>= 9 V		
					Faring Count hat was	000 DDM 7500 DDM		
					Engine Speed between	200 RPM and 7500 RPM		
						Fd-		
					TOF	5 seconds		
					Start-up transmission fluid temperature			
					is available			
					Transmission fluid temperature	-30 deg C and 140 deg C		
					between	-59 deg. C and 149 deg. C		
					ECT is not defaulted			
			Case 1 (Stuck sensor after cold start-up)		EOT IS NOT deliauted		300 seconds	-
			(Carrier and and and ap)					
			Start-up temperature change	<= 2 deg. C	Start-up transmission fluid temperature	-40 deg. C and 21 deg. C		
				>= 100 seconds	between			
							1	
			AND		TCC Slip	>= 120 RPM		
						>= 300 seconds	1	
			Vehicle speed	>= 8 KPH				
			for a time	>= 300 seconds.	engine coolant temperature	>= 70 deg. C		
					AND		1	
					engine coolant temperature change		1	
					from start-up	>= 15 deg. C		
			Case 2 (Stuck sensor after warm start-				300 seconds	
			up)					
			Start-up temperature change			115 deg. C and 150 deg. C.		
1			for a time	>= 100 seconds	temperature between		1	
							1	
			AND			>= 120 RPM		
						>= 300 seconds		
				l	engine coolant temperature	>= /u aeg. C	1	1

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
			Vehicle speed for a time	>= 8 KPH >= 300 seconds.	AND engine coolant temperature change from start-up	>= 55 deg. C		
			Case 3 (Noisy sensor) Change from previous temperature		·	J	7 seconds	
				< 7 seconds.	net engine torque	>= 150 Nm	2200 seconds	-
			Time Enabled Criteria met AND AND Transmission Fluid Temperature	< 20 deg. C.	and vehicle speed	<= 1492 Nm		
			Time Enabled Criteria is determined by a	-	%throttle	>= 10.0% <= 100%		
				2200 seconds when start-up temperature is <= -40 deg. C.	engine coolant temperature	<= 6500 RPM >= -39 deg. C <= 149 deg. C		
			Case 5 (Reasonableness at start-up):  Engine Speed	> 500 RPM	Intake Air Temperature is not defaulted		2 seconds	
				> -39 deg. C < 50 deg. C >= 2 seconds				
			((ABS(IAT-ECT) AND					
			(TFT-ECT)) OR (ABS(IAT-ECT)	-				
			AND (TFT-ECT)))	> 60 deg. C.				
Transmission Fluid Temperature Sensor Circuit Low Input	P0712	Out of range low.	transmission fluid temperature	>= 140 deg. C	Not Test Failed This Key On	P0711 P0712	2.5 seconds	В
			for a time	> 2.5 seconds.	Components powered AND	P0713		
					Battery Voltage Engine Speed between	>= 9 V 200 RPM and 7500 RPM		
					for	5 seconds		
Transmission Fluid Temperature Sensor Circuit High Input	P0713	Out of range high.	transmission fluid temperature	<= - 40 deg. C	Not Test Failed This Key On	P0711 P0712	2.5 seconds	В
			for a time	> 2.5 seconds	Components powered AND	P0713		
					Battery Voltage	>= 9 V 200 RPM and 7500 RPM		
						5 seconds		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
					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	P0716	This test detects	All cases		Not Test Failed This Key On	D0716	I	A
Sensor Circuit	0710	large changes in Input			Not restrailed this key on	P0717		
Range/Performance		Speed and noisy Input Speed by						
		comparing to						
		calibration values.			No Fault Pending DTCs for this drive	P07BF P07C0		
					Gyolo.			
					Not Low Voltage Disable			
			Case 1: (Unrealistically large changes in				0.15 seconds	
			input speed) Change of Input Speed between					
			samples for	>= 800 RPM >= 0.15 seconds				
			AND	2 - 0.10 000011d0				
			NOT Low Voltage Response					
			Case 2: (Noisy Input Speed)				2 seconds	1
			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	>= 800 RPM				
			THEN THE HIGH Counter is incremented					
			This test fails if both the Low Counter					
			and the High Counter	>= 5				
			OR Low Counter	>= 5				
			OR					
	<u>L</u>		High Counter	>= 5				-
Input/Turbine Speed Sensor Circuit No Signal	P0717	This test detects unrealistically low	Failure pending if transmission input	< 61 RPM	Not Test Failed This Key On	P0717 P0729	1 second	А
Sensor Circuit No Signal		value of input/turbine	·			P0731		
		speed or unrealistically large	This test fails if input speed AND	< 61 RPM		P0732 P0733		
		changes in	output speed			P0734		
		input/turbine speed.	for a time AND	> 1 second.		P0735 P0736		
			NOT Low Voltage Response			P0721		
						P0722 P0716		
						P07BF		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
					No Fault Pending DTCs	P07C0 P077C P077D P0721 P0722 P07BF P07C0 P077C P077D		
					NOT Low Voltage Disable	1 617 5		
					Engine is running Reverse-to-Neutral shift not in process			
					Shifting complete Range attained is not neutral Transmission fluid temperature Engine speed Transmission output speed	>= 400 RPM		
Output Speed Sensor Circuit Range/Performance	P0721	This test detects a noisy output speed sensor or circuit by detecting large changes in output speed.	Case 1: (Unrealistically large change in output speed)  Change in output speed for a time  AND  NOT Low Voltage Response	>= 0.15 seconds	All Cases Not Test Failed This Key On	P0721 P0722	Case 1: 0.15 seconds	A
			Case 2: (Noisy output speed) For sample size  IF the change in output speed  THEN the Low Counter is incremented.		No Fault Pending DTCs for this drive cycle  NOT Low Voltage Disable	P077C P077D	Case 2: 2 seconds	
			IF the change in output speed THEN the High Counter is incremented.  Test fails if both the Low Counter and		range attained NOT neutral			
			OR the Low Counter 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			P0721 P0722 P077C P077D		A
					No Fault Pending DTCs for this drive	P077C P077D		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
					NOT Low Voltage Disable			
			Case 1: (Unrealistically large change in output speed)		Test enabled when output speed	>= 600 RPM	1 second	
			Failure pending if change in output speed	>= 600 RPM		>= 1 seconds		
			Failure sets if range attained is Neutral		Test disabled when output speed	<= 600 RPM		
			Case 2: (Unrealistically low value of		for a time	> 1 seconds	4 seconds	
			output speed) Failure pending if output speed Failure sets if not monitoring for low speed neutral and output speed	< 61 RPM	Not Test Failed This Key On	P0729 P0731 P0732		
			AND range is 3rd, 4th, 5th, or 6th	< 61 RPM		P0733 P0734 P0735		
			for a time AND NOT Low Voltage Response	> 1 second		P0736 P0716 P0717 P07BF		
			Failure sets if not monitoring for low speed neutral and output speed		No Fault Pending DTCs for this drive	P07C0		
			AND ((net engine torque OR	< 61 RPM < -100 Nm	Engine is running Shift not in process	P07C0		
			net engine torque) OR (turbine speed		Range attained is not Neutral Reverse to Neutral shift not in process			
			AND range is 2nd)) for a time AND	>= 4 seconds.	Transmission fluid temperature Transmission input speed Not waiting for Manual Selector Valve to attain forward range			
			NOT Low Voltage Response		PRNDL State is NOT D4, NOT Transitional D4			
Input/Turbine Speed Sensor Ckt Voltage Low	P07BF	This test detects either open or short to		<= 0.25 volts	Not Test Failed This Key On OR		0.8 sec	A
		ground circuit malfunctions.	for THEN increment fail timer	0.2 second	No Fault Active DTC  No Fault Active DTC			
			IF fail timer AND Engine Speed		NOT Low Voltage Disable	10700		
			AND NOT Low Voltage Response THEN report malfunction					
Input/Turbine Speed Sensor Ckt Voltage High	P07C0	This test detects either open or short to ground circuit			Not Test Failed This Key On OR No Fault Active DTC		0.8 sec	А
		malfunctions.	for THEN increment fail timer IF fail timer	0.2 second >= 4 counts	No Fault Active DTC	P07BF		
			AND Engine Speed		Components powered AND			

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
			THEN report malfunction		Battery Voltage	>= 9 V		
Output Speed Sensor Ckt Voltage Low	P077C	This test detects either open or short to		<= 0.25 volts	Not Test Failed This Key On	P077C	0.8 sec	А
Vollage Low		ground circuit			No Fault Active DTC	P077C		
		malfunctions.		0.2 second				
			THEN increment fail timer IF fail timer	>= 4 counts	No Fault Active DTC	P077D		
			AND					
			Engine Speed AND	>= 20 rpm	NOT Low Voltage Disable			
			NOT Low Voltage Response					
			THEN report malfunction					
Output Speed Sensor Ckt /oltage High	P077D	This test detects either open or short to	IF voltage	>= 4.75	Not Test Failed This Key On	P077D	0.8 sec	A
rollage i ligit		ground circuit			No Fault Active DTC	P077D		
		malfunctions.	for THEN increment fail timer	0.2 second	No Fault Active DTC	D0770		
				>= 4 counts	No Fault Active DTC	P077C		
			AND		Components powered			
			Engine Speed THEN report malfunction	>= 20 rpm	AND Battery Voltage	>= 9 V		
			7					
Range Verification Sear 1 Incorrect Ratio	P0731	This test verifies	Pending failure occurs when	<u> </u>		<u> </u>	2.25 seconds	A
odi i moorioot radio	0701	transmission	accumulated event timer	>= 2 second			2.20 00001140	
		operating ratio while 1st range is			Not Test Failed This Key On (except if dropout suspected or detected)	P0877		
		commanded by	IF main pressure dropout is suspected		dropout suspected of detected)	P0878		
		comparing computed ratio to the	THEN accumulated event timer is	>= 1 second				
		commanded ratio.	IF main pressure dropout is detected		Not Fault Pending with cmd gear	P0877		
			THEN accumulated event timer is	>= 0.75 second	Rev_Logic1 and RPS/PRNDL conflict			
			Timer accumulates when transmission is					
			in forward or reverse range		Not Fault Active with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			AND output speed	>= 100 RPM	Rev_Logic Fand RF 3/F RNDE conflict			
			AND					
			gear slip	> 100 RPM	Not Test Failed This Key On	P0721		
						P0722		
			In response to pending failure, a			P0716		
			diagnostic response range is commanded.			P0717 P07BF		
						P07C0		
			During this command, this test fails if Abs(Converter Slip)	>= 250 RPM		P077C P077D		
				> 10 samples.		P077D		
				·	No Fault Pending DTC for this drive			
					cycle.	P07BF P07C0		
					NOT Low Voltage Disable			
					No range switch response active			
					Hydraulic System Pressurized			

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

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
					Normal powertrain initialization is complete			
Gear 3 Incorrect Ratio	P0733	This test verifies transmission operating ratio while 3rd range is	Pending failure occurs when accumulated event timer IF main pressure dropout is suspected		Not Test Failed This Key On (except if dropout suspect or detected)	P0877 P0878	2.25 seconds	A
		commanded by comparing computed ratio to the commanded ratio.	THEN accumulated event timer is IF main pressure dropout is detected THEN accumulated event timer is		Not Fault Pending with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			Timer accumulates when transmission is in forward or reverse range AND output speed		Not Fault Active with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			In response to pending failure, a diagnostic response range is	> 100 RPM	Not Test Failed This Key On	P0722 P0716 P0717		
			commanded.  During this command, this test fails if  Abs(Converter Slip)  for	>= 250 RPM	No Fault Pending DTC for this drive			
					cycle.  NOT Low Voltage Disable	P07BF P07C0		
					No range switch response active  Hydraulic System Pressurized			
					Shift complete			
					Output speed	>= 200 RPM		
					No hydraulic default condition present			
					Normal powertrain shutdown not in process			
					Normal powertrain initialization is complete			
Gear 4 Incorrect Ratio	P0734	This test verifies transmission operating ratio while 4th range is	Pending failure occurs when accumulated event timer IF main pressure dropout is suspected THEN accumulated event timer is	>= 2 second	Not Test Failed This Key On (except if dropout suspect or detected.)		2.25 seconds	А
		commanded by comparing computed ratio to the commanded ratio.	IF main pressure dropout is detected THEN accumulated event timer is  Timer accumulates when transmission is		Not Fault Pending with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			in forward or reverse range AND		Not Fault Active with cmd gear	P0877		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
			output speed AND		Rev_Logic1 and RPS/PRNDL conflict			
			In response to pending failure, a diagnostic response range is commanded.	> 100 RPM	Not Test Failed This Key On	P0722 P0716 P0717 P07BF		
				>= 250 RPM > 10 samples.		P07C0 P077C P077D		
						P0717 P07BF P07C0		
					NOT Low Voltage Disable			
					No range switch response active			
					Hydraulic System Pressurized			
					Shift complete Output speed	>= 200 RPM		
					No hydraulic default condition present	Z – 200 IXI IVI		
					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	Pending failure occurs when accumulated event timer IF main pressure dropout is suspected THEN accumulated event timer is IF main pressure dropout is detected	>= 2 second >= 1 second	Not Test Failed This Key On (except if dropout suspect or detected.)		2.25 seconds	A
		comparing computed ratio to the commanded ratio.	THEN accumulated event timer is  Timer accumulates when transmission is in forward or reverse range	>= 0.75 second	Not Fault Pending with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			AND output speed gear slip	>= 100 RPM > 100 RPM	Not Fault Active with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			In response to pending failure, a diagnostic response range is commanded.			P0722 P0716 P0717		
			During this command, this test fails if Abs(Converter Slip) for	>= 250 RPM > 10 samples.		P07BF P07C0 P077C P077D		
					No Fault Pending DTC for this drive cycle.	P0717 P07BF		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
						P07C0		
					NOT Low Voltage Disable			
					No range switch response active			
					Hydraulic System Pressurized			
					Shift complete			
					Output speed	>= 200 RPM		
					No hydraulic default condition			
					present			
					Normal powertrain shutdown not in process			
					Normal powertrain initialization is			
					complete			
Reverse Incorrect Ratio	P0736	This test verifies	A	0	Net Test Felled This Key On Journal if	D0077	2 seconds	А
		transmission range while reverse range is			Not Test Failed This Key On (except if dropout suspect or detected.)			
		commanded by comparing computed	THEN accumulated event timer is IF main pressure dropout is detected					
		ratio to the commanded ratio.	THEN accumulated event timer is	>= 0.75 second	Not Fault Pending with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			Timer accumulates when transmission is					
			in forward or reverse range AND		Not Fault Active with cmd gear Rev_Logic1 and RPS/PRNDL conflict	P0877		
			output speed AND					
				> 100 RPM	Not Test Failed This Key On			
						P0722 P0716		
						P0717 P07BF		
						P07C0		
						P077C P077D		
					No Fault Pending DTC for this drive			
						P07BF P07C0		
					NOT Low Voltage Disable			
					No range switch response active			
					Hydraulic System Pressurized			
					Shift complete			
					Output speed	>= 200 RPM		
					No hydraulic default condition			

Component/System	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	Code	Description			present			
					Normal powertrain shutdown not in			
					process			
					Normal powertrain initialization is			
					complete			
Gear 6 Incorrect Ratio	P0729	This test verifies	Pending failure occurs when				2.25 seconds	A
Geal o Incorrect Natio	10129	transmission range	accumulated event timer	>= 2 second	Not Test Failed This Key On (except if	P0877	2.23 36001103	^
		while 6th range is	IF main pressure dropout is suspected	2 2 3000 NG	dropout suspect or detect)			
		commanded by	THEN accumulated event timer is	>= 1 second		. 65.6		
		comparing computed	IF main pressure dropout is detected	r = 1 0000110				
		ratio to the	THEN accumulated event timer is	>= 0.75 second	Not Fault Pending with cmd gear	P0877		
		commanded ratio.			Rev_Logic1 and RPS/PRNDL conflict			
			Timer accumulates when transmission is					
			in forward or reverse range					
			AND		Not Fault Active with cmd gear	P0877		
			output speed	>= 100 RPM	Rev_Logic1 and RPS/PRNDL conflict			
			AND					
				> 100 RPM	Not Test Failed This Key On	D0721		
			gear slip	> 100 KFWI	Not rest railed This Key Off	P0721		
			In response to pending failure, a			P0716		
			diagnostic response range is			P0717		
			commanded.			P07BF		
						P07C0		
			During this command, this test fails if			P077C		
			Abs(Converter Slip)	>= 250 RPM		P077D		
				> 10 samples.				
					No Fault Pending DTC for this drive	P0717		
						P07BF		
						P07C0		
					NOT Low Voltage Disable			
					No range switch response active			
					Hydraulic System Pressurized			
					Chift complete			
					Shift complete			
1					Output speed	>= 200 RPM		
					No hydraulic default condition			
					present			
					Normal powertrain shutdown not in			
					process			
					Normal powertrain initialization is			
					complete			
Torque Converter	<u> </u>	L	1		l .			
Torque Converter Torque Converter Clutch	P0741	This test detects the	T		1		15 seconds	В
Circuit Performance or	F0/41	torque converter	TCC Slin	>= 80 RPM	Not Test Failed This Key On	P2761	10 SECUTION	D
Stuck Off		being stuck off		>= 15 seconds.	1100 1000 I allow I I iis Ney OII	P2763		
0.00011		(unlocked).	ioi a time	z= 10 000011d3.		P2764		
						P0721		
						P0722		
1	•	•	•	•	•		•	1

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
					No Fault Pending DTCs for this drive cycle.	P0716 P0717 P077C P077D P078F P07C0  P2761 P2763 P2764 P0721 P0722 P0716 P0717 P077C P077D P077B P077C		
					Components powered AND Battery Voltage Engine Speed between	>= 9 V 200 RPM and 7500 RPM		
					for Must be in forward range	5 seconds		
					_	> 10 % and <= 90 %		
					Transmission fluid temperature	> 5 deg. C and < 130 deg. C		
					Time Since Range Change AND	>= 6 seconds		
					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) Set fault pending when throttle AND net engine torque Report malfunction when fault pending exists continuously		Not Test Failed This Key On	P2761	Case 1: 2 Seconds	A
				>= 2 seconds.		P077C P077D P07BF P07C0		
			Case 2: (High Acceleration condition)  Set fault pending when output shaft acceleration	>= 100 RPM/second			Case 2: 5 Seconds	

Component/System	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	Code	Description	- Indian ontona		occordary i diameters		o required	
	1		Report malfunction when fault pending			P0716		
			exists continuously	1		P0717		
				>= 5 seconds.		U0100		
			ioi a timo	2 333333.		P077C		
			l i	1		P077D		
			l i	1		P07BF		
			l i	1		P07C0		
			[	1		F0/C0		
			l i	1				
			O 0: (A!/D!/A!	<u> </u>	Components powered	l	0 0	
			Case 3: (Accel/Decel/Accel condition)	1	AND	0.1/	Case 3:	
			December 2	1	Battery Voltage	>= 9 V	4 Seconds	
			Report malfunction when output	1	F	000 DDM 17-00 DDM		
			acceleration event is followed by output	1	Engine Speed between	200 RPM and 7500 RPM		
			deceleration event and followed by	1		L .		
			another output acceleration event. An	1		5 seconds		
			output acceleration event occurs when	1	Engine speed not defaulted			
			output shaft acceleration	1	Must be in forward range	l		
			l i	>= 40 RPM/second				
			for a time	>= 4 seconds	TCC is commanded off			
			l i	1		l		
			l i	1	TCC Slip	>=-20 RPM and <= 20 RPM		
			An output deceleration event occurs	1				
			when output shaft acceleration is	1				
			l i	<=-40 RPM/second				
			for a time	>= 2.5 seconds.	% Throttle	>= 25%		
				1	Net Engine Torque			
			[	1		<= 3500 RPM		
			l i	1		<= 3500 RPM		
			1	1	Output speed		]	
1								
Pressure Switches								
Pressure Switches Transmission Control	P0701	This test detects	Case 1: Startup				15 seconds	A
	P0701	low main pressure	·				15 seconds	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate		Normal Initialization in process		15 seconds	A
	P0701	low main pressure	·		Normal Initialization in process transmission fluid temperature		15 seconds	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior		15 seconds	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded		15 seconds	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior		15 seconds	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)	> 25 deg C	15 seconds	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)		15 seconds	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)	> 25 deg C	15 seconds	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)	> 25 deg C > 500 rpm for 6 seconds	15 seconds	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)	> 25 deg C > 500 rpm for 6 seconds OR	15 seconds	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral) Engine Speed	> 25 deg C > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds	15 seconds	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)	> 25 deg C > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds	15 seconds	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate pressure		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral) Engine Speed	> 25 deg C > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds	15 seconds	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral) Engine Speed	> 25 deg C > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds	5 sec max	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate pressure		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)  Engine Speed  PRNDL is not Park or Neutral	> 25 deg C > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds > 4 seconds	5 sec max In Drive/ Rev w VIv	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate pressure  Case 2: Low Speed		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)  Engine Speed Engine Speed PRNDL is not Park or Neutral	> 25 deg C  > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds > 4 seconds  = TRUE (Boolean)	5 sec max In Drive/ Rev w VIv DO. If detect in	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate pressure  Case 2: Low Speed  Pressure switch dropout is		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)  Engine Speed Engine Speed PRNDL is not Park or Neutral  Loss of Prime Enable Hydraulic System Pressurized	> 25 deg C  > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds > 4 seconds  = TRUE (Boolean) = TRUE (Boolean)	5 sec max In Drive/ Rev w VIv	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate pressure  Case 2: Low Speed		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)  Engine Speed  PRNDL is not Park or Neutral  Loss of Prime Enable Hydraulic System Pressurized Engine Speed	> 25 deg C  > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds > 4 seconds  = TRUE (Boolean) = TRUE (Boolean) < 1600 rpm	5 sec max In Drive/ Rev w VIv DO. If detect in	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate pressure  Case 2: Low Speed  Pressure switch dropout is suspected if any below are true:	> 0.099609 sec	Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)  Engine Speed  PRNDL is not Park or Neutral  Loss of Prime Enable Hydraulic System Pressurized Engine Speed Turbine Speed	> 25 deg C  > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds  > 4 seconds  = TRUE (Boolean) = TRUE (Boolean) < 1600 rpm < 1600 rpm	5 sec max In Drive/ Rev w VIv DO. If detect in	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate pressure  Case 2: Low Speed  Pressure switch dropout is suspected if any below are true:  S1 logic valve integrity test pending		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)  Engine Speed Engine Speed PRNDL is not Park or Neutral  Loss of Prime Enable Hydraulic System Pressurized Engine Speed Turbine Speed Output Speed	> 25 deg C  > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds > 4 seconds  = TRUE (Boolean) = TRUE (Boolean) < 1600 rpm < 1600 rpm < 750 rpm	5 sec max In Drive/ Rev w VIv DO. If detect in	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate pressure  Case 2: Low Speed  Pressure switch dropout is suspected if any below are true:  S1 logic valve integrity test pending AND S1 valve is NOT stroked for a		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)  Engine Speed Engine Speed PRNDL is not Park or Neutral  Loss of Prime Enable Hydraulic System Pressurized Engine Speed Turbine Speed Output Speed Commanded Gear	> 25 deg C  > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds > 4 seconds  = TRUE (Boolean) = TRUE (Boolean) < 1600 rpm < 1600 rpm < 750 rpm Neutral, Reverse, First or	5 sec max In Drive/ Rev w VIv DO. If detect in	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate pressure  Case 2: Low Speed  Pressure switch dropout is suspected if any below are true:  S1 logic valve integrity test pending AND S1 valve is NOT stroked for a time (S1_VIv_DO = True)		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)  Engine Speed Engine Speed PRNDL is not Park or Neutral  Loss of Prime Enable Hydraulic System Pressurized Engine Speed Turbine Speed Output Speed Commanded Gear Park_Neu_Monitor_DO_Always	> 25 deg C  > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds > 4 seconds  = TRUE (Boolean) = TRUE (Boolean) < 1600 rpm < 1600 rpm < 750 rpm Neutral, Reverse, First or = TRUE (Boolean)	5 sec max In Drive/ Rev w VIv DO. If detect in	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate pressure  Case 2: Low Speed  Pressure switch dropout is suspected if any below are true:  S1 logic valve integrity test pending AND S1 valve is NOT stroked for a time (S1_VIv_D0 = True) OR		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)  Engine Speed Engine Speed PRNDL is not Park or Neutral  Loss of Prime Enable Hydraulic System Pressurized Engine Speed Turbine Speed Output Speed Commanded Gear Park_Neu_Monitor_DO_Always	> 25 deg C  > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds  > 4 seconds  = TRUE (Boolean) = TRUE (Boolean) < 1600 rpm < 1600 rpm < 750 rpm Neutral, Reverse, First or = TRUE (Boolean) = TRUE (Boolean) = TRUE (Boolean)	5 sec max In Drive/ Rev w VIv DO. If detect in	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate pressure  Case 2: Low Speed  Pressure switch dropout is suspected if any below are true:  S1 logic valve integrity test pending AND S1 valve is NOT stroked for a time (S1_VIv_DO = True) OR S1 logic valve timeout test pending		Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)  Engine Speed Engine Speed PRNDL is not Park or Neutral  Loss of Prime Enable Hydraulic System Pressurized Engine Speed Turbine Speed Output Speed Commanded Gear Park_Neu_Monitor_DO_Always	> 25 deg C  > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds  > 4 seconds  = TRUE (Boolean) = TRUE (Boolean) < 1600 rpm < 1600 rpm < 750 rpm Neutral, Reverse, First or = TRUE (Boolean) = TRUE (Boolean) = TRUE (Boolean)	5 sec max In Drive/ Rev w VIv DO. If detect in	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate pressure  Case 2: Low Speed  Pressure switch dropout is suspected if any below are true:  S1 logic valve integrity test pending AND S1 valve is NOT stroked for a time (S1_VIv_DO = True) OR S1 logic valve timeout test pending AND S1 valve is NOT stroked for a	> 4.0 sec	Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)  Engine Speed Engine Speed PRNDL is not Park or Neutral  Loss of Prime Enable Hydraulic System Pressurized Engine Speed Turbine Speed Output Speed Commanded Gear Park_Neu_Monitor_DO_Always	> 25 deg C  > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds  > 4 seconds  = TRUE (Boolean) = TRUE (Boolean) < 1600 rpm < 1600 rpm < 750 rpm Neutral, Reverse, First or = TRUE (Boolean) = TRUE (Boolean) = TRUE (Boolean)	5 sec max In Drive/ Rev w VIv DO. If detect in	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate pressure  Case 2: Low Speed  Pressure switch dropout is suspected if any below are true:  S1 logic valve integrity test pending AND S1 valve is NOT stroked for a time (S1_VIv_DO = True) OR S1 logic valve timeout test pending AND S1 valve is NOT stroked for a time (S1_VIv_DO = True)	> 4.0 sec	Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)  Engine Speed Engine Speed PRNDL is not Park or Neutral  Loss of Prime Enable Hydraulic System Pressurized Engine Speed Turbine Speed Output Speed Commanded Gear Park_Neu_Monitor_DO_Always	> 25 deg C  > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds  > 4 seconds  = TRUE (Boolean) = TRUE (Boolean) < 1600 rpm < 1600 rpm < 750 rpm Neutral, Reverse, First or = TRUE (Boolean) = TRUE (Boolean) = TRUE (Boolean)	5 sec max In Drive/ Rev w VIv DO. If detect in	A
	P0701	low main pressure at start up and low	All pressure switches do not indicate pressure  Case 2: Low Speed  Pressure switch dropout is suspected if any below are true:  S1 logic valve integrity test pending AND S1 valve is NOT stroked for a time (S1_VIv_DO = True) OR S1 logic valve timeout test pending AND S1 valve is NOT stroked for a	> 4.0 sec	Normal Initialization in process transmission fluid temperature NOT (Abnormal Powerdown prior to Initialization AND Commanded Gear NOT low speed neutral)  Engine Speed Engine Speed PRNDL is not Park or Neutral  Loss of Prime Enable Hydraulic System Pressurized Engine Speed Turbine Speed Output Speed Commanded Gear Park_Neu_Monitor_DO_Always	> 25 deg C  > 500 rpm for 6 seconds OR > 400 rpm for 15 seconds  > 4 seconds  = TRUE (Boolean) = TRUE (Boolean) < 1600 rpm < 1600 rpm < 750 rpm Neutral, Reverse, First or = TRUE (Boolean) = TRUE (Boolean) = TRUE (Boolean)	5 sec max In Drive/ Rev w VIv DO. If detect in	A

Component/System	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	Code	Description						
			AND S2 valve is NOT stroked for a					
	1		time (S2_VIv_DO = True)					
			OR	40				
			S2 logic valve timeout test pending AND S1 valve is NOT stroked for a	> 4.0 sec				
			time (S2_VIv_TO_DO = True)					
			OR					
			S3 logic valve integrity test pending	> 0.099609 sec				
			AND S3 valve is NOT stroked for a					
			time (S3_VIv_DO = True)					
			OR					
			S3 logic valve timeout test pending AND S3 valve is NOT stroked for a	> 4.0 sec				
			time (S3_VIv_TO_DO = True)					
			OR					
			RPS state is NOT REVERSE and	> 0.099609 sec				
			PRNDL indicates a valid REVERSE					
			for a time (RPS_DO = True)					
			B					
			Report fail (If sny below True):					
	1		Commanded Gear N5N or N0N:					
			S1_VIv_Dropout_from_1_N and	= TRUF (Boolean)				
			(S2_VIv_DO or S3_VIv_DO or	(200:00:)				
			OR					
			S1_VIv_DO and ( S2_VIv_DO or	= TRUE (Boolean)				
			S3 VIv DO or RPS DO) OR					
			S2_VIv_DO and (S1_VIv_DO or	= TRUE (Boolean)				
			S3 VIv DO or RPS DO)					
			OR S3_VIv_DO and (S1_VIv_DO or	- TRUE (Boolean)				
			S2 VIV DO or RPS DO)	- TROE (Boolean)				
			OR					
			RPS_DO and (S1_VIv_DO or	= TRUE (Boolean)				
			S2 VIV DO or RPS DO ) OR					
			S1_VIv_TO_DO and S2_VIv_TO_DO	= TRUE (Boolean)				
			or S3 VIv TO DO or RPS DO					
			OR					
	1		S2_VIv_TO_DO and (S1_VIv_TO_DO	= TRUE (Boolean)				
			or S3 VIv TO DO or RPS DO) OR					
			S3_VIv_TO_DO and (S1_VIv_TO_DO	- TRUE (Roolean)				
	1		or S2 VIv TO DO or RPS DO)	- INUE (BUUIEAII)				
	1		OR					
			RPS_DO and (S1_VIv_TO_DO or	= TRUE (Boolean)				
			S2_VIv_TO_DO or S3_VIv_TO_DO)					
			OR					
	1		Commanded Gear 1_N:	- TRUE (Paoloon)				
			S1_VIv_DO and (S2_VIv_DO or S3_VIv_DO or RPS_DO)	= INUE (BOOIean)				
	1		OR					
			S2_VIv_DO and (S1_VIv_DO or	= TRUE (Boolean)				
	1		S3_VIv_DO or RPS_DO)					
	1		OR					
			S3_VIv_DO and (S1_VIv_DO or	= TRUE (Boolean)				
			S2_VIv_DO or RPS_DO)	400				
	1		Turbine Speed Output Speed					
			Output Speed	< out thill	1			1

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	3000	Description	Commanded Gear 1_1:					
			(S2_VIv_DO or S2_VIv_TO_DO)	= TRUE (Boolean)				
				= TRUE (Boolean)				
			Turbine Speed					
			Output Speed					
			OR					
			Commanded Gear 1_H:					
			S1_VIv_DO and (S2_VIv_DO or	= TRUF (Boolean)				
			RPS_DO)	(200:00)				
			OR OR					
			S2_VIv_DO and (S1_VIv_DO or	= TRUE (Boolean)				
			RPS DO)	(======,				
			OR OR					
			RPS_DO and (S1_VIv_DO or	= TRUF (Boolean)				
			S2 VIv DO)	- 11102 (200.00)				
			Turbine Speed	> 400 rpm				
			Output Speed					
			OR Suiput Speed	2 000 ipin				
			Commanded Gear R_N:					
			S1_VIv_DO and (S2_VIv_DO or	- TRUE (Boolean)				
			S3_VIv_DO	- TROE (Boolean)				
			OR					
			S2_VIv_DO and (S1_VIv_DO or	- TRUE (Boolean)				
			S3_VIV_DO and (S1_VIV_DO of	- TROE (Boolean)				
			OR					
			S3_VIv_DO and (S1_VIv_DO or	- TRUE (Paoleon)				
			S2_VIV_DO and (S1_VIV_DO of S2_VIV_DO)	= TRUE (Budleall)				
			Turbine Speed	> 400 rpm				
			Output Speed	< 600 rpm				
			OR					
			Commanded Gear R_Trim:					
			S2_VIv_DO and S3_VIv_DO					
			Turbine Speed					
			Output Speed	< 600 rpm				
			OR					
			Commanded Gear NLT:					
			Attained Gear is NLT for time					
				= TRUE (Boolean)				
			Turbine Speed			1		
	1	1	Output Speed	< 600 rpm	1	1	1	
			OR			1		
	1	1	Commanded Gear N03:		1	1	1	
			S1_VIv_DO and RPS_DO	= TRUE (Boolean)		1		
			OR			1		
			Commanded Gear R_H:			1		
			S1_VIv_DO and S2_VIv_DO			1		
	1	1	Turbine Speed		1	1	1	
	1	1	Output Speed	< 600 rpm	1	1	1	
			OR			1		
			Commanded Gear R_1:			1		
			\$2_VIv_DO	= TRUE (Boolean)		1		
			Turbine Speed	> 400 rpm		1		
			Output Speed	< 600 rpm		1		
			OR			1		
			Commanded Gear N51:			1		
	1	1	S2_VIv_DO and RPS_DO	= TRUE (Boolean)	1	1	1	
	1	1	OR SECTION OF THE PROPERTY OF	l ' '	1	1	1	
			Commanded Gear 2_1:			1		
		1	S2_VIv_DO and RPS_DO	= TRUF (Boolean)		1	1	

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
			Turbine Speed Output Speed					
				•				
			3. Loss of Cooler Line		Loss_of_Cooler_Line_Detect_Enbl	= TRUE (Boolean)	1.75 sec (with Ratio faults)	
			Loss of Cooler Line Dropout Status is			5		
			Suspected when any of following conditions are TRUE.		Seq_Diag_OvrRide_Mode OR	Rng_Verit_Grp		
					Seq_Diag_OvrRide_Mode	Rev_Press_Switch_Grp		
			SS1_Integ_Destr_AND			PS4_Ckt_Low		
			SS1_Integ_Destr AND (SS2_Integ_Destr OR		OR	= TRUE (Boolean)		
			SS3_Integ_Destr OR		Monitor_Loss_Cooler_Line_Logic_	- INOL (Boolean)		
			SS2_Timeout_Failed_Stroking OR SS3_Timeout_Failed_Stroking OR	= TRUF (Boolean)	Valve_Timeout_Diag OR			
			RPS Exh Pending OR	= IRUE (Boolean)		= TRUE (Boolean)		
			RPS_Exh_Failed OR (Pending_RVT	= TRUE (Boolean)	Monitor_Loss_Cooler_Line_Logic_ Valve_Integrity_Diag			
			AND (CNT_SS1_Integ_Dstrk >= thresh) OR (CNT_Pending_RVT >=	= TRUE (Boolean)				
			thresh)	>= 2 counts				
				>= 2 counts				
			OR					
			SS2_Integ_Destr AND	= TRUE (Boolean)				
			(SS1_Integ_Destr OR SS3_Integ_Destr OR	, ,				
			SS1_Timeout_Failed_Stroking OR SS3_Timeout_Failed_Stroking OR	= TRUE (Boolean)				
			RPS_Exh_Pending OR RPS_Exh_Failed)	= TRUE (Boolean)				
				= TRUE (Boolean)				
			OR					
			SS3_Integ_Destr AND	= TRUE (Boolean)				
			(SS1_Integ_Destr OR SS2_Integ_Destr OR					
			SS1 Timeout Failed Stroking OR	= TRUE (Boolean)				
			SS2_Timeout_Failed_Stroking OR	= TRUE (Boolean)				
			RPS_Exh_Pending OR RPS_Exh_Failed)	= TRUE (Boolean)				
			OR					
				= TRUE (Boolean)				
			(SS2_Integ_Destr OR SS3_Integ_Destr OR	= TRUE (Boolean) = TRUE (Boolean)				
			SS2_Timeout_Failed_Stroking OR	= TRUE (Boolean)				
			SS3_Timeout_Failed_Stroking OR RPS_Exh_Pending OR	= TRUE (Boolean)				
			RPS_Exh_Failed)	= TRUE (Boolean)				
			OR ,					
				= TRUE (Boolean)				
			(SS1_Integ_Destr OR					
			SS3_Integ_Destr OR SS1_Timeout_Failed_Stroking OR	= TRUE (Boolean)				
			SS3_Timeout_Failed_Stroking OR	=TRUE (Boolean)				
			RPS_Exh_Pending OR RPS Exh Failed)					
				, ,				
			OR	- TRUE (Poology)				
				= TRUE (Boolean)				

Component/System	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	Code	Description	(004.14	TDUE (Daalaas)	<del> </del>			
			(SS1_Integ_Destr OR					
			SS2_Integ_Destr OR					
			SS1_Timeout_Failed_Stroking OR					
			SS2_Timeout_Failed_Stroking OR					
			RPS_Exh_Pending OR					
			RPS_Exh_Failed )	= TRUE (Boolean)				
			OR					
			RVT_DFG AND	= TRUE (Boolean)				
			(RPS_Exh_Pending OR					
			RPS_Exh_Failed OR SS1_Integ_Destr					
			OR SS2_Integ_Destr OR					
			SS3_Integ_Destr OR					
			SS1_Timeout_Failed_Stroking OR					
			SS2_Timeout_Failed_Stroking OR					
			SS3_Timeout_Failed_Stroking)					
				= TRUE (Boolean)				
		1	lon.					
			OR	TRUE (Basilean)				
		1	RPS_Exh_Failed AND	= TRUE (Boolean)				
			(SS1_Integ_Destr OR					
			SS2_Integ_Destr OR SS3_Integ_Destr					
			OR SS1_Timeout_Failed_Stroking OR					
			SS2_Timeout_Failed_Stroking OR					
			SS3_Timeout_Failed_Stroking)					
				= TRUE (Boolean)				
			Language Carolina Disamont Status mana					
			Loss of Cooler Line Dropout Status goes from Suspected to Detected when the					
			following conditions are TRUE.					
			DVT (as I as a of Oasles I les AND					
			RVT_for_Loss_of_Cooler_Line AND					
			(Diag_OvrRide_Mode = Logic_VIv_Int_Grp AND (Seq_Diag_OvrRideType ==					
			S1_Int_Failed_Destroked OR					
			S2_Int_Failed_Destroked OR					
			S3_Int_Failed_Destroked))					
			OR					
		1	(Diag_OvrRide_Mode =					
		1	Logic_VIv_TO_Grp)					
		1	OR					
			(Seq_Diag_OvrRide_Mode = Rev_Press_Switch_Grp)					
		1	OR					
		1	(Seq_Diag_OvrRide_Mode = Rng_Verif_Grp) AND (((Seq_Diag_OvrRide_Type = 1st) AND					
		1	TFTKO(1st)) OR ((Seq_Diag_OvrRide_Type = 1st) AND					
			2nd) AND TFTKO(2nd)) OR					
		1	((Seq_Diag_OvrRide_Type = 3rd) AND					
		1	TFTKO(3rd)) OR ((Seq_Diag_OvrRide_Type =					
			4rth) AND TFTKO(4rth)) OR					
		1	((Seq_Diag_OvrRide_Type = 5th) AND TFTKO(5th)) OR ((Seq_Diag_OvrRide_Type =					
		1	6th) AND TFTKO(6th)) OR					
			((Seq_Diag_OvrRide_Type = Rvrs) AND					
		1	TFTKO(Rvrs)))					
		1						
		1						
		1						
				l e e e e e e e e e e e e e e e e e e e	•		1	

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
Pressure Switch Solenoid 1 Circuit Low	Circuit Low the VI P	This test compares the commanded valve position to the PS1 pressure switch feedback. (part of S1 valve integrity test)	In response to the pending failure, S1	> 0.08 seconds	S1 valve is destroked  NOT Cold initialization unless transmission fluid temperature  NOT Low Voltage Disable  NOT Shutdown with Active Diag	> -25 deg. C	80 ms	A
		valve is retried by triggering S1 valve command to stroked and back to destroked. If PS1 pressure switch continues to indicate stroked, then one of three malfunction cases exists:		Hydraulic System Pressurized NOT Hydraulic Default Cmd				
	For Case 1 (electrical malfunction),  SS1 Circuit Low reports failure, also.  For Case 2 (mechanical malfunction),	P0973						
		Shift Solenoid 1 (SS1) Valve Performance – Stuck On reports failure, also. For Case 3 (intermittent malfunction),	P0752					
			SS1 valve retry attempted AND PS1 pressure switch continues to indicate stroked.	15 times				
Shift Solenoid 1 (SS1) Valve Performance – Stuck Off	P0751	This test compares the change of state of the valve command to the change of state of the PS1 pressure switch feedback. (part of the S1 valve timeout test)	S1 valve is commanded from destroked to stroked and the PS1 pressure switch indication remains destroked for a time  WITH transmission fluid temperature  (Time increases as temperature decreases with maximum time at transmission fluid temperature)	12 seconds	S1 valve commanded from destroked  NOT Low Voltage Disable  NOT Shutdown with Active Diag  Hydraulic System Pressurized  NOT Hydraulic Default Cmd		5 seconds	A
Shift Solenoid 1 (SS1) Valve Performance – Stuck On	P0752	This test compares the change of state of the valve command to the change of state of the PS1 pressure switch feedback. (part of the S1 valve timeout test).	destroked and the PS1 pressure switch indication remains stroked for a time	> 6.2 seconds >= 0 deg. C.  10 seconds	S1 valve commanded from stroked to destroked  NOT Low Voltage Disable  NOT Shutdown with Active Diag  Hydraulic System Pressurized  NOT Hydraulic Default Cmd		6.6 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
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)		> 0.07 seconds 5 seconds	S1 valve is stroked  NOT Cold initialization unless transmission fluid temperature  NOT Low Voltage Disable  NOT Shutdown with Active Diag  Hydraulic System Pressurized  NOT Hydraulic Default Cmd	> -25 deg. C	70 ms	A
			For Case 1 (electrical malfunction),  SS1 Control Circuit Low reports failure, also.  For Case 2 (mechanical malfunction),  Shift Solenoid 1 (SS1) Valve Performance – Stuck Off reports failure, also.  For Case 3 (intermittent malfunction),  S1 valve retry attempted AND PS1 pressure switch continues to indicate destroked.	P0973 P0751 15 times				
Pressure Switch Solenoid 2 Circuit Low	P0847	This test compares the commanded valve position to the PS2 pressure switch feedback (part of the S2 valve integrity test).	Pending failure occurs when PS2 pressure switch indicates stroked for a time  IF a main pressure dropout is suspected then time limit increases to  In response to the pending failure, S2 valve is retried by triggering S2 valve command to stroked and back to destroked. If PS2 pressure switch continues to indicate stroked, then one of three malfunction cases exists.  For Case 1 (electrical malfunction),  SS2 Control Circuit Low reports failure, also.  For Case 2 (mechanical malfunction),	> 0.04004 seconds 0.2998 seconds	S2 valve is destroked  NOT Cold initialization unless transmission fluid temperature  NOT Low Voltage Disable  NOT Shutdown with Active Diag  Hydraulic System Pressurized  NOT Hydraulic Default Cmd	> -25 deg. C	40 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
			Shift Solenoid 2 Valve Performance – Stuck On reports failure, also.	P0757				
			For Case 3 (intermittent malfunction),					
			S2 valve retry attempted AND	2 times				
			PS2 pressure switch continues to indicate stroked.					
Shift Solenoid 2 Valve Performance – Stuck Off	P0756	This test compares the change of state of	If the S2 valve is commanded from destroked to stroked and the PS2		S2 valve commanded from destroked to stroked.		5 seconds	A
		the valve command to the change of state of the PS2 pressure	pressure switch indication remains destroked for a time WITH	>= 5 seconds	NOT Low Voltage Disable			
		switch feedback (part of the S2 valve	transmission fluid temperature	>= 0 deg. C.	NOT Shutdown with Active Diag			
		timeout test).	(Time increases as temperature decreases with maximum time		Hydraulic System Pressurized			
			at transmission fluid temperature)	<= -40 deg. C.	NOT Hydraulic Default Cmd			
Shift Solenoid 2 Valve Performance – Stuck On	P0757	This test compares the commanded valve position to the	S2 valve commanded from stroked to destroked and the PS2 pressure switch does not indicate destroked for a time		S2 valve commanded from stroked to destroked		6.5 sec	А
		PS2 pressure switch feedback (part of the S2 valve timeout test).	WITH transmission fluid temperature	>= 6.5 seconds >= 0 deg. C.	NOT Low Voltage Disable  NOT Shutdown with Active Diag			
		iesij.	(Time increases as temperature decreases with maximum time		Hydraulic System Pressurized			
			at transmission fluid temperature)	<= -40 deg. C.	NOT Hydraulic Default Cmd			
Pressure Switch Solenoid 2 Circuit High	P0848	This test compares the commanded valve position to the PS2 pressure switch	Pending failure occurs when PS2 pressure switch indicates destroked for a time	> 0.30 seconds	S2 valve is stroked		300 ms	А
		feedback (part of the S2 valve integrity test).	IF a main pressure dropout is suspected, THEN time limit increases to	5 seconds	transmission fluid temperature  NOT Low Voltage Disable	> -25 deg. C		
			In response to the pending failure, S2		NOT Shutdown with Active Diag			
			valve is retried by triggering S2 valve command to destroked and back to stroked. If PS2 pressure switch		Hydraulic System Pressurized			
			continues to indicate destroked, then one of three malfunction cases exists.		NOT Hydraulic Default Cmd			
			For Case 1 (electrical malfunction),					
			SS2 Control Circuit Low reports failure, also.	P0976				
			For Case 2 (mechanical malfunction),					
I			Shift Solenoid 2 Valve Performance –	P0756				

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	Code	pescripuoli	Stuck Off reports failure, also.  For Case 3 (intermittent malfunction),  \$2 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  In response to the pending failure, S3 valve is retried by triggering S3 valve command to stroked and back to destroked. If PS3 pressure switch continues to indicate stroked, then one of three malfunction cases exists.  For Case 1 (electrical malfunction),  SS3 Control Circuit Low reports failure, also.  For Case 2 (mechanical malfunction),  Shift Solenoid 3 Valve Performance — Stuck On reports failure, also.  For Case 3 (intermittent malfunction),  S3 valve retry attempted AND  PS3 pressure switch continues to indicate stroked.	P0979 P0762 2 times	S3 valve is destroked  NOT Cold initialization unless transmission fluid temperature  NOT Low Voltage Disable  NOT Shutdown with Active Diag  Hydraulic System Pressurized  NOT Hydraulic Default Cmd	> -25 deg. C	20 ms	A
Shift Solenoid 3 Valve Performance – Stuck Off	P0761	This test compares the change of state of the valve command to the change of state of the PS3 pressure switch feedback. (part of the S3 valve timeout test)	pressure switch indication remains	12 seconds	S3 valve commanded from destroked to stroked.  NOT Low Voltage Disable  NOT Shutdown with Active Diag  Hydraulic System Pressurized  NOT Hydraulic Default Cmd		5 seconds	A
Shift Solenoid 3 Valve Performance – Stuck On	P0762	This test compares the commanded valve position to the PS3 pressure switch feedback (part of the	S3 valve commanded from stroked to destroked and the PS3 pressure switch does not indicate destroked for a time WITH	> 6.5 seconds	S3 valve commanded from stroked to NOT Low Voltage Disable		6.6 seconds	А

Component/System	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	Code	Description			,			
		S3 valve timeout test).	transmission fluid temperature	>= 0 deg. C.	NOT Shutdown with Active Diag			
			(Time increases as temperature decreases with maximum time		Hydraulic System Pressurized			
			decreases with maximum time		NOT Hydraulic Default Cmd			
			transmission fluid temperature)	>= -40 deg C	NOT Trydraulic Delault Cilid			
			transmission had temperature)	2= 40 dog. 0.				
Pressure Switch Solenoid	P0873	This test compares	Pending failure occurs when PS3		<u> </u>		300 ms	A
3 Circuit High		the commanded	pressure switch indicates destroked for a		S3 valve is stroked			
		valve position to the	time	> 0.30 seconds				
		pressure switch PS3			NOT Cold initialization unless			
		feedback. (part of S3			transmission fluid temperature	> -25 deg. C		
		valve integrity test)	THEN time limit increases to	5 seconds				
					NOT Low Voltage Disable			
			In response to the pending failure, S3 valve is retried by triggering S3 valve		NOT Shutdown with Active Diag			
			command to destroked and back to		Hydraulic System Pressurized			
			stroked. If PS3 pressure switch		Hydraulic System Pressurized			
			continues to indicate destroked, then		NOT Hydraulic Default Cmd			
			one of the three malfunction cases		NOT Trydraulic Beladit Office			
			exists.					
			For Case 1 (electrical malfunction),					
			SS3 Control Circuit Low reports	P0979				
			failure, also.					
			For Case 2 (mechanical malfunction),					
			01.76.0 1 11.01/1 5 /	D0704				
			Shift Solenoid 3 Valve Performance –	P0761				
			Stuck Off reports failure, also.					
			For Case 3 (intermittent malfunction),					
			Tor Gade o (intermittent manufaction),					
			S3 valve retry attempted	2 times				
			AND					
			PS3 pressure switch continues to					
			indicate destroked.					
	<u> </u>						<u> </u>	
Pressure Switch	P0877	This test detects	Coop 1, (Forward re)		All Cases	D0077	5 seconds	Α
Reverse Circuit Low		Reverse Pressure Switch closed	Case 1: (Forward range)	100 comples	Not Test Failed This Key On	P0877 P0878		
		indication by	For a sample size (if dropout suspected, NLT or N02			P0708		
		comparing the	cmded, use sample size)			1 07 00		
		Reverse Pressure	omaca, acc campic size)	200 samples	No Fault Pending DTCs for this drive	P0708		
		Switch state to the	PRNDL is P, D1, D2, D3, D4, D5, D6,		cycle			
		PRNDL switch state.	T8, or T4		]			
			AND		Engine had been cranking or			
					running this drive cycle			
			RPS indicates Reverse		Components powered AND			
				>= 1 seconds	Ignition Voltage between	9 V and 18 V		
			(if dropout suspected, NLT	1		L		
			or N02 cmded, use time)	30 seconds	Engine Speed between	200 RPM and 7500 RPM		
			Occasion (Demonstrate Comp.)			5		
			Case 2: (Range indefinite)	20 comples	for	5 seconds		
	1		For a sample size, net engine torque		Transmission Fluid Temperature	>= 0 dog C		
1	1	1	net engine torque	100 MIII	Transmission Fluid Temperature	/- 0 ueg. 0	I	I

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
			AND PRNDL is indefinitely D3 or another forward range for a time	> 1 second	Hydraulic System Pressurized Reverse Pressure Switch State indicates REVERSE			
Pressure Switch Reverse Circuit High	P0878	This test detects the Reverse Pressure switch being stuck in the open position by comparing to the PRNDL switch state and detects the Reverse Pressure switch stuck open at shutdown.	All Cases		Not Test Failed This Key On  No Fault Pending DTC for this drive cycle.  No range switch response active	P0878 P0708		А
			AND Engine Torque	>= 0.5 second	NOT Fault Active Ignition Voltage between First Range Commanded Shift Complete Output Speed	9 V and 18 V	1.5 seconds	
			at transmission fluid temperature during engine shutdown This time varies with transmission fluid at transmission fluid temperature	> 10 seconds 0 deg. C. 3 seconds > 35 deg. C 12 seconds	Power Mode is NOT Off Transmission Fluid Temperature Engine had been cranking or running this drive cycle Engine speed Turbine speed Output speed	< 50 RPM < 50 RPM	10 seconds	
On-coming/Off-going Pressure Control Solenoid 1 Controlled Clutch Stuck Off	P2723	This test determines if the on-coming clutch energized by Pressure Control Solenoid 1 engages during a forward range shift.	Pending failure occurs when accumulated event timer (For rough road conditions, use)  Timer accumulates when transmission is shifting, output speed AND commanded gear slip speed (For rough road conditions, use)  In response of pending failure, a diagnostic response range is commanded. During this command, this	2 seconds >= 60 RPM > 75 RPM 150 RPM.	Not Test Failed This Key On	P0722 P0716 P0717 P0877 P0878 P07BF P07C0 P077C	2.25 seconds	A

Component/System	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	Code	Description	test fails if ABS(Converter slip)		Turbine Speed	>= 60 RPM		
				>= 250 RPM	·			
			for sample size	> 10 samples	Hydraulic System Pressurized			
					Normal powertrain shutdown not in			
					process			
					Normal or Cold powertrain initialization			
					is complete			
					·			
					No range switch response active			
					No Cold Mode operation			
					No objective garage shift to 1st range			
					No abusive garage shift to 1st range detected			
					On-coming clutch control enabled			
					Power downshift abort to previous			
					range NOT active			
					NOT Low Voltage Disable			
					ŭ .			
Pressure Control Solenoid 2 Controlled	P0776	This test determines if the on-coming	Pending failure occurs when accumulated event timer	- 2 saconds	Not Test Failed This Key On	P0721	2.25 seconds	Α
Clutch Stuck Off		clutch energized by	(For rough road conditions, use)		·	P0722		
		Pressure Control				P0716		
		Solenoid 2 engages during a forward	Timer accumulates when transmission is shifting,			P0717 P0877		
		range shift.	output speed	>= 60 RPM		P0878		
			AND commanded gear slip speed			P07BF		
			(For rough road conditions, use)	> 75 RPM		P07C0 P077C		
			(1 of rough road conditions, use)	130 KI WI.		P077D		
			In response of pending failure, a					
			diagnostic response range is commanded. During this command, this		Output Speed Turbine Speed			
			test fails if ABS(Converter slip)		Taibile opeda	2 - 00 IXI W		
			,	>= 250 RPM	Hydraulic System Pressurized			
			for sample size	> 10 samples	Normal powertrain shutdown not in			
					process			
					Normal or Cold powertrain initialization is complete			
					·			
					No range switch response active			
					No Cold Mode operation			
					No abusive garage shift to 1st range			
					detected			
1 '	1	1		l	On-coming clutch control enabled			

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
					Power downshift abort to previous range NOT active  NOT Low Voltage Disable			
Pressure Control Solenoid 1 Controlled Clutch Stuck On	P2724	This test determines if the off-going clutch energized by Pressure Control solenoid 1 remains engaged during a forward range shift.	Accumulated fail timer for forward range upshift; OR accumulated fail timer for direction change shifts; OR accumulated fail timer for forward range closed throttle downshift; OR accumulated fail timer for forward downshifts above closed throttle.  Fail timer accumulates during range to range shifts when attained gear slip speed	>= 3.0 seconds >= 0.500 seconds	Output Speed Turbine Speed Normal powertrain shutdown not in process Normal or Cold powertrain initialization is complete No range switch response active No Cold Mode operation No abusive garage shift to 1st range detected NOT Low Voltage Disable	P0722 P0716 P0717 P0877 P0878 P07BF P07C0 P077C P077D >= 200 RPM >= 200 RPM	3 seconds	A
Pressure Control Solenoid 2 Controlled Clutch Stuck On	P0777	This test determines if the off-going clutch energized by Pressure Control solenoid 2 remains engaged during a forward range shift.	Accumulated fail timer for forward range upshift; OR accumulated fail timer for direction change shifts; OR accumulated fail timer for forward range closed throttle downshift; OR accumulated fail timer for forward downshifts above closed throttle.  Fail timer accumulates during range to range shifts when attained gear slip speed	>= 3.0 seconds	Not Test Failed This Key On  Output Speed Turbine Speed Normal powertrain shutdown not in process Normal or Cold powertrain initialization is complete No range switch response active	P0722 P0716 P0717 P0877 P0878 P07BF P07C0 P077C P077D >= 200 RPM >= 200 RPM	3 seconds	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Enable Conditions	Time Required	MIL IIIum
					No Cold Mode operation			
					No abusive garage shift to 1st range			
					detected			
					40.00.00			
					NOT Low Voltage Disable			
PRNDL/IMS					1			
Transmission Range	P0708	This test monitors the						A
Sensor High Input		transmission range	For Case 1 (No Information):		Components powered		Case 1:	
		switch for invalid input	Illegal electrical state for a time	>= 1 second	AND	0.1/	1 second	
		conditions and parity errors occurring over	For Case 2 (Long-term Parity):		Battery Voltage	>= 9 V	Case 2:	
		consecutive ignition	There are 3 counters for long-term		Engine Speed between	200 RPM and 7500 RPM	5 <sup>th</sup> occurrence	
		cycles.	parity. These counters are updated at					
			the end of each drive cycle, immediately		for	5 seconds		
			prior to TCM shutdown.					
	1							
			For Counter 1, increment counter IF					
	1		Parity Error Detected; decrement					
			counter IF No Parity Error Detected AND No Motion Detected.					
			No Motion Detected.					
				>= 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.					
	1							
	1		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					
	1		Motion Detected. Decrement Counter 3					
			IF No Parity Error Detected AND Valid Reverse Detected AND Motion					
			Detected.					
				_				
			IF Counter 3, THEN report failure.	>= 5 counts				
	1		THEN report failure.					
			Where					
	1		Parity Error Detected is defined as a					
	1		failure of the 4-bit PRNDL input such that					
	1		the sum of those bits yields an odd result					
	1	I	for a time;	ſ			1	I

Component/System	Fault		Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	Code	Description						
			Motion Detected is defined as output speed	>= 200 RPM				
			for a time;	>= 10 seconds				
I			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	>= 0.2 seconds				
			and output speed;					
			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 and output speed OR for a time.					
Transmission Range Sensor Circuit Range/Performance	P0706	This test monitors the transmission range switch inputs at engine start to	For sample size, PRNDL C input is closed OR PRNDL P is NOT closed.	> 7 samples	Not Test Failed This Key On	P0706	200 ms	В
		determine that it is indicating a valid	is NOT closed.		Ignition voltage between	9V and 18 V		
		starting position (Park or Neutral).			Powertrain State is READY or CRANKING			
					Engine speed	> 100 RPM and < 350 RPM.		
1								

Component/System	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	Code	Description					·	
Main Modulation/Line		This test detects		A ground short condition shall be			125 ms	А
Pressure Control	1 1	solenoid electrical	occurrence of hardware ground or open		l I			1
Solenoid Control Circuit		open circuit		Controller external connection has an	ļ i		1	
Open	1 1	malfunctions.		impedance <= 0.01 ohm to a voltage	1		į i	
	1 1	¶ i		source within the Vehicle Ground	l I			1
	1	l i		Voltage Range relative to PWRGND.			l i	
	۱ ۱	1		The interface shall detect a ground short condition when the driver is Off.	1	1	1	
	۱ ۱	l i		There is 10 usec fault filter. The fault	1		į i	
	1 1	¶ i		is checked for every 6.25 ms by	l I		į i	1
	1 1	¶ i		application software. An open circuit	l I		į i	1
	1 1	¶ i		condition shall be detected if the circuit	l I			
	1 1	¶ i		attached to the Controller external	l I			
	1 1	¶ i		connection has an impedance >= 173	1		į i	
	1 1	¶ i		kohm and shall not be detected if the	1		į i	
	1 1	¶ i		circuit impedance is <= 9.6 k ohm. The	l I			
	1 1	¶ i		interface shall detect an open circuit	1		į i	
	1 1	ļ i		condition when the driver is Off. There	l i			1
	1 1	¶ i		is 10 usec fault filter. The fault is	l I		į i	1
	1 1	¶ i		checked for every 6.25 ms by application software.	l I			
	1 1	ļ i	Į l	appiloation Sultware.	l i			1
	1 1	l i	Į i	'	l I		1	
	1 1	¶ i	Į i	'	Not Test Failed This Key On	P2669	į i	1
	1 1	¶ i	Į l	'	1	P2670	į i	
	1 1	¶ i	IF either hardware faults are present for		1	P2671	į i	
	1 1	ļ i		>= 3 counts	l i			
	1 1	¶ i	THEN initiate intrusive test by opening low side driver	'	l I		į i	
	1 1	¶ i	iow side driver	'	Components powered		į i	
	1 1	¶ i	IF intrusive test indicates open for	>= 2 counts	AND		į i	
	1 1	¶ i	THEN report malfunction	/- 2 COUITIO	Battery Voltage	>= 9 V	į i	
	1 1	l i	TTIETA TEPOTE MAIIUNCION	'	Ballery Vollage		1	
	1 1	¶ i	Į i	'	l I		į i	
	1 1	¶ i	Į l	'	If Engine Cranking, then		į i	
	1 1	ļ i	Į l	'	Crank Time	< 4 seconds		
	1 1	l i	Į i	'	AND		1	
	1 1	ļ i	Į i	'	Battery Voltage	> 10 V		
	1 1	ļ i	Į i	'	<u>.</u>	- 20 DDM		
	1 1	ļ i	Į i	'	Engine speed	>= 20 KPM		
	1 1	¶ i	Į i	'	High Side Driver 2 Enabled		į i	1
	1 1	¶ i	Į i	'	Flight Side Driver 2 Enabled		1	
Main Modulation/Line	P0961	This test detects the	<del>                                     </del>	·	1		1000 ms	A
Pressure Control		performance of the	Į i	'	Not Test Failed This Key On	P2669		1
Solenoid Control Circuit		solenoid by	IE dolto/docinad aureant	> - 0.5 amps	. tot 100t I allou II lis Ney OII	. 2000	į i	1
Performance		comparing desired	IF delta(desired current - actual current)	*	l I	P2670	į i	1
		current to actual duty		>= 40 counts	l I		į i	1
		cycle	For a sample size	< 80 samples	l I	P2671	į i	1
	1 1	¶ i	Į i	'	l I	P0960	į i	1
	1 1	¶ i	THEN report malfunction	'	l I	P0961	į i	1
1	1 1	¶ i	Į i	'	l I	P0962	į i	1
	1 1	ļ i	Į i	'	No Foult Don-thra DTC ( ) 11	DOGGO		
	1 1	l i	Į i	'	No Fault Pending DTC for this drive		1	
	1 1	¶ i	Į i	'	cycle.	P0962	į i	
	1 1	¶ i	Į i	'	Components powered		į i	
	1 1	ļ i	Į l	'	Components powered AND			
	1 1	¶ i	Į i	'	Battery Voltage	>= 9 V	į i	
1	1 1	¶ i	Į i	'	Zanory vonage	-	į i	1
ı ı	1		1	'		· ·	ı ı	1

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
					AND	< 4 seconds		
					Battery Voltage			
					Engine speed	>= 20 RPM		
					High Side Driver 2 Enabled			
					Shift Complete			
					Lockup Apply Complete OR			
					Lockup Release Complete			
Main Modulation/Line Pressure Control Solenoid Control Circuit Low	P0962	This test detects solenoid electrical ground circuit malfunctions.	Fault pending is set on a single occurrence of hardware ground or open fault.  IF either hardware faults are present for THEN initiate intrusive test by opening low side driver IF intrusive test indicates grnd for THEN report malfunction			P2670 P2671	125 ms	A
			·		If Engine Cranking, then Crank Time	< 4 seconds		
					AND Battery Voltage	> 10 V		
					Engine speed	>= 20 RPM		
					High Side Driver 2 Enabled			

Component/System	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	Code	Description					·	
Main Modulation/Line Pressure Control Solenoid Control Circuit High	P0963	This test detects solenoid electrical short to power circuit malfunctions.		A power short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 1.16 ohm to a voltage source within the Normal Operating Voltage Range or the High Operating Voltage Range. The interface shall detect a power short condition when the driver is On. There is 10 usec			75 ms	A
				fault filter. The fault is checked for every 6.25 ms by application software.  > = 3 counts	Not Test Failed This Key On	P2669 P2670 P2671		
					Components powered AND Battery Voltage If Engine Cranking, then	>= 9 V		
					Crank Time AND Battery Voltage Engine speed			
					High Side Driver 2 Enabled			
Pressure Control Solenoid 2 Control Circuit Open	P0964	This test detects solenoid electrical open circuit malfunctions.		A ground short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 0.01 ohm to a voltage source within the Vehicle Ground Voltage Range relative to PWRGND. The interface shall detect a ground short condition when the driver is Off. There is 10 usec fault filter. The fault is checked for every 6.25 ms by application software. An open circuit condition shall be detected if the circuit attached to the Controller external connection has an impedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There is 10 usec fault filter. The fault is checked for every 6.25 ms by application software.			125 ms	A
			Fault pending is set on a single occurrence of hardware ground or open fault.  IF either hardware faults are present for	>= 3 counts	Not Test Failed This Key On	P0657 P0658 P0659		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	Code	Description	THEN initiate intrusive test by opening low side driver IF intrusive test indicates open for THEN report malfunction		Components powered AND Battery Voltage If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 1 Enabled	>= 9 V < 4 seconds > 10 V >= 20 RPM		
Pressure Control Solenoid 2 Control Circuit Performance	P0965	This test detects the performance of the solenoid by comparing desired current to actual duty cycle	IF delta(desired current - actual current) FOR For a sample size THEN report malfunction	>= 10 counts	No Fault Pending DTC for this drive cycle. Components powered AND Battery Voltage If Engine Cranking, then	P0657 P0658 P0659 P0964 P0965 P0966 P0966 >= 9 V < 4 seconds > 10 V >= 20 RPM	250ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
Pressure Control Solenoid 2 Control Circuit Low	P0966	Description This test detects solenoid electrical ground circuit malfunctions.		A ground short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 0.01 ohm to a voltage source within the Vehicle Ground Voltage Range relative to PWRGND. The interface shall detect a ground short condition when the driver is Off. There is 10 usec fault filter. The fault is checked for every 6.25 ms by application software. An open circuit condition shall be detected if the circuit attached to the Controller external connection has an impedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There is 10 usec fault filter. The fault is checked for every 6.25 ms by			125 ms	A
			Fault pending is set on a single occurrence of hardware ground or open fault.  IF either hardware faults are present for THEN initiate intrusive test by opening low side driver  IF intrusive test indicates grnd for THEN report malfunction	>= 3 counts	Not Test Failed This Key On  Components powered AND Battery Voltage If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 1 Enabled	P0658 P0659 >= 9 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 fault present for	A power short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 1.16 ohm to a voltage source within the Normal Operating Voltage Range or the High Operating Voltage Range. The interface shall detect a power short condition when the driver is On. There is 10 usec fault filter. The fault is checked for every 6.25 ms by application software.	Not Test Failed This Key On	P0657 P0658 P0659 P0967	75 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
					Components powered AND Battery Voltage	>= 9 V		
						< 4 seconds		
					AND Battery Voltage	> 10 V		
					Engine speed	>= 20 RPM		
					High Side Driver 1 Enabled High Side Driver 1 Enabled			
Pressure Control Solenoid 1 Control Circuit Open	P2727	This test detects solenoid electrical open circuit malfunctions.	Fault pending is set on a single occurrence of hardware ground or open fault.  IF either hardware faults are present for THEN initiate intrusive test by opening low side driver IF intrusive test indicates open for THEN report malfunction			P2670 P2671 >= 9 V < 4 seconds > 10 V	125 ms	A
Pressure Control Solenoid 1 Control Circuit Performance	P2728	This test detects the performance of the solenoid by	IF delta(desired current - actual current) FOR	>= 10 counts	Not Test Failed This Key On	P2670	250 ms	A
		comparing desired current to actual duty cycle	For a sample size THEN report malfunction	< 20 samples		P2671 P2727 P2728		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	Jour	Description				P2729		
					No Fault Pending DTC for this drive	P2727		
					cycle.	P2729		
					Components powered			
					AND			
					Battery Voltage	>= 9 V		
					If Engine Cranking, then			
					Crank Time	< 4 seconds		
					AND			
					Battery Voltage	> 10 V		
					Engine speed	>= 20 RPM		
					High Side Driver 2 Enabled			
					Shift Complete			
					Lockup Apply Complete			
					OR			
					Lockup Release Complete			
Pressure Control Solenoid 1 Control Circuit	P2729	This test detects solenoid electrical		A ground short condition shall be detected if the circuit attached to the			125 ms	Α
Low	`	ground circuit		Controller external connection has an				
		malfunctions.		impedance <= 0.01 ohm to a voltage				
				source within the Vehicle Ground Voltage Range relative to PWRGND.				
				The interface shall detect a ground				
				short condition when the driver is Off.				
				There is 10 usec fault filter. The fault is checked for every 6.25 ms by				
				application software. An open circuit				
				condition shall be detected if the circuit				
				attached to the Controller external connection has an impedance >= 173				
				kohm and shall not be detected if the				
				circuit impedance is <= 9.6 k ohm. The				
				interface shall detect an open circuit condition when the driver is Off. There				
				is 10 usec fault filter. The fault is				
				checked for every 6.25 ms by				
				application software.				
					Not Toot Foiled This Key Or	Daceo		
			Fault pending is set on a single		Not Test Failed This Key On	P2669 P2670		
			occurrence of hardware ground or open			P2671		
			fault.  IF either hardware faults are present for	>= 3 counts	Components powered			
			THEN initiate intrusive test by opening	2 - 0 00uino	AND			
			low side driver		Battery Voltage	>= 9 V		
			IF intrusive test indicates grnd for THEN report malfunction	>= 2 counts	If Engine Cranking, then			
			The report mandiculon			< 4 seconds		
					AND			
	1	I			Battery Voltage	> 10 V		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
					Engine speed High Side Driver 2 Enabled	>= 20 RPM		
Pressure Control Solenoid 1 Control Circuit High	P2730	This test detects solenoid electrical short to power circuit malfunctions.		A power short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 1.16 ohm to a voltage source within the Normal Operating Voltage Range or the High Operating Voltage Range. The interface shall detect a power short condition when the driver is On. There is 10 usec fault filter. The fault is checked for every 6.25 ms by application software.			75 ms	А
			Short to power fault present for	> = 3 counts	Components powered AND Battery Voltage If Engine Cranking, then Crank Time AND Battery Voltage	P2670 P2671 P2730 >= 9 V < 4 seconds > 10 V		
					Engine speed High Side Driver 2 Enabled	>= 20 RPM		
Shift Solenoid 1 Control Circuit Low/Open	P0973	This test detects solenoid electrical ground and open circuit malfunctions.		A ground short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 0.42 ohm to a voltage source within the Vehicle Ground Voltage Range relative to PWRGND. The interface shall detect a ground short condition when the driver is Off. The nominal filter time to latch fault is 200 usec and the diagnostic threshold is 240 usec. An open circuit condition shall be detected if the circuit attached to the Controller external connection has an impedance >= 200 kohms and shall not be detected if the circuit impedance is <= 6 kohms. The interface shall detect an open circuit condition when the driver is Off. The nominal filter time to latch fault is 200 usec and the diagnostic threshold is 240 usec.			250 ms	A
			Fault pending is set on a single occurrence of hardware ground or open fault.		Not Test Failed This Key On	P0657 P0658 P0659		

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
			IF either hardware fault is present for THEN report malfunction	>= 10 counts	Components powered AND Battery Voltage If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 1 Enabled	< 4 seconds > 10 V		
Shift Solenoid 1 Control Circuit High	P0974	This test detects solenoid electrical short to power circuit malfunctions.		A power short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 0.39 ohm to a voltage source within the Normal Operating Voltage Range or the High Operating Voltage Range. The interface shall detect a power short condition when the driver is On. The nominal filter time to latch fault is 150 usec and the diagnostic threshold is 240 usec.  > = 3 counts	Not Test Failed This Key On  Components powered  AND  Battery Voltage  If Engine Cranking, then	P0657 P0658 P0659 P0974 >= 9 V < 4 seconds > 10 V	75 ms	A
					High Side Driver 1 Enabled			

Component/System	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
-	Code	Description			-			
Component/System Shift Solenoid 2 Control Circuit Low/Open				A ground short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 0.42 ohm to a voltage source within the Vehicle Ground Voltage Range relative to PWRGND. The interface shall detect a ground short condition when the driver is Off. The nominal filter time to latch fault is 200 usec and the diagnostic threshold is 240 usec. An open circuit condition shall be detected if the circuit attached to the Controller external connection has an impedance >= 200 kohms and shall not be detected if the circuit impedance is <= 6 kohms. The interface shall detect an open circuit condition when the driver is Off. The nominal filter time to latch fault is 200 usec and the diagnostic threshold is	Secondary Parameters	Enable Conditions	250 ms	A A
			Fault pending is set on a single occurrence of hardware ground IF either hardware fault is present for THEN report malfunction	240 usec.	Not Test Failed This Key On  Components powered AND Battery Voltage  If Engine Cranking, then Crank Time AND Battery Voltage Engine speed  High Side Driver 1 Enabled	P0658 P0659 >= 9 V < 4 seconds > 10 V		
Shift Solenoid 2 Control Circuit High	P0977	This test detects solenoid electrical short to power circuit malfunctions.	Short to power fault present for	A power short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 0.39 ohm to a voltage source within the Normal Operating Voltage Range or the High Operating Voltage Range. The interface shall detect a power short condition when the driver is On. The nominal filter time to latch fault is 150 usec and the diagnostic threshold is 240 usec.	Not Test Failed This Key On Components powered	P0658 P0659 P0977	75 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	-	, , , , , , , , , , , , , , , , , , ,			AND Battery Voltage			
					lf Engine Cranking, then Crank Time AND	< 4 seconds		
					Battery Voltage			
					Engine speed	>= 20 RPM		
					High Side Driver 1 Enabled			
Shift Solenoid 3 Control Circuit Low/Open	P0979	This test detects solenoid electrical ground or open circuit malfunctions.		A ground short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 0.22 ohm to a voltage source within the Vehicle Ground Voltage Range relative to PWRGND. The interface shall detect a ground short condition when the driver is Off. The nominal filter time to latch fault is 200 usec and the diagnostic threshold is 240 usec. An open circuit condition shall be detected if the circuit attached to the Controller external connection has an impedance >= 200 kohms and shall not be detected if the circuit impedance is <= 6 kohms. The interface shall detect an open circuit condition when the driver is Off. The nominal filter time to latch fault is 200 usec and the diagnostic threshold is 240 usec.	Not Test Failed This Key On  Components powered AND Battery Voltage  If Engine Cranking, then Crank Time AND Battery Voltage Engine speed High Side Driver 1 Enabled	P0658 P0659 P0979  >= 9 V  < 4 seconds > 10 V  >= 20 RPM	250 ms	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
Shift Solenoid 3 Control Circuit High	P0980	This test detects solenoid electrical short to power circuit malfunctions.		A power short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 0.39 ohm to a voltage source within the Normal Operating Voltage Range or the High Operating Voltage Range. The interface shall detect a power short condition when the driver is On. The nominal filter time to latch fault is 150 usec and the diagnostic threshold is 240 usec.			75 ms	A
			Short to power fault present for	> = 3 counts	Not Test Failed This Key On	P0657 P0658 P0659 P0980		
					Components powered AND Battery Voltage	>= 9 V		
					If Engine Cranking, then Crank Time	< 4 seconds		
					AND Battery Voltage			
					Engine speed High Side Driver 1 Enabled			
Actuator Supply 1 (HSD1) Voltage Open	P0657	This test detects if the voltage measured at the HSD1 detection	IF HSD1 fault is indeterminate THEN initiate intrusive test		Not Test Failed This Key On	P0657	75 ms	A
		circuit shows that multiple low side detection circuits	Command intrusive gear. Override pressure control solenoid 2 THEN exit intrusive test after		HSD1 is commanded ON  Components powered			
		indicate open, but the high side detection circuit indicates high			AND Battery Voltage			
		voltage.			AND	< 4 seconds		
			A failure event occurs when the number of failed solenoids connected to HSD1	>= 2	Battery Voltage Engine speed			

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
Actuator Supply 1 (HSD1) Voltage Low		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		Not Test Failed This Key On HSD1 is commanded ON	P0658	75 ms	A
Actuator Supply 1 (HSD1) Voltage High	P0659	This test detects if the voltage measured at the HSD 1 detection circuit indicates high during initialization (when the circuit is off)	During initialization, report malfunction when the number of failure events		During initialization Battery Voltage	>= 9V	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  A failure event occurs when the number of failed solenoids connected to HSD1	>= 3	Not Test Failed This Key On HSD2 is commanded ON Components powered AND Battery Voltage If Engine Cranking, then Crank Time AND Battery Voltage Engine Speed	>= 9 V < 4 seconds > 10 V	75 ms	A

	Fault		Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	Code	Description					<u> </u>	
Actuator Supply2 (HSD2) Voltage Low	P2670	This test detects low voltage when high voltage is expected indicating a short to ground at the circuit.	Report malfunction when short to ground is detected for a number of events	A ground short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 0.43 ohm to a voltage source within the Vehicle Ground Voltage Range relative to PWRGND. The interface shall detect a ground short condition when the driver is On. Ground short is read every 10 us (fault filtering). Diagnostic time is 50 usec every 50us (5 readings) with a minimum of 3 readings out of 5 to flag a short.	Not Test Failed This Key On HSD2 is commanded ON		75 ms	A
ļ								
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)		A power short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 0.5 ohm to a voltage source within the Normal Operating Voltage Range or the High Operating Voltage Range. The interface shall detect a power short condition when the driver is Off. Power short is read every 10 us after power up reset (fault filtering). Diagnostic time is 50 usec every 50us (5 readings) with a minimum of 3 readings out of 5.	During initialization Battery Voltage	>= 9	18.75 ms	A

TCC Pressure Control Solenoid Control Circuit Open  This test detects torque converter solenoid electrical open circuit malfunctions.  A ground short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 0.01 ohm to a voltage source within the Vehicle Ground Voltage Range relative to PWRGND. The interface shall detect a ground short condition when the driver is Off. There is 10 usec fault filter. The fault is checked for every 6.25 ms by application software. An open circuit condition shall be detected if the circuit attached to the Controller external connection has an impedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There is 10 usec fault filter. The fault is condition when the driver is Off. There is 10 usec fault filter. The fault is condition when the driver is Off. There is 10 usec fault filter. The fault	В
Solenoid Control Circuit Open  torque converter solenoid electrical open circuit malfunctions.  torque converter solenoid electrical open circuit source within the Vehicle Ground Voltage Range relative to PWRGND. The interface shall detect a ground short condition when the driver is Off. There is 10 usec fault filter. The fault is checked for every 6.25 ms by application software. An open circuit condition shall be detected if the circuit attached to the Controller external connection has an inpedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There	
Open  solenoid electrical open circuit malfunctions.  Controller external connection has an impedance <= 0.01 ohm to a voltage source within the Vehicle Ground Voltage Range relative to PWRGND. The interface shall detect a ground short condition when the driver is Off. There is 10 usec fault filter. The fault is checked for every 6.25 ms by application software. An open circuit condition shall be detected if the circuit attached to the Controller external connection has an impedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There	
open circuit malfunctions.  impedance <= 0.01 ohm to a voltage source within the Vehicle Ground Voltage Range relative to PWRGND. The interface shall detect a ground short condition when the driver is Off. There is 10 usec fault filter. The fault is checked for every 6.25 ms by application software. An open circuit condition shall be detected if the circuit attached to the Controller external connection has an impedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There	
Voltage Range relative to PWRGND. The interface shall detect a ground short condition when the driver is Off. There is 10 usec fault filter. The fault is checked for every 6.25 ms by application software. An open circuit condition shall be detected if the circuit attached to the Controller external connection has an impedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There	
The interface shall detect a ground short condition when the driver is Off.  There is 10 usec fault filter. The fault is checked for every 6.25 ms by application software. An open circuit condition shall be detected if the circuit attached to the Controller external connection has an impedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There	
short condition when the driver is Off.  There is 10 usec fault filter. The fault is checked for every 6.25 ms by application software. An open circuit condition shall be detected if the circuit attached to the Controller external connection has an impedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There	
There is 10 usec fault filter. The fault is checked for every 6.25 ms by application software. An open circuit condition software is circuit attached to the Controller external connection has an impedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There	
is checked for every 6.25 ms by application software. An open circuit condition shall be detected if the circuit attached to the Controller external connection has an impedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There	
application software. An open circuit condition shall be detected if the circuit attached to the Controller external connection has an impedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There	
condition shall be detected if the circuit attached to the Controller external connection has an impedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There	
attached to the Controller external connection has an impedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There	
connection has an impedance >= 173 kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There	
kohm and shall not be detected if the circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There	
circuit impedance is <= 9.6 k ohm. The interface shall detect an open circuit condition when the driver is Off. There	
condition when the driver is Off. There	
lis 10 uses fault filter. The fault is	
checked for every 6.25 ms by	
application software.	
Fault pending is set on a single Not Test Failed This Key On P2669	
occurrence of hardware ground or open P2670	
fault.	
IF either hardware faults are present for >= 3 counts	
THEN initiate intrusive test by opening Components powered	
low side driver AND	
IF intrusive test indicates open for >= 2 counts  Battery Voltage >= 9 V	
THEN report malfunction	
If Engine Cranking, then	
Crank Time < 4 seconds	
AND Potters Voltage 1, 10 V	
Battery Voltage > 10 V	
Engine Speed >= 20 rpm	
High Side Driver 2 Enabled	
TCC Pressure Control P2762 This test detects the 1000 ms	В
Solenoid Control Circuit performance of the perform	
Performance solenoid by FOR >= 40 counts P2670	
comparing desired For a sample size < 80 samples P2671 current to actual duty	
current to actual duty P2/61 cycle THEN report malfunction P2762	
P2762	
No Fault Pending DTC for this drive P2761	
cycle. P2763	
Components powered	
AND Pottery Voltage > - 0 V	
Battery Voltage >= 9 V	
If Engine Cranking, then Crank Timel < 4 seconds	
If Engine Cranking, then Crank Time < 4 seconds	

	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
	Couc	Decomption			Battery Voltage	> 10 V		
					Engine Speed	>= 20 rpm		
						>= 20 Ipili		
					High Side Driver 2 Enabled			
					Shift Complete			
					Lockup Apply Complete			
					OR			
					Lockup Release Complete			
TCC Pressure Control Solenoid Control Circuit High	P2763	This test detects solenoid electrical short to power circuit malfunctions.		A power short condition shall be detected if the circuit attached to the Controller external connection has an impedance <= 1.16 ohm to a voltage source within the Normal Operating Voltage Range or the High Operating Voltage Range. The interface shall detect a power short condition when the driver is On. There is 10 usec fault filter. The fault is checked for every 6.25 ms by application software.	Components powered AND Battery Voltage If Engine Cranking, then	P2669 P2670 P2671 P2763 >= 9 V < 4 seconds > 10 V	75 ms	В

Component/System	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
Componentiaystelli	Code	Description	manuncuon Citteria	Tillesilolu value	Secondary Farameters	LIIADIE COIIUIUIIS	Time Required	WIIL HIUIII
TCC Pressure Control	P2764	This test detects		A ground short condition shall be			125 ms	₽A
Solenoid Control Circuit	FZ/04	solenoid electrical		ŭ .			123 1118	ÐA
				detected if the circuit attached to the				
Low		ground circuit		Controller external connection has an				
		malfunctions.		impedance <= 0.01 ohm to a voltage				
				source within the Vehicle Ground				
				Voltage Range relative to PWRGND.				
				The interface shall detect a ground				
				short condition when the driver is Off.				
				There is 10 usec fault filter. The fault				
				is checked for every 6.25 ms by				
				application software. An open circuit				
				condition shall be detected if the circuit				
				attached to the Controller external				
				connection has an impedance >= 173				
				kohm and shall not be detected if the				
				circuit impedance is <= 9.6 k ohm. The				
				interface shall detect an open circuit				
1				condition when the driver is Off. There				
1				is 10 usec fault filter. The fault is				
				checked for every 6.25 ms by				
				application software.				
			Fault pending is set on a single		Not Test Failed This Key On	P2669		
			occurrence of hardware ground or open			P2670		
			fault.			P2671		
			IF either hardware faults are present for	>= 3 counts				
			THEN initiate intrusive test by opening		Components powered			
			low side driver		AND			
			IF intrusive test indicates grnd for	>= 2 counts	Battery Voltage	>= 9 V		
			THEN report malfunction	2 2 00 unto	Zanory vonago			
			Trien report manufiction		If Engine Cranking, then			
						< 4 seconds		
						< 4 seconds		
					AND	40.14		
					Battery Voltage	> 10 V		
					Engine Speed	>= 20 rpm		
					High Olds Dates a Franklad			
					High Side Driver 2 Enabled			
								!
Miscellaneous		<u> </u>					1	
4 Wheel Drive Low	P2771	This test detects	Case 1 (Stuck Off)		All Cases		0.5 second	В
Switch Circuit Malfunction		abnormal conditions	This test fails when, for number of			P2771		
		for the four-wheel	occurrences,		The real raise mile hely on	P0721		
		drive indication switch	the transfer case 4WD switch indicates			P0722		
		input by comparing	High range and the calculated transfer			P077C		
		switch state range to	case range is Low range for a time	- 0.5 second		P077D		
		calculated range.	case range is Low range for a time	>= 0.5 Second		FULL		
		carculateu range.						
					No Fault Active DTCs for this drive	P2771		
						P0721		
					cycle			
						P0722		
						P077C		
						P077D		
			Case 2 (Stuck On)		No Fault Pending DTCs for this drive			
			This test fails when, for number of		cycle	P0722		
			occurrences,	>= 1		P077C		
						P077D		
•	•	•	•	•	•	ı	•	•

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
			the transfer case 4WD switch indicates Low range and the calculated transfer case range is High range for a time	>= 0.5 second	NOT Tranfer Case failure suspect Transfer Case is NOT Neutral or defaulted Transmission fluid temperature	> 20 deg. C and < 130 deg. C		
						200 RPM and 7500 RPM 5 seconds		
					Shift complete AND range attained NOT Neutral			
Transmission Component Slipping	P0894	This test detects the number of turbine slip events during the Neutral Locked Turbine (NLT) request from engine	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	>= 3	Components powered AND Battery Voltage Engine Speed between	>= 9 V 200 RPM and 7500 RPM	8075 ms	В
		controller.	accumulated NLT Slip events – Number of NLT Slip events from previous ignition cycles.  And, where number of accumulated NLT Slip events is incremented when commanded gear or attained gear is NLT AND turbine speed	> 50 RPM > 3 seconds.		5 seconds		
Ignition Switch Run/Start Circuit	P2534	Out of range low.	Ignition voltage THEN increment fail counter IF fail counter AND (BattChargeSysStable TRUE OR NOT P0882) THEN report malfunction	< 5 volts >= 800 counts	- ,		5 seconds	A
GMLAN Bus Reset Counter Overrun	U0073	This test detects if the GMLAN bus is off for a calibration duration.	CAN Hardware Circuitry Detects a Bus Voltage Error (CAN bus off) Bus off delay time (use if Bus if Off from Bus Indeterminate State)	= TRUE (Boolean) >= 0.16 sec	>= 5 counts  >= 5 counts  all conditions A and (B or C) below must occur for stabilization time Bus Stabilization time A) Service mode \$04 active and end of trip pocessing active A) normal serial data communication enabled A) U0073 status not B) secured controller or emission critical then use ignition voltage B) secured controller or emission critical Ignition Voltage B) Power Mode	= FALSE (Boolean) = TRUE (Boolean) = fault active = CeCANR_e_OBDII_Dsbl (Boolean) >= 11 volts		В

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
					C) ignition off enable C) Power Mode C) battery voltage	= accessory		
GMLAN ECM Controller State of Health Failure	U0100	This test detects GMLANbus failures by detecting State of	TCM Rx message missed frame		fail times are caculated based on Rx message enable calibration set to CeCANR e BusA ECM	Tx controller		В
		Health failures in GMLAN messages	TCM Rx frame message missed frame	= TRUE (Boolean)	TCM Rx frame calibration enabled	( see Table 1 in supporting document) enumeration	>= 10 seconds	
		\$191, \$0BE, \$0C9,\$1A1, \$287, \$2C3, \$3B9, \$3D1,\$3E9, \$3F9, \$4C1, and \$4F1 from ECM.			Frame recovery stabilization delay all conditions A and (B or C) below must occur for stabilization time  Bus Stabilization time  A) Service mode \$04 active and end of trip pocessing active  A) normal serial data communication enabled  A) U0073 status not  B) secured controller or emission critical then use ignition voltage  B) secured controller or emission critical Ignition Voltage  B) Power Mode	>= 5 seconds = FALSE (Boolean) = TRUE (Boolean) = fault active = CeCANR_e_OBDII_Dsbl (Boolean) >= 11 volts		
					C) ignition off enable C) Power Mode C) battery voltage U0100 fault status is not Not Test Failed This Key On	=accessory >11 volts = fault active		
Lost Communication with GMLAN ABS Control Module	U0121	This test detects CAN (GMLAN) bus failures by detecting State of	TCM Rx message missed frame		fail times are caculated based on Rx message enable calibration set to CeCANR_e_BusA_ABS	Tx controller		С
		Health (SOH) failures in the following GMLAN messages	TCM Rx frame message missed frame	= TRUE (Boolean)	TCM Rx frame calibration enabled	( see Table 1 in supporting document) enumeration	>= 10 seconds	
		\$0C1, \$0C5, \$0D0, \$1E9, and \$2F9 from Antilock Brake System (ABS) Control Module.			Frame recovery stabilization delay all conditions A and (B or C) below must occur for stabilization time Bus Stabilization time A) Service mode \$04 active and end of trip pocessing active A) normal serial data communication enabled A) P0073 status not B) secured controller or emission critical then use ignition voltage B) secured controller or emission critical Ignition Voltage B) Power Mode C) ignition off enable	>= 5 seconds = FALSE (Boolean) = TRUE (Boolean) = fault active = CeCANR_e_OBDII_Dsbl (Boolean) >= 11 volts = Run		
					C) Power Mode C) battery voltage	=accessory > 11 volts		
					U0121 fault status is not Not Test Failed This Key On			

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
Lost Communication With Body Control Module	U0140	This test detects CAN (GMLAN) bus failures by detecting State of Health (SOH) failures	TCM Rx message missed frame		fail times are caculated based on Rx message enable calibration set to CeCANR_e_BusA_BCM	Tx controller		С
		in the following GMLAN messages	TCM Rx frame message missed frame	= TRUE (Boolean)	TCM Rx frame calibration enabled	( see Table 1 in supporting	>= 10 seconds	
		\$0F1, \$1E1, \$1F3, and \$3F1 from the Truck Body Computer (TBC) Control			Frame recovery stabilization delay all conditions A and (B or C) below must occur for stabilization time Bus Stabilization time A) Service mode \$04 active and end of trip pocessing active A) normal serial data communication enabled A) P0073 status not B) secured controller or emission critical then use ignition voltage B) secured controller or emission critical Ignition Voltage B) Power Mode  C) ignition off enable C) Power Mode C) battery voltage  U0140 fault status is not Not Test Failed This Key On	>= 5 seconds = FALSE (Boolean) = TRUE (Boolean) = fault active = CeCANR_e_OBDII_Dsbl (Boolean) >= 11 volts = Run = TRUE (Boolean) =accessory >11 volts = fault active		
Brake Switch Circuit	P0571	This test counts how many vehicle acceleration events occur while the brake switch indicates "ON" or the number of vehicle deceleration events while the brake switch indicates "OFF"	Case1: The number of vehicle accelerations with the brake switch "on" Case 2: The number of vehicle decelerations with the brake switch "off"		All Cases  NOT Test Failed This Key On  No Fault Pending DTCs	P0571 P0716 P0717 P07BF P07C0 P0721 P0722 P077C P077D	10 Acceleration Events	С
							10 Deceleration Events	
Brake Pedal Possition Switch Signal Rolling Count	P0703	This test detects rolling count failures for the Brake Switch GMLAN Message	The failure count increments when the GMLAN message is not received or the rolling counter does not agree with the expected value  When the failure counter is for a time of Report Failure	> 10 seconds		9 V and 18 V 200 RPM and 7500 RPM 5 seconds	15 seconds	С

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
Upshift Switch Circuit	P0815	This test detects the upshift switch ON	AND upshift switch state is ON for a time AND When PRNDL state is a forward range and has been unchanged for a time AND upshift switch state is ON	>= 2.5 seconds >= 3 seconds. >= 2.5 seconds >= 600 seconds.		P0708	603 seconds	С
Downshift Switch Circuit  Up and Down Shift Switch Circuit	P0816	This test detects the downshift switch ON.  This test detects upshift/downshift switch circuit at an illegal state.	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  AND  AND  AND  AND  AND  AND	>= 2.5 seconds >= 3 seconds. >= 2.5 seconds >= 600 seconds. >= 10 seconds.	Not Test Failed This Key On Components powered AND Battery Voltage	P0708  >= 9 V  200 RPM and 7500 RPM  5 seconds  P0826  >= 9 V	603 Seconds  10 seconds	С
Controller Memory Control Module Read Only Memory (ROM)	P0601	This test performs a check for ECC fault at controller intiaization and a checksum test of all areas of ROM code using a CRC16 table driven method in background.	Incorrect program/calibrations checksum  Errors in the software and calibration segments in the flash, detected by the micro's hardware based fault detection			200 RPM and 7500 RPM 5 seconds	= 1 Fail Counts first pass after reset >= 5 Fail Counts after first pass (background task continuous) >= 254 counts (Controller Initialization)	A

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
Control Module Long Term Memory Reset	P0603	This function tests for error flags from the NVDP and logs a code if an error was detected.	fault condition exists that affects the validity of the copy of battery independent non-volatile data kept in RAM.	= TRUE (Boolean)	Not Test Failed This Key On	P0603	every controller initialization	А
			latest copy of the battery independent non-volatile data may have been lost.	= TRUE (Boolean)			>= 3 counts (controller initialization)	
					NVI TestDiagEnbl	TRUE		
Control Module Random	P0604	RAM diagnostic	Test fails for any of following.		Not Test Failed This Key On	P0604		А
Access Memory (RAM)			secondary micro processor RAM error	= TRUE (Boolean)			1000 ms cont.	
			OR dual store RAM write time out error	= TRUE (Boolean)			> 175 ms ((interrupt driven based on calling	
			OR errors in the system RAM segment detected by the micro's hardware based fault detection	= TRUE (Boolean)			>= 254 counts (controller initialization)	
			OR parity errors in cache memory detected by the micro's hardware based fault detection	= TRUE (Boolean)			>= 3 counts (controller initialization )	
			OR signature faults detected in the TPU microcode by the micro's hardware based fault detection	= TRUE (Boolean)			>= 5 counts (controller initialization)	
			OR write attempt occurred during RAM lock	= TRUE (Boolean)	Service mode \$04 active or end of trip processing active	FALSE	> 655534 counts (background task	
Control Module Internal Performance	P0606	Processor integrity test.			Not Test Failed This Key On	P0606		A
renomance		iesi.	main processor RAM error detection circuit hardware failure	= TRUE (Boolean)	RAM diagnotic test enable	= 1 (Boolean)	>= 5 counts (controller initialization)	
			OR		hardware reset source is controller power up reset			
			main processor flash EPROM error detection circuit hardware failure	= TRUE (Boolean)	flash EPROM diagnotic test enable hardware reset source is controller power up reset	= 1 (Boolean) = TRUE (Boolean)	>= 5 counts (controller initialization)	
			main processor memory stack failure	= TRUE (Boolean)	diagnostic system enabled (diagnostic code clear not in progress AND all of the diag loops have completed their re- enable paths).	= TRUE (Boolean)	>= 5 counts (100 msec continuous)	

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
					main processor memory stack test enable	= 1 (Boolean)		
			OR secondary processor memory stack failure OR	= TRUE (Boolean)	Post code clear diagnostitc disabled	= FALSE (Boolean)	two consecutive counts continuously upon receival from	
			main processor ROM first test complete	= FALSE (Boolean)			>= 35 counts (controller power up 12.5 msec	
			no new seed from secondary processor to main processor seed	= TRUE (Boolean)	main processor to secondary processor serial peripheral interface error (main or 2dry detected)	= FALSE (Boolean)	for more than 0.45 seconds	
			OR		battery voltage ignition voltage	> 11 Volts >= 8 Volts		
			seed sequence error	≠ FALSE (Boolean)	main processor to secondary processor serial peripheral interface error (main or 2dry detected)	= FALSE (Boolean)	3 counts out of 17 (on the 12.5 msec loop)	
			OR		battery voltage ignition voltage			
			seed key fault received from 2ndry	= TRUE (Boolean)	Post code clear diagnostic disabled	= FALSE (Boolean)	two consecutive counts (on the 12.5 ms loop)	
			OR normalize 0-5 volt (absolute value (analog to digital test voltage commanded - actual analog to digital voltage feedback))	> 9 percent	diagnostic system enabled (diagnostic code clear not in progress AND all of the diag loops have completed their re- enable paths)	= TRUE (Boolean)	5 out of 10 counts OR continuous for 0.15 sec (50 ms)	
					analog to digital voltage test enabled ignition voltage analog to digital voltage channel enabled analog to digital test voltage command	>= 7 Volts TRUE (Boolean)		
			OR arithmatic logic unit test pass	= FALSE (Boolean)	arithmatic logic unit test enable	= 1 (Boolean)	two consecutive counts at controller initialization, then two	
					diagnostic system enabled-(diagnostic code clear not in progress AND all the diag loops have completed their re- enable paths)	= TRUE (Boolean)		
					A and B and C must occur A: starter motor engaged B: ignition voltage C: starter motor engaged time	> 11 Volts		
			OR secondary processor arithmatic logic unit fault	= TRUE (Boolean)	Post code clear diagnostitc disabled	= FALSE (Boolean)	two consecutive counts continuously upon receival from	
			OR					

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
		2000	clock test fail	= TRUE (Boolean)	clock test enable	= 1 (Boolean)	two consecutive counts at controller initialization, then two	
					diagnostic system enabled (diagnostic code clear not in progress AND all the diag loops have completed their re- enable paths)	=TRUE (Boolean)		
					A and B and C must occur A: starter motor engaged B: ignition voltage C: starter motor engaged time	> 11 Volts		
			OR configuration register test fail	= TRUE (Boolean)	configuration register test enable	= 1 (Boolean)	two consecutive counts at controller initialization, then two	
					diagnostic system enabled (diagnostic code clear not in progress AND all the diag loops have completed their re- enable paths)	= TRUE (Boolean)		
					A and B and C must occur A: starter motor engaged B: ignition voltage C: starter motor engaged time	> 11 Volts		
			OR secondary processor configuration register fault	= TRUE (Boolean)	Post code clear diagnostitc disabled	= FALSE (Boolean)	two consecutive counts continuously upon receival from	
			main SOH discrete fault		Post code clear diagnostitc disabled	= FALSE (Boolean)	two consecutive counts continuously upon receival from	
			OR SPI bus fault(i)	= TRUE (Boolean)	diagnostic system enabled (diagnostic code clear not in progress AND all the diag loops have completed their re- enable paths)	=TRUE (Boolean)	8 counts out of 16 (on the 6.25 msec loop)	
					A and B must occur A: run/crank voltage in range OR battery voltage in range			
					B: Startup/Restart time			
Control Module Long	P062F	Tests non volatile			Not Test Failed This Key On	P062F		А
Term Memory Performance		memory long term performance.	TCM Non-Volatile Memory read or write error (every controller intialization).	= TRUE (Boolean)			every controller intialization	
			assembly calibration integrity (every controller initialization)	= TRUE (Boolean)			every controller intialization	

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
					NVM write error diagnotic enable	TRUE		
Control Module Serial Peripheral Interface Bus 2	P16E9	Serial peripheral hardware fault detected by secondary processor.	secondary micro processor hardware serial peripheral device fault active secondary micro processor hardware	= TRUE (Boolean)				A
			serial peripheral device fault active previous loop	= TRUE (Boolean)	Service mode \$04 active and end of trip pocessing active	= FALSE(Boolean)		
Control Module Serial Peripheral Interface Bus 1	P16F0	Secondary processor message error detected by main processor.	secondary micro processor serial peripheral device message valid detected by primary micro processor since controller initialization	= FALSE (Boolean)		fail count	>= 39 counts (12.5 ms) cont	A
		p. coccoon	OR			out of sample count	>= 399 counts (12.5 ms) cont	
			secondary micro processor serial peripheral device message valid detected by primary micro processor after controller initialization	= FALSE (Boolean)		fail count	>= 39 counts (12.5 ms) cont	
			OR secondary micro processor serial			out of sample count	>= 399 counts (12.5	
			peripheral device message valid detected by primary micro processor after controller initialization	= FALSE(Boolean)		fail count	>= 159 counts (12.5 ms) NON continuous	
			and controller illitalization			out of sample count	>= 399 counts (12.5 ms) NON continuous	
					NOT in low voltage engine crank condition defined by A or B below during, for low voltage mode time			
					low voltage mode time >= 0.025 seconds A) low voltage mode hysteresis time <= 0.1 seconds B) ignition voltage, set low voltage			
					mode <= 6.4092 volts			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Backup Transmissio n Range Command Message Counter Incorrect	C1201	This DTC monitors for an error in communication with the Backup Transmission Range Command Message Counter	Communication of the Alive Rolling Count or Protection Value from the Backup Transmission Range Command Message Counter over LIN bus is incorrect for	>= 10.00 counts	All the following conditions are met for Power Mode Battery Voltage	>= 300.00 milliseconds = Run >= 11.00 Volts	Executes in 250ms loop.	Type A, 1 Trips
			out of total samples	>= 10.00 counts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Backup Transmissio n Range Command Message Counter Incorrect	C1201	This DTC monitors for an error in communication with the Backup Transmission Range Command Message Counter	Communication of the Alive Rolling Count or Protection Value from the Backup Transmission Range Command Message Counter over LIN bus is incorrect for	>= 10.00 counts	All the following conditions are met for Power Mode Battery Voltage	>= 300.00 milliseconds = Run >= 11.00 Volts	Executes in 250ms loop.	Type A, 1 Trips
			out of total samples	>= 10.00 counts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System Voltage Performance	P0561	Detects a low performing 12V battery system. This diagnostic reports the DTC when the absolute value of the difference between the battery voltage and the run/ crank voltage exceeds a calibrated value.	Run Crank voltage low and high	ABS(Battery voltage - Run Crank voltage) > 3.00	Battery voltage B+ line present = TRUE  Battery voltage low and high diag enable = TRUE  Run Crank voltage	1.00 1.00 Voltage ≥ 5.00 volts	40 failures out of 50 samples 100 ms / sample	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
ETRS GMLAN Command Signal Message Incorrect	P1775	This DTC monitors for an error in communication with the ETRS General Status Signal	Communication of the Alive Rolling Count or Protection Value from the ETRS GMLAN Command Signal over CAN bus is incorrect for	>= 10 counts	All the following conditions are met for Power Mode  Run/Crank Ignition Voltage	>= 300.00 milliseconds = Run >= 11.00 Volts	Executes in 250ms loop.	Type A, 1 Trips
			out of total samples	>= 10.00 counts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
ETRS GMLAN Command Signal Message Incorrect	P1775	This DTC monitors for an error in communication with the ETRS General Status Signal		>= 10 counts	All the following conditions are met for Power Mode  Run/Crank Ignition	>= 300.00 milliseconds = Run >= 11.00 Volts	Executes in 250ms loop.	Type A, 1 Trips
			out of total samples	>= 10.00 counts	Voltage	7= 11.00 VORS		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Ignition Switch Run/ Start Position Circuit Low	P2534	Detects a low ignition switch run/start position curcuit. This diagnostic reports the DTC when this circut is low. Monitoring occurs when the ECM run/crank is active.	position circuit low	Run / Crank = FALSE	Ignition switch Run/Start position circuit low diag enable and Run / Crank active ECM	= 1.00 = TRUE	280 failures out of 280 samples 25 ms / sample	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Ignition Switch Run/ Start Position Circuit High	P2535	Detects a high ignition switch run/start position curcuit. This diagnostic reports the DTC when this circut is high. Monitoring occurs when the ECM run/ crank is NOT active.		Run / Crank = TRUE	Ignition switch Run/Start position circuit low diag enable and Run / Crank active ECM	= 1.00 = FALSE	280 failures out of 280 samples 25 ms / sample	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on Bus A Off	U0073	This DTC monitors for a BUS A off condition	Bus off failures exceeds  before the sample time of is reached	5 counts (equivalent to 0.06 seconds)  0.81 seconds	General Enable Criteria:  U0073  Normal CAN transmission on Bus A  Device Control  High Voltage Virtual Network Management  Ignition Voltage Criteria:  Run/Crank Ignition voltage  Power Mode  Off Cycle Enable Criteria:  KeCAND_b_OffKeyCycle DiagEnbl  Ignition Accessory Line and Battery Voltage  General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 5.0000 seconds  CAN hardware is bus OFF for	Not Active on Current Key Cycle Enabled Not Active  Not Active  > 6.41 Volts  = run  = 1 (1 indicates enabled)  = Active  > 11.00 Volts  > 0.1625 seconds	Diagnostic runs in 12.5 ms loop	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With ECM	U0100	This DTC monitors for a loss of communication with the engine control module	Message is not received from controller for  Message \$0BE  Message \$0C9  Message \$18E  Message \$1A1  Message \$1A3  Message \$1AA	≥ 0.50 seconds ≥ 0.50 seconds ≥ 0.50 seconds ≥ 0.50 seconds ≥ 12.00 seconds ≥ 12.00 seconds	General Enable Criteria:  U0073  Normal CAN transmission on Bus A  Device Control  High Voltage Virtual Network Management  Ignition Voltage Criteria:  Run/Crank Ignition voltage	Not Active on Current Key Cycle Enabled Not Active Not Active	Diagnostic runs in 12.5 ms loop	Type A, 1 Trips
			Message \$1BA  Message \$287  Message \$3D1  Message \$3E9  Message \$4C1	≥ 12.00 seconds ≥ 0.50 seconds ≥ 12.00 seconds ≥ 12.00 seconds ≥ 12.00 seconds	Power Mode  Off Cycle Enable Criteria:  KeCAND_b_OffKeyCycle DiagEnbl	= run = 1 (1 indicates enabled)		
			Message \$4C7 Message \$4D1 Message \$4F1 Message \$589	≥ 12.00 seconds ≥ 12.00 seconds ≥ 12.00 seconds ≥ 12.00 seconds	Ignition Accessory Line and Battery Voltage  General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 5.0000 seconds  Power Mode is in accessory or run or crank and High Voltage Virtual Network Management is	= Active > 11.00 Volts		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					not active for	> 0.4000 seconds		
					U0100	Not Active on Current Key Cycle		
					ECM	is present on the bus		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With ECM	U0100	This DTC monitors for a loss of communication with the engine control module	Message is not received from controller for  Message \$0BE  Message \$0C9  Message \$18E  Message \$1A1  Message \$1A3  Message \$1AA	≥ 0.50 seconds ≥ 0.50 seconds ≥ 0.50 seconds ≥ 0.50 seconds ≥ 12.00 seconds ≥ 12.00 seconds	General Enable Criteria:  U0073  Normal CAN transmission on Bus A  Device Control  High Voltage Virtual Network Management  Ignition Voltage Criteria:  Run/Crank Ignition voltage	Not Active on Current Key Cycle Enabled Not Active Not Active	Diagnostic runs in 12.5 ms loop	Type A, 1 Trips
			Message \$1BA  Message \$287  Message \$3D1  Message \$3E9  Message \$4C1	≥ 12.00 seconds ≥ 0.50 seconds ≥ 12.00 seconds ≥ 12.00 seconds ≥ 12.00 seconds	Power Mode  Off Cycle Enable Criteria:  KeCAND_b_OffKeyCycle DiagEnbl	= run = 1 (1 indicates enabled)		
			Message \$4C7 Message \$4D1 Message \$4F1 Message \$589	≥ 12.00 seconds ≥ 12.00 seconds ≥ 12.00 seconds ≥ 12.00 seconds	Ignition Accessory Line and Battery Voltage  General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 5.0000 seconds  Power Mode is in accessory or run or crank and High Voltage Virtual Network Management is	= Active > 11.00 Volts		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					not active for	> 0.4000 seconds		
					U0100	Not Active on Current Key Cycle		
					ECM	is present on the bus		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With Chassis Control Module A	U012A	This DTC monitors for a loss of communication with the Chassis Control Module A.	Message is not received from controller for  Message \$4DF  Message \$1F7	≥12.00 seconds ≥0.50 seconds	General Enable Criteria:  U0073  Normal CAN transmission on Bus A  Device Control  High Voltage Virtual Network Management  Ignition Voltage Criteria:  Run/Crank Ignition voltage  Power Mode  Off Cycle Enable Criteria:  KeCAND_b_OffKeyCycle DiagEnbl  Ignition Accessory Line  and  Battery Voltage  General Enable Criteria and either Ignition Voltage  Criteria or Off Cycle Enable Criteria and either Ignition Voltage  Criteria or Off Cycle Enable Criteria met for > 5.0000 seconds  Power Mode is in accessory or run or crank and High Voltage Virtual Network Management is not active for	Not Active on Current Key Cycle Enabled Not Active Not Active  > 6.41 Volts  = run  = 1 (1 indicates enabled)  = Active  > 11.00 Volts	Diagnostic runs in 12.5 ms loop	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					U012A	Not Active on Current Key Cycle		
					СНСМ А	is present on the bus		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With Chassis Control Module A	U012A	This DTC monitors for a loss of communication with the Chassis Control Module A.	Message is not received from controller for  Message \$4DF  Message \$1F7	≥12.00 seconds ≥0.50 seconds	General Enable Criteria:  U0073  Normal CAN transmission on Bus A  Device Control  High Voltage Virtual Network Management  Ignition Voltage Criteria:  Run/Crank Ignition voltage  Power Mode  Off Cycle Enable Criteria:  KeCAND_b_OffKeyCycle DiagEnbl  Ignition Accessory Line  and  Battery Voltage  General Enable Criteria and either Ignition Voltage  Criteria or Off Cycle Enable Criteria met for > 5.0000 seconds Power Mode is in accessory or run or crank and High Voltage Virtual Network Management is not active for	Not Active on Current Key Cycle Enabled Not Active Not Active  > 6.41 Volts  = run  = 1 (1 indicates enabled)  = Active  > 11.00 Volts	Diagnostic runs in 12.5 ms loop	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					U012A	Not Active on Current Key Cycle		
					CHCM A	is present on the bus		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With Hybrid Powertrain Control Module	U0293	This DTC monitors for a loss of communication with the Hybrid Powertrain Control Module.	Message is not received from controller for  Message \$1DF  Message \$1A5	≥ 12.0 seconds ≥ 12.00 seconds	General Enable Criteria:  U0073  Normal CAN transmission on Bus A  Device Control  High Voltage Virtual Network Management  Ignition Voltage Criteria:  Run/Crank Ignition voltage  Power Mode  Off Cycle Enable Criteria:  KeCAND_b_OffKeyCycle DiagEnbl  Ignition Accessory Line and Battery Voltage  General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 5.0000 seconds  Power Mode is in accessory or run or crank and High Voltage Virtual Network Management is	Not Active on Current Key Cycle Enabled Not Active Not Active > 6.41 Volts = run =1 (1 indicates enabled) = Active > 11.00 Volts	Diagnostic runs in 12.5 ms loop	Type B, 2 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					not active for	> 0.4000 seconds		
					U0293	Not Active on Current Key Cycle		
					Hybrid Powertrain Control Module	is present on the bus		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With Hybrid Powertrain Control Module	U0293	This DTC monitors for a loss of communication with the Hybrid Powertrain Control Module.	Message is not received from controller for  Message \$1DF  Message \$1A5	≥ 12.0 seconds ≥ 12.00 seconds	General Enable Criteria:  U0073  Normal CAN transmission on Bus A  Device Control  High Voltage Virtual Network Management  Ignition Voltage Criteria:  Run/Crank Ignition voltage  Power Mode  Off Cycle Enable Criteria:  KeCAND_b_OffKeyCycle DiagEnbl  Ignition Accessory Line and Battery Voltage  General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 5.0000 seconds  Power Mode is in accessory or run or crank and High Voltage Virtual Network Management is	Not Active on Current Key Cycle Enabled Not Active Not Active > 6.41 Volts = run = 1 (1 indicates enabled) = Active > 11.00 Volts	Diagnostic runs in 12.5 ms loop	Type B, 2 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					not active for	> 0.4000 seconds		
					U0293	Not Active on Current Key Cycle		
					Hybrid Powertrain Control Module	is present on the bus		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lateral Acceleration Sensor Circuit Low	C124F	Controller specific analog circuit diagnoses the raw lateral acceleration signal for a short to ground or open fault by comparing raw signal value to fail thresholds.	raw lateral acceleration signal when sensor type is directly proportional OR raw lateral acceleration signal when sensor type is inversely proportional update raw lateral acceleration signal stability time, fail and sample time, 50 millisecond update rate	≤ -3.8500 g  ≥ -3.8500 g  (≤ 0.5 Ω impedance between signal and controller ground)	battery voltage run crank voltage diagnostic monitor enable sensor type is either directly proportional or inversely proportional U0073 fault active U0073 test fail this key on	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = CeLATR_e_VoltageDirec tProp = FALSE = FALSE	raw lateral acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lateral Acceleration Sensor Circuit High	C1250	Controller specific analog circuit diagnoses the raw lateral acceleration signal for a short to power or open fault by comparing raw signal value to fail thresholds.	raw lateral acceleration signal when sensor type is directly proportional OR raw lateral acceleration signal when sensor type is inversely proportional update raw lateral acceleration signal stability time, fail and sample time, 50 millisecond update rate	≥ 3.8500 g ≤ 3.8500 g (≤ 0.5 Ω impedance between signal and controller power)	battery voltage run crank voltage diagnostic monitor enable sensor type is either directly proportional or inversely proportional U0073 fault active U0073 test fail this key on	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = CeLATR_e_VoltageDirec tProp = FALSE = FALSE	raw lateral acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lateral Acceleration Sensor Performance	C1251	Controller specific analog circuit diagnoses the raw lateral acceleration signal for a signal value that is stuck in a valid range by comparing raw signal value to fail thresholds.	ABS(raw lateral acceleration signal) AND ABS(raw lateral acceleration signal) update raw lateral acceleration signal fail, 50 millisecond update rate	≥ 0.5300 g ≤ 3.8500 g	battery voltage run crank voltage diagnostic monitor enable  update raw lateral acceleration signal stablity time: TOSS vehicle speed automatic transmission is clutch to clutch OR dual clutch high side drive 1 enable high side drive 2 enable diagnsotic fault sequence gear active P0716 fault active P0716 fault active P0717 fault active P078F fault active P07BF test fail this key on P07BF test fail this key on P07C0 fault active P07C0test fail this key on attained gear attained gear slip  ABS(raw lateral acceleration signal) update sample time  U0073 fault active U0073 test fail this key on DTCs not fault active	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean  ≥ 15.0 KPH = TRUE  = TRUE = TRUE = FALSE = SALSE = SALSE = SALSE = SALSE = SALSE = FALSE = FALSE = SALSE	raw lateral acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Longitudinal Acceleration Sensor Circuit Low	C1252	Controller specific analog circuit diagnoses the raw longitudinal acceleration signal for a short to ground or open fault by comparing raw signal value to fail thresholds.	raw longitudinal acceleration signal when sensor type is directly proportional OR raw longitudinal acceleration signal when sensor type is inversely proportional  update raw longitudinal acceleration signal stability time, fail and sample time, 50 millisecond update rate	≤ -3.8500 g  ≥ -3.8500 g  (≤ 0.5 Ω impedance between signal and controller ground)	battery voltage run crank voltage diagnostic monitor enable sensor type is either directly proportional or inversely proportional U0073 fault active U0073 test fail this key on	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = CeLATR_e_VoltageDirec tProp = FALSE = FALSE	raw longitudinal acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Longitudinal Acceleration Sensor Circuit High	C1253	Controller specific analog circuit diagnoses the raw longitudinal acceleration signal for a short to power or open fault by comparing raw signal value to fail thresholds.	raw longitudinal acceleration signal when sensor type is directly proportional OR raw longitudinal acceleration signal when sensor type is inversely proportional  update raw longitudinal acceleration signal stability time, fail and sample time, 50 millisecond update rate	≥ 3.8500 g ≤ 3.8500 g (≤ 0.5 Ω impedance between signal and controller power)	battery voltage run crank voltage diagnostic monitor enable sensor type is either directly proportional or inversely proportional U0073 fault active U0073 test fail this key on	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = CeLATR_e_VoltageDirec tProp = FALSE = FALSE	raw longitudinal acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Longitudinal Acceleration Sensor Performance	C1254	Controller specific analog circuit diagnoses the raw longitudinal acceleration signal rationalized against the TOSS vehicle speed acceleration. The diagnostic monitor can be designed to detect an invalid longitudinal acceleration signal based on the TOSS vehicle speed windows and TOSS vehicle speed acceleration, 4 windows can be enabled. The delta between the TOSS vehicle speed acceleration and longitudinal acceleration signal is taken within each window to verify the delta is small, no failure indicated, or the delta is large indicating the longitudinal acceleration signal is in error.	ABS(TOSS vehicle speed acceleration - raw longitudinal acceleration signal)  update raw longitudinal acceleration signal region 1 fail time, 50 millisecond update rate	≥ 0.5300 g	battery voltage run crank voltage diagnostic monitor enable region 1 specific enable  update raw lateral longitudinal acceleration signal stablity time: TOSS vehicle speed TOSS vehicle speed acceleration automatic transmission is clutch to clutch OR dual clutch high side drive 1 enable high side drive 2 enable diagnsotic fault sequence gear active P0716 fault active P0717 fault active P0717 test fail this key on P07BF fault active P07BF test fail this key on P07C0 fault active P07C0test fail this key on attained gear attained gear attained gear slip ABS(raw longitudinal acceleration signal) AND ABS(raw longitudinal acceleration signal)	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = 0 Boolean  ≥ 15.0 KPH ≤ 0.5300 g = TRUE  = TRUE = TRUE = FALSE = SALSE = SA	raw lateral longitudinal acceleration signal stability time ≥ 10.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Special Type C
					update region 1 sample time: brake pedal position engine torque TOSS vehicle speed acceleration TOSS vehicle speed TOSS vehicle speed	≤ 0.70 % ≥ 80.0 Nm ≥ 0.1500 g ≥ 15.0 KPH ≤ 200.0 KPH	region 1 fail time ≥ 75.0 seconds out of region 1 sample time ≥ 120.0 seconds, 50 millisecond update rate	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					ABS(raw longitudinal acceleration signal) update sample time	< 0.5300 g		
					U0073 fault active U0073 test fail this key on DTCs not fault active	= FALSE = FALSE VehicleSpeedSensor_FA VehicleSpeedSensorError		
			ABS(TOSS vehicle speed acceleration - raw longitudinal acceleration signal)  update raw longitudinal acceleration signal region 2 fail time, 50 millisecond update rate	≥ 0.0000 g	battery voltage run crank voltage diagnostic monitor enable region 2 specific enable  update raw lateral longitudinal acceleration signal stablity time: TOSS vehicle speed TOSS vehicle speed acceleration automatic transmission is clutch to clutch OR dual clutch high side drive 1 enable high side drive 2 enable diagnsotic fault sequence gear active P0716 fault active P0716 test fail this key on P0717 test fail this key on P07BF fault active P07BF test fail this key on P07C0 fault active P07C0test fail this key on attained gear attained gear slip ABS(raw longitudinal acceleration signal) AND ABS(raw longitudinal	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = 0 Boolean ≥ 15.0 KPH ≤ 0.5300 g = TRUE = TRUE = TRUE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE	raw lateral longitudinal acceleration signal stability time ≥ 10.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					acceleration signal)  update region 2 sample time: brake pedal position engine torque TOSS vehicle speed acceleration TOSS vehicle speed TOSS vehicle speed TOSS vehicle speed TOSS vehicle speed USS vehicle speed ABS(raw longitudinal acceleration signal) update sample time  U0073 fault active U0073 test fail this key on DTCs not fault active	≤ 0.70 % ≥ 80.0 Nm ≥ 0.1500 g ≥ 0.0 KPH ≤ 0.0 KPH < 0.5300 g  = FALSE = FALSE VehicleSpeedSensor_FA VehicleSpeedSensorError	region 2 fail time ≥ 75.0 seconds out of region 2 sample time ≥ 120.0 seconds, 50 millisecond update rate	
			ABS(TOSS vehicle speed acceleration - raw longitudinal acceleration signal)  update raw longitudinal acceleration signal region 3 fail time, 50 millisecond update rate	≥ 0.0000 g	battery voltage run crank voltage diagnostic monitor enable region 3 specific enable  update raw lateral longitudinal acceleration signal stablity time: TOSS vehicle speed TOSS vehicle speed acceleration automatic transmission is clutch to clutch OR dual clutch high side drive 1 enable high side drive 2 enable diagnsotic fault sequence gear active P0716 fault active P0717 fault active P0717 test fail this key on	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = 0 Boolean ≥ 15.0 KPH ≤ 0.5300 g = TRUE = TRUE = TRUE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE	raw lateral longitudinal acceleration signal stability time ≥ 10.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P07BF fault active P07BF test fail this key on P07C0 fault active P07C0test fail this key on attained gear attained gear slip ABS(raw longitudinal acceleration signal) AND ABS(raw longitudinal acceleration signal)  update region 3 sample time: brake pedal position engine torque ABS(TOSS vehicle speed acceleration) TOSS vehicle speed ABS(raw longitudinal acceleration) USS vehicle speed ABS(raw longitudinal acceleration signal) update sample time U0073 fault active	= FALSE = FALSE = FALSE = FALSE = 1st thru 10th ≤ 100.0 RPM ≥ 0.5300 g ≤ 3.8500 g ≤ 0.70 % ≥ 80.0 Nm ≤ 0.1000 g ≥ 0.0 KPH < 0.5300 g	region 3 fail time ≥ 75.0 seconds out of region 3 sample time ≥ 120.0 seconds, 50 millisecond update rate	
					U0073 fault active U0073 test fail this key on DTCs not fault active	= FALSE = FALSE VehicleSpeedSensor_FA VehicleSpeedSensorError		
			acceleration - raw longitudinal acceleration signal) update raw longitudinal	≥ 0.0000 g	battery voltage run crank voltage diagnostic monitor enable region 3 specific enable update raw lateral	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = 0 Boolean	raw lateral longitudinal acceleration signal stability time ≥ 10.0 seconds,	
			acceleration signal region 4 fail time, 50 millisecond update rate		longitudinal acceleration signal stablity time: TOSS vehicle speed TOSS vehicle speed acceleration automatic transmission is clutch to clutch OR dual	≥ 15.0 KPH ≤ 0.5300 g = TRUE	fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					clutch high side drive 1 enable high side drive 2 enable diagnsotic fault sequence gear active P0716 fault active P0716 test fail this key on P0717 fault active P0717 test fail this key on P07BF fault active P07BF test fail this key on P07C0 fault active P07C0test fail this key on attained gear attained gear slip ABS(raw longitudinal acceleration signal) AND ABS(raw longitudinal acceleration signal)	= TRUE = TRUE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = SALSE = SA		
					update region 4 sample time: brake pedal position engine torque TOSS vehicle speed acceleration TOSS vehicle speed TOSS vehicle speed TOSS vehicle speed ABS(raw longitudinal acceleration signal) update sample time U0073 fault active U0073 test fail this key on DTCs not fault active	≤ 0.70 % ≤ 80.0 Nm ≤ 0.1500 g ≥ 0.0 KPH ≤ 0.0 KPH < 0.5300 g = FALSE = FALSE VehicleSpeedSensor_FA VehicleSpeedSensorError	region 4 fail time ≥ 75.0 seconds out of region 4 sample time ≥ 120.0 seconds, 50 millisecond update rate	
						·		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Read Only Memory (ROM)	P0601	if the calibration check sum is incorrect or the flash memory detects an uncorrectable error via the Error Correcting Code.  The Principle Error Covers calibrate the principle of the principle	The Primary Processor's calculated checksum does not match the stored checksum value. Covers all software and calibrations.	1 failure if the fault is detected during the first pass. 5.00 failures if the fault occurs after the first pass is complete.			Diagnostic runs continuously in the background.	Type A, 1 Trips
			The Primary Processor's Error Correcting Code hardware in the flash memory detects an error. Covers all software and calibrations.	254 failures detected via Error Correcting Code			Diagnostic runs continuously via the flash hardware.	
			The Primary Processor's calculated checksum does not match the stored checksum value for a selected subset of the calibrations.	2 consecutive failures detected or 5 total failures detected.			Diagnostic runs continuously. Will report a detected fault within 200 ms.	
			The Secondary Processor's calculated checksum does not match the stored checksum value. Covers all software and calibrations.	1 failure if the fault is detected during the first pass. 5 failures if the fault occurs after the first pass is complete.			Diagnostic runs continuously in the background.	
				In all cases, the failure count is cleared when controller shuts down				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Term Memory	P0603	This DTC detects an invalid NVM which includes a Static NVM, Perserved NVM, ECC ROM in NVM Flash Region, and Perserved NVM during shut down.	Static NVM region error detected during initialization				Diagnostic runs at controller power up.	Type A, 1 Trips
Reset	Reset		Perserved NVM region error detected during initialization				Diagnostic runs at controller power up.	
			ECC ROM fault detected in NVM Flash region  ECC ROM Error Count >	3			Diagnostic runs at controller power up.	
			Perserved NVM region error detected during shut down.				Diagnostic runs at controller power down.	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
TCM RAM Failure	P0604	Indicates that the TCM has detected a RAM fault. This includes Primary Processor System RAM Fault, Primary Processor Cache RAM Fault, Primary Processor TPU RAM Fault, Primary Processor Update Dual	Indicates that the primary processor is unable to correctly read data from or write data to system RAM. Detects data read does not match data written >=	254 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	Type A, 1 Trips
		Store RAM Fault, Primary Processor Write Protected RAM Fault, and Secondary Processor RAM Fault. This diagnostic runs continuously.	Indicates that the primary processor is unable to correctly read data from or write data to cached RAM. Detects data read does not match data written >=	3 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	
			Indicates that the primary processor is unable to correctly read data from or write data to TPU RAM. Detects data read does not match data written >=	5 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	
		Indicates that the primary processor detects a mismatch between the data and dual data is found during RAM updates. Detects a mismatch in data and du data updates >	400.00 s			When dual store updates occur.		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Indicates that the primary processor detects an illegal write attempt to protected RAM. Number of illegal writes are >	65,534 counts			Diagnostic runs continuously (background loop)	
			Indicates that the secondary processor is unable to correctly read data from or write data to system RAM. Detects data read does not match data written >=	5 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal TCM Processor Integrity Fault	P0606	Indicates that the TCM has detected an internal processor integrity fault. These include diagnostics done on the SPI Communication as well as a host of diagnostics for both the primary and secondary processsors.	Loss or invalid message of SPI communication from the Secondary Processor at initialization detected by the Primary Processor or loss or invalid message of SPI communication from the Secondary Processor after a valid message was received by the Primary Processor	Loss or invalid message at initialization detected or loss or invalid message after a valid message was recieved		Run/Crank voltage >= 8.00 or Run/Crank voltage >= 11.00, else the failure will be reported for all conditions	In the primary processor, 8 / 16 counts intermittent or 10 counts continuous; 100 counts continuous @ initialization. 12.5 ms /count in the TCM main processor	Type A, 1 Trips
			Loss or invalid message of SPI communication from the Primary Processor at initialization detected by the Secondary Processor or loss or invalid message of SPI communication from the Primary Processor after a valid message was received by the Secondary Processor	Loss or invalid message at initialization detected or loss or invalid message after a valid message was recieved			In the secondary processor, 64/161 counts intermittent or 0.1875 s continuous; 0.4875 s continuous @ initialization. 12.5 ms/count in the TCM secondary processor	
			Checks for stack over or underflow in secondary processor by looking for corruption of known pattern at stack boundaries. Checks number of stack over/ under flow since last powerup reset >=	5		KeMEMD_b_StackLimitTe stEnbl == 1 Value of KeMEMD_b_StackLimitTe stEnbl is: 1. (If 0, this test is disabled)	variable, depends on length of time to corrupt stack	
	MA by ser wit sec	MAIN processor is verified by responding to a seed sent from the secondary with a key response to secondary. Checks number of incorrect keys	2 incorrect seeds within 8 messages, 0.2000 seconds		ignition in Run or Crank	150 ms for one seed continually failing		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			received > or Secondary processor has not received a new within time limit					
			Time new seed not received exceeded			always running	0.450 seconds	
			MAIN processor receives seed in wrong order			always running	3 / 17 counts intermittent. 50 ms/count in the TCM main processor	
			2 fails in a row in the Secondary processor's ALU check			KePISD_b_ALU_TestEnbl d == 1 Value of KePISD_b_ALU_TestEnbl d is: 1. (If 0, this test is disabled)	25 ms	
			2 fails in a row in the Secondary processor's configuration register masks versus known good data			KePISD_b_ConfigRegTes tEnbId == 1 Value of KePISD_b_ConfigRegTes tEnbId is: 1. (If 0, this test is disabled)	12.5 to 25 ms	
			Secondary processor detects an error in the toggling of a hardware discrete line controlled by the MAIN processor: number of discrete changes > = or < = over time window(50ms)	7 17		KePISD_b_MainCPU_SO H_FItEnbld == 1 Value of KePISD_b_MainCPU_SO H_FItEnbld is: 1 . (If 0, this test is disabled) time from initialization >= 0.5000 seconds	50 ms	
			Software background task first pass time to complete exceeds			Run/Crank voltage > 6.41	35.000 seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			2 fails in a row in the MAIN processor's ALU check			KePISD_b_ALU_TestEnbl d == 1 Value of KePISD_b_ALU_TestEnbl d is: 1. (If 0, this test is disabled)	25 ms	
			2 fails in a row in the MAIN processor's configuration register masks versus known good data			KePISD_b_ConfigRegTes tEnbId == 1 Value of KePISD_b_ConfigRegTes tEnbId is: 1. (If 0, this test is disabled)	12.5 to 25 ms	
			Checks number of stack over/under flow since last powerup reset >=	5		KeMEMD_b_StackLimitTe stEnbl == 1 Value of KeMEMD_b_StackLimitTe stEnbl is: 1 . . (If 0, this test is disabled)	variable, depends on length of time to corrupt stack	
			Voltage deviation >	9.00		KePISD_b_A2D_CnvrtrTe stEnbId == 1 Value of KePISD_b_A2D_CnvrtrTe stEnbId is: 1. (If 0, this test is disabled)	5 / 10 counts or 0.150 seconds continuous; 50 ms/count in the TCM main processor	
			Checks for ECC (error correcting code) circuit test errors reported by the hardware for flash memory. Increments counter during controller initialization if ECC error occured since last controller initialization. Counter >=	3 (results in MIL), 5 (results in MIL and remedial action)		KeMEMD_b_FlashECC_ CktTestEnbl == 1 Value of KeMEMD_b_FlashECC_ CktTestEnbl is: 1. (If 0, this test is disabled)	variable, depends on length of time to access flash with corrupted memory	
			Checks for ECC (error	3 (results in MIL),		KeMEMD_b_RAM_ECC_	variable,	<u> </u>

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			correcting code) circuit test errors reported by the hardware for RAM memory circuit. Increments counter during controller initialization if ECC error occured since last controller initialization. Counter >=	5 (results in MIL and remedial action)		CktTestEnbl == 1 Value of KeMEMD_b_RAM_ECC_ CktTestEnbl is: 1. (If 0, this test is disabled)	depends on length of time to write flash to RAMvariable, depends on length of time to write flash to RAM	
			MAIN processor DMA transfer from Flash to RAM has 1 failure			KePISD_b_DMA_XferTest EnbId == 1 Value of KePISD_b_DMA_XferTest EnbId is: 1. (If 0, this test is disabled)	variable, depends on length of time to write flash to RAM	
			Safety critical software is not executed in proper order.	>= 1 incorrect sequence.		Table, f(Core, Loop Time). See supporting tables: P0606_Program Sequence Watch Enable f(Core, Loop Time) (If 0, this Loop Time test is disabled)	Fail Table, f(Loop Time). See supporting tables: P0606_PSW Sequence Fail f (Loop Time)	
							Sample Table, f (Loop Time)See supporting tables: P0606_PSW Sequence Sample f(Loop Time)	
							counts	
							50 ms/count in the TCM main processor	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			MAIN processor determines a seed has not changed within a specified time period within the 50ms task.	Previous seed value equals current seed value.		KePISD_b_SeedUpdKey StorFItEnbl == 1 Value of KePISD_b_SeedUpdKey StorFItEnbl is: 1. (If 0, this test is disabled)	Table, f(Loop Time). See supporting tables: P0606_Last Seed Timeout f (Loop Time)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal Control	P062F	This DTC detects a NVM long term performance. There are	HWIO reports that writing to NVM (at shutdown) will not succeed				Diagnostic runs at controller power up.	Type A, 1 Trips
Module EEPROM Error		two types of diagnostics that run during controller power up. One for HWIO reports that writing to NVM (at shutdown) will not succeed, and the other HWIO reports the assembly calibration integrity check has failed.	HWIO reports the assembly calibration integrity check has failed				Diagnostic runs at controller power up.	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Actuator Supply Voltage Circuit Low	P0658	Controller specific output driver circuit diagnoses the high sided driver circuit for a short to ground failure when the output is powered on by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range during driver on state indicates short to ground failure.  Controller specific output driver circuit voltage thresholds are set to meet the following controller specification for a short to ground.	≤ 0.5 Ω impedance between signal and controller ground	diagnostic monitor enable high side drive ON service mode \$04 not active service fast learn not active P0658 fault active P0658 test fail this key on	= 1 Boolean = TRUE = FALSE = FALSE	fail count ≥ 6 counts out of sample count ≥ 2,400 counts  6.25 millisecond update rate	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Fluid Temperature (TFT) Sensor Performance	P0711	The diagnostic monitor will verify the time to transmission fluid temperature warm up based on the raw transmissin fluid temperature sesnor, any intermittent signal that causes multiple	raw transmission fluid temperature and the transmission fluid temperature warm up time has elapsed	≤ 15.0 °C			transmission fluid temperature warm up time ≥ transmission fluid temperature warm up time seconds	Type B, 2 Trips
		unrealistic delta changes (intermittent faults) based on the			diagnsotic monitor enable P0712 NOT fault active P0713 NOT fault active	= 1 Boolean		
		raw transmissin fluid temperature sesnor, and, raw transmissin			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		fluid temperature sesnor signal stuck in valid range.			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
					warm up test enable TFT rationality diagnostic monitor enabled	= 1 Boolean = VeTFSR_b_TFT_RatlEnbl		
					driver accelerator pdeal position	≥ 5.0 %		
					engine torque engine speed vehicle speed engine coolant	≥ 50.0 Nm ≥ 500.0 RPM ≥ 10.0 KPH ≥ -40.0 °C		
					temperature engine coolant temperature raw transmission fluid	≤ 150.0 °C ≥ -40.0 °C		
					temperature raw transmission fluid temperature	≤ 150.0 °C		
					P2818 fault active P2818 test fail this key on	= FALSE = FALSE		
				DTCs not fault active				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						EngineTorqueEstInaccura te AcceleratorPedalFailure CrankSensor_FA ECT_Sensor_FA VehicleSpeedSensor_FA		
			current transmission fluid temperature string length = previous transmission fluid temperature transmission temperature string length + (raw transmission fluid temperature - previous raw transmission fluid temperature, update rate 100 milliseconds, increment sample count	≥ 80.0 °C			sample count ≥ 10 counts evaluate fail temperature threshold, 100 millisecond update rate, if transmission fluid temperature string length above fail threshold increment fail time  fail time ≥ 8.0 seconds out of sample time ≥ 12.0 seconds	
					diagnsotic monitor enable P0712 NOT fault active P0713 NOT fault active	= 1 Boolean		
					battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
					run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
					intermittent test enable propulsion system active	= 1 Boolean = TRUE		
			raw transmission fluid temperature previous	≤ 0.0000 °C			fail time ≥ 300.0	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			raw transmission fluid temperature, update rate 100 milliseconds,		diagnsotic monitor enable P0712 NOT fault active P0713 NOT fault active	= 1 Boolean		
			update fail time		battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
					run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
					stuck in range test enable propulsion system active raw transmission fluid temperature raw transmission fluid temperature	= 1 Boolean = TRUE ≥ -40.0 °C ≤ 150.0 °C		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Fluid Temperature Sensor Circuit Low Voltage	P0712	Controller specific analog circuit diagnoses the transmission fluid temperature sensor and wiring for a short to ground fault by comparing a voltage measurement to controller specific voltage thresholds, converted to a resistance value.	circuit resistance update fail time 1 seconds update rate	≤ 13.500 Ω	diagnostic monitor enable battery voltage run crank voltage run crank voltage in range time	= 1 Boolean ≥ 9.00 volts ≥ 9.00 volts	fail time ≥ 5.00 seconds out of sample time ≥ 6.00 seconds 1 seconds update rate  battery voltage in range time ≥ 0.100 seconds  run crank voltage in range time ≥ 0.100 seconds	Type B, 2 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Fluid Temperature Sensor Circuit Low Voltage	P0713	Controller specific analog circuit diagnoses the transmission fluid temperature sensor and wiring for an open circuit or short to voltage failure by comparing a voltage measurement to controller specific voltage thresholds, converted to a resistance value.	circuit resistance update fail time 1 seconds update rate	≥49,411,396.0 Ω	diagnostic monitor enable battery voltage run crank voltage run crank voltage in range time	= 1 Boolean ≥ 9.00 volts ≥ 9.00 volts	fail time ≥ 5.00 seconds out of fail time ≥ 6.00 seconds 1 seconds update rate  battery voltage in range time ≥ 0.100 seconds  run crank voltage in range time ≥ 0.100 seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Input Speed Sensor Performance	P0716	Detects unrealistic drop in raw transmission input speed signal RPM. Drop events are counted up to fail threshold. A drop event is defined by a sudden delta change in RPM from one value to a	delta raw transmission input speed  delta raw transmission input speed = raw transmission input speed - last valid raw transmission input speed, 25 millisecond update rate	≥ 2,000.0 RPM	service mode \$04 active diagnostic monitor enable P0717 test fail this key on P07BF test fail this key on P07C0 test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE = FALSE	fail time ≥ 1.500 seconds updated fail event count, fail event count ≥ 5 counts, 25 millisecond update rate	Type A, 1 Trips
		lower value. The raw transmission input speed must achieve a value high enough to record an unrealistic drop sample to sample. Once the drop threshold is met, fail time is accumualted indicating the raw transmission input			last valid raw transmission input speed OR valid raw transmission input speed (before drop event)  last valid raw transmission input speed updates very 25 milliseconds when stablity time complete as	≥ 160.0 RPM ≥ 160.0 RPM	raw transmission input speed time ≥ 2.000 seconds	
		speed has not recovered above a threshold, allowing the fail event count to increment. Multiple fail event counts must occur, but if the signal remains low, no further deltas occur, the "Input Speed Sensor Circuit Low Voltage" DTC will set before P0716, as P0716 is designed to			long as (delta delta raw transmission input speed AND raw transmission input speed)  raw transmission output speed accelerator pedal position engine torque engine torque	≤ 320.0 RPM  > 160.0 RPM  ≥ 254.0 RPM  ≥ 5.0 %  ≤ 8,191.9 Nm ≥ 30.0 Nm	stability time ≥ 0.100 seconds	
	set based on an intermittent raw transmission input speed signal RPM.			transmission hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccura te	engine speed time for transmission hydraulic pressure available	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Input Speed Sensor Circuit Low	P0717	Detects no activity in raw transmission input speed signal RPM due	raw transmission input speed OR	≤ 100.0 RPM	service mode \$04 active	= FALSE	fail time ≥ 4.00 seconds	Type A, 1 Trips
Voltage		to open ciruit electrical failure mode or sensor internal faults, or, controller internal	TISS/TOSS fault (single power supply to TISS and TOSS) = TRUE,	< 475.0 RPM	diagnostic monitor enable run crank voltage	= 1 Boolean ≥ 5.00 volts	run crank voltage time ≥ 25 milliseconds	
		failure modes. The raw transmission input speed signal RPM is rationalized against vehicle conditions in which the the powertrain is producing torque available at the drive wheels, but raw transmission input speed signal RPM remains low. After a sudden drop in raw transmission input speed signal RPM, a race condition can occur between P0717 and "Input Speed Sensor Performance" depending on the true nature of the failure.	update fail time 25 millisecond update rate		service fast learn active run crank voltage P0722 fault active P0723 fault active P0770 fault active P0770 fault active P0770 fault active P0770 fault active brake pedal position sesnor must be OBDII to use brake pedal conditional brake pedal position sesnor type brake pedal position P0716 test fail this key on P07BF test fail this key on P07C0 test fail this key on accelerator pedal position engine torque engine torque engine torque (transmission current attained gear transmission current attained gear raw transmission output speed OR transmission current attained gear transmission current attained gear raw transmission current attained gear raw transmission current attained gear raw transmission output speed) P0717 fault active P0717 test fail this key on	= FALSE ≥ 9.00 volts = FALSE = FALSE = FALSE = FALSE = FALSE = CeBRKR_e_OBD < 70.0 % = FALSE = FALSE = FALSE = FALSE ≥ 5.0 % ≥ 30.0 Nm ≤ 8,191.9 Nm ≤ CeCGSR_e_CR_Sevent h  ≥ CeCGSR_e_CR_First ≥ 162.0 RPM  ≤ CeCGSR_e_CR_Tenth ≥ CeCGSR_e_CR_Sevent h	Timiseculus	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					TISS/TOSS fault (single power supply to TISS and TOSS) = TRUE occurs when: (P0722 fail time high gear exceeds fail threshold OR P0722 fail time low gear exceeds fail threshold) TISS/TOSS has single power supply calibration TISS/TOSS single power supply test enabled transmission hydraulic pressure available: engine speed	≥ 162.0 RPM  = FALSE  = TALSE  = 0 Boolean  = 1 Boolean  ≥ 400.0 RPM  EngineTorqueEstInaccura	engine speed time ≥ engine speed time for transmission hydraulic pressure available	
						te		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Performance	P0721	The diagnostic monitor determines if the direction TOSS value is coherent based on the on period time of the directional sensor and TOSS raw. When the on period time indicates a transitional state, the direction must also be transitional as measured by very slow TOSS raw RPM. When the on period time indicates a nontransitional state, forward or reverse, the direction must also be transition, not forward and not reverse.	TOSS raw direction when TOSS transitional period = FALSE AND TOSS raw direction when TOSS transitional period = FALSE OR TOSS raw when TOSS transitional period = TRUE  update fail and sample time 6.26 millisecond update rate	≠ FORWARD  ≠ REVERSE  ≥ 25.0 RPM	service mode \$04 active diagnostic monitor enable TOSS count sample period P0721 fault active P0721 test fail this key on TOSS transitional period detected = FALSE when: on period on period when direction unknown OR on period when direction is reverse OR on period when direction is forward TOSS transitional period detected = TRUE when: on period on period when direction unknown Senor type is directional senor type cailbration	= FALSE = 1 Boolean ≠ 0 counts = FALSE = FALSE ≥ 0.3994 seconds ≤ 0.3193 seconds < 0.2363 seconds > 0.1240 seconds < 0.0811 seconds > 0.0088 seconds > 0.3994 seconds = CeTOSR_e_Directional	fail time ≥ 3.500 seconds out of sample time ≥ 5.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Circuit Low Voltage	P0722	Detects no activity in raw transmission output speed signal RPM due to open ciruit electrical failure mode or sensor internal faults, or, controller internal failure modes. The raw transmission output speed signal RPM is rationalized against vehicle conditions in which the the powertrain is producing torque, but raw transmission output speed signal RPM remains low. After a sudden drop in raw transmission output speed signal RPM, a race condition can occur between P0722 and "Output Speed Sensor Circuit Intermittent" depending on the true nature of the failure.	raw transmission output speed, update fail time 6.25 millisecond update rate when: attained gear attained gear AND attained gear use high gear fail time threshold ELSE use low gear fail time threshold	≥ CeCGSR_e_CR_First ≤ CeCGSR_e_CR_Tenth  > CeCGSR_e_CR_Four th	service mode \$04 active diagnostic monitor enable when neutral range occurs: (garage shift OR PRNDL OR PRNDL OR PRNDL OR range inhibit state) AND (engine torque accelerator pedal position) when not neutral range occurs: attained gear attained gear (attained gear engine torque hysteresis high engine torque hysteresis low accelerator pedal position hysteresis high accelerator pedal position hysteresis low) when not neutral range occurs: (attained gear engine torque hysteresis low) when not neutral range occurs: (attained gear engine torque hysteresis high engine torque hysteresis high engine torque hysteresis	= FALSE = 1 Boolean   ≠ COMPLETE = PARK = NEUTRAL  ≠ no inhibt active ≥ 8,192.0 Nm ≥ 100.0 %  ≥ CeCGSR_e_CR_First ≤ CeCGSR_e_CR_Tenth > CeCGSR_e_CR_Fourth ≥ 50.0 Nm > 30.0 Nm ≥ 5.0 % > 3.0 %  ≤ CeCGSR_e_CR_Fourth ≥ 80.0 Nm > 50.0 Nm	fail time ≥5.00 seconds high gear OR fail time ≥ 3.50 seconds low gear	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					accelerator pedal position hysteresis high accelerator pedal position hysteresis low)	≥ 8.0 % > 5.0 %		
					TISS enable occurs when: (TISS speed select OR TISS/TOSS has single	= 1 Boolean = 0 Boolean		
					power supply calibration AND TISS AND	≤ 8,191.9 RPM		
					TISS) OR (TISS speed select OR TISS/TOSS has single	≥ 475.0 RPM ≠ 1 Boolean = 0 Boolean		
					power supply calibration AND TISS AND	≤ 8,191.9 RPM		
					P0716 test fail this key on P0717 test fail this key on P07BF test fail this key on P07C0 test fail this key on	= FALSE = FALSE		
					PTO check: PTO enable calibration is FALSE OR	≠ 1 Boolean		
					(PTO enable calibration is TRUE AND PTO active)	= 1 Boolean = TRUE		
					run crank voltage	≥ 5.00 volts = FALSE	run crank voltage time ≥ 25 milliseconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					run crank voltage transmission fluid temperature P0723 test fail this key on P077C test fail this key on P077D test fail this key on P0722 fault active P0722 test fail this key on transmission hydraulic pressure available: engine speed	= FALSE = FALSE	engine speed time ≥ engine speed time for transmission hydraulic pressure available	
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccura te		

Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
P0723	is defined by a sudden delta change in RPM	update fail time, delta raw transmission	≥ 700.0 RPM ≥ 700.0 RPM	service mode \$04 active diagnostic monitor enable	= FALSE = 1 Boolean	fail time ≥ 1.500 seconds updated fail event count, fail event count ≥ 5 counts, 25 millisecond update rate	Type A, 1 Trips
	lower value. The raw transmission output speed must achieve a value high enough to record an unrealistic drop sample to sample. Once the drop threshold is met, fail time is accumualted	transmission output speed previous loop - raw transmission output speed, 25 millisecond update rate		transmission engaged state	≠ not engaged	transmission engaged state time ≥ P0723 transmission engaged state time threshold	
	transmission output speed has not recovered above a			4WD low state	= 4WD low state previous loop, 25 millisecond update rate	4WD low change time ≥ 3.0 seconds	
	fail event count to increment. Multiple fail event counts must occur, but if the signal remains low, no further			PTO check: PTO enable calibration is FALSE OR (PTO enable calibration is	≠ 1 Boolean = 1 Boolean		
	"Output Speed Sensor Circuit Low Voltage" DTC will set before P0723, as P0723 is designed to set based on an intermittent raw transmission output speed signal RPM.  AND PTO active run crank v		= TRUE ≥ 5.00 volts	run crank voltage			
Or tra			service fast learn active run crank voltage P077C test fail this key on P077D test fail this key on	= FALSE ≥ 9.00 volts = FALSE = FALSE	time ≥ 25 milliseconds		
	Code	P0723 Detects unrealistic drop in raw transmission output speed signal RPM. Drop events are counted up to fail threshold. A drop event is defined by a sudden delta change in RPM from one value to a lower value. The raw transmission output speed must achieve a value high enough to record an unrealistic drop sample to sample. Once the drop threshold is met, fail time is accumualted indicating the raw transmission output speed has not recovered above a threshold, allowing the fail event count to increment. Multiple fail event counts must occur, but if the signal remains low, no further deltas occur, the "Output Speed Sensor Circuit Low Voltage" DTC will set before P0723, as P0723 is designed to set based on an intermittent raw transmission output	P0723 Detects unrealistic drop in raw transmission output speed signal RPM. Drop events are counted up to fail threshold. A drop event is defined by a sudden delta change in RPM from one value to a lower value. The raw transmission output speed must achieve a value high enough to record an unrealistic drop sample to sample. Once the drop threshold is met, fail time is accumualted indicating the raw transmission output speed has not recovered above a threshold, allowing the fail event count to increment. Multiple fail event counts must occur, but if the signal remains low, no further deltas occur, the "Output Speed Sensor Circuit Low Voltage" DTC will set before P0723, as P0723 is designed to set based on an intermittent raw transmission output	P0723 Detects unrealistic drop in raw transmission output speed signal RPM. Drop events are counted up to fail threshold. A drop event is defined by a sudden delta change in RPM from one value to a lower value. The raw transmission output speed must achieve a value high enough to record an unrealistic drop sample to sample. Once the drop threshold is met, fail time is accumualted indicating the raw transmission output speed has not recovered above a threshold, allowing the fail event count to increment. Multiple fail event counts must occur, but if the signal remains low, no further deltas occur, the "Output Speed Sensor Circuit Low Voltage" DTC will set before P0723, as P0723 is designed to set based on an intermittent raw transmission output	P0723 Detects unrealistic drop in raw transmission output speed signal RPM. Drop events are counted up to fail threshold. A drop event is defined by a sudden delta change in RPM from one value to a lower value. The raw transmission output speed must achieve a value high enough to record an unrealistic drop sample to sample. Once the drop threshold is met, fail time is accumualted indicating the raw transmission output speed unture speed must achieve a threshold, allowing the fail event count to increment. Multiple fail event counts must occur, but if the signal remains low, no further deltas occur, the "Output Speed Sensor Circuit Low Voltage" DTC will set before P0723, as P0723 is designed to set based on an intermittent raw transmission output speed signal RPM.	P0723 Detects unrealistic drop in a transmission output speed signal RPM. Drop events are counted up to fail threshold. A drop event is defined by a sudden delta change in RPM from one value to a lower value. The raw transmission output speed must achieve a value high enough to record an unrealistic drop sample. Once the drop threshold is accumulated indicating the raw transmission output speed has not recorded above a threshold, allowing the fail event counts must occur, but if the signal remains low, no further deltas occur, the elong and intermittent raw transmission output speed Sport Circuit Low Voltage" DTC will set before P0723, as P0723 is designed to set based on an intermittent raw transmission output speed and an intermittent raw transmission output speed parameters and the signal remains low, no further deltas occur, the elong port of the signal remains low and intermittent raw transmission output speed parameters and the signal remains low the signal remains low and the signal remains low an	P0723 Detects unrealistic drop in the transmission output speed signal RPM. Drop events are counted up to fail threshold. Adrop event is defined by a sudden delta change in RPM from one value to a lower value. The raw transmission output speed signal RPM. By a sudden delta change in RPM from one value to a lower value. The raw transmission output speed at a will be high enough to a value high enough to recover an unrealistic drop sample to sample. Once the drop threshold is met, fail time is accumulated indicating the raw transmission output speed has not recovered above a threshold, allowing the fail event count to increment. Multiple f

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					NEUTRAL allow transmission engaged state time before enabling fail evaluation, or, if raw raw transmission output speed is active in NEUTRAL enable fail evaluation: PRNDL OR  PRNDL OR	= CeTRGR_e_PRNDL_Neu tral = CeTRGR_e_PRNDL_Tra nsitional1 N-D transitional		
					PRNDL OR  raw transmission output speed OR last valid raw transmission output speed	= CeTRGR_e_PRNDL_Tra nsitional4 R-N transitional ≥ 250.0 RPM ≥ 250.0 RPM		
					determine if raw transmission input speed is stable: (raw transmission input speed - raw transmission input speed previous, 25 millisecond update AND raw transmission input speed)	≤ 4,095.9 RPM ≥ 160.0 RPM	raw transmission input speed stability time ≥ 2.00 seconds	
					OR (TISS/TOSS has single power supply calibration AND raw transmission input speed)	= 0 Boolean = 0.0 RPM	no time required	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					select delta RPM fail theshold: (4WD low state AND \$WD low valid) select P0723 4WD TOSS delta fail threshold otherwise use P0723 TOSS delta fail threshold	= TRUE = TRUE		
					last valid raw transmission output speed OR valid raw transmission output speed (before drop event)	> 89.0 RPM > 89.0 RPM	raw transmission output speed time ≥ 2.00 seconds	
					last valid raw transmission output speed updates very 25 milliseconds when stablity time complete as long as (delta delta raw transmission output speed AND		stability time ≥ 0.100 seconds	
					raw transmission output speed)	≥ 89.0 RPM		
					transmission hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available	
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccura te		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Torque Converter Clutch (TCC) System Performance - GF9 specific	P0741	The GF9 diagnostic monitor detects the transmission torque converter control valve failed hydraulically on. The torque converter hydraulic control circuit is multiplexed with the transmission clutch select valve hydraulic control circuit, allowing for the torque converter control valve stuck on test to execute when the clutch select valve solenoid is commanded ON. When the clutch select valve solenoid is commanded ON as the vehicle speed decreases toward zero KPH, and, if the torque converter control valve is stuck on, the torque converter slip speed rate of change will have a large slope while decreasing toward zero RPM, and the torque converter slip speed will remain low near zero RPM.	convert slip speed - previous loop value torque convert slip speed) / 25 milliseconds) when clutch select valve soleniod multiplexed to TCC hydraulic AND torque convert slip speed = ABS(engine speed -	≥ P0741 (GF9 specific) torque convert derivative slip speed fail threshold see supporting tables  ≤ P0741 (GF9 specific) TCC slip speed crash RPM	diagnostic monitor enable (TCC stuck off enable OR TCC stuck on enable) hydraulic pressure available: engine speed  service fast learn active battery voltage  run crank voltage  P281B falut active P281D falut active P281E falut active P281E falut active P281E falut active PRNDL PRNDL PRNDL transmission fluid temperature	= 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean  ≥ 400.0 RPM  = FALSE ≥ 9.00 volts  ≥ 9.00 volts  = FALSE ≥ 2-6.66 °C	failt ime ≥ 0.250 seconds, increment fail count fail count ≥ 4 counts 25 millisecond update rate  engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table  battery voltage time ≥ 0.100 seconds run crank voltage time ≥ 0.100 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					transmission fluid	≤ 130.00 °C	1	
					temperature			
					accelerator pedal position	≥ 0.00 %		
					accelerator pedal position	≤ 1.00 %		
					vehicle speed	≥ 3.0 KPH		
					vehicle speed	≤ 9.5 KPH		1
					TCC command mode	= OFF		1
					break latch state (clutch	≠ disabled (clutch select		
					select valve solenoid	valve transitioning)		
ı					control)			1
					P0722 fault pending	= FALSE		
					P0723 fault pending	= FALSE		
					P0716 fault pending	= FALSE		
					P0717 fault pending	= FALSE		
					P07BF fault pending	= FALSE		
					P07C0 fault pending	= FALSE		
					(PTO active OR	= FALSE		
					PTO disable calibration)	= 1 Boolean		
					transmission fluid	≥ -6.66 °C		
					temperature			1
					transmission fluid	≤ 130.00 °C		
					temperature			
					engine torque	≥ 55.0 Nm		
					engine torque	≤ 800.0 Nm		
					P0741 test fail this key on	= FALSE		
					vehicle speed	≤ 45.0 KPH		
					engine speed	≥ 400.0 RPM		
					engine speed	≤ 5,500.0 RPM		
					accelerator pedal position	≤ 95.0 %		
					4WD low state	= FALSE		
					(driver shift mode active	= FALSE		
					OR			
					driver shift mode	= 0 Boolean		
					calibration)			1
					(misfire requests TCC off			
					OR TOO "	1		
					misfire TCC off	= 0 Boolean		
					calibration)			
					(clucth control solenoid	= FALSE		
1					stuck on OR solenoid			
					stuck OFF intrusive shift			
					active)			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0746 fault pending P0747 fault pending P0776 fault pending P0776 fault pending P0796 fault pending P0797 fault pending P0797 fault pending P2714 fault pending P2715 fault pending P2723 fault pending P2732 fault pending P2732 fault pending P2732 fault pending P2820 fault pending P2821 fault pending P2821 fault pending vehicle speed accelerator pedal position hysteresis  when: break latch state (clutch select valve solenoid) previous break latch state (clutch select valve solenoid) set stuck on test time and begin time down, stuck on test time must time down from calibration value to zero (0.0) seconds	= FALSE = ALSE = FALSE = SALSE = SALS		
					break latch state AND  previous break latch state THEN initialize control valve test time, control valve test time must time down from calibration value to zero (0.0) seconds	= clutch select valve solenoid mutliplexed to TCC hydraulic = disabled (clutch select valve not transitioning) = 2.50 seconds		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccura te P0716, P0717, P07BF, P07C0 P0722, P0723, P077C, P077D		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Stuck Off	P0746	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
		the solenoid is electrically functional.			use battery voltage calibration is FALSE	= 1 Boolean	upuate	
		In the failure mode the clutch slip speed, and gear box gear slip, will be excessive, not near			OR (use battery voltage calibration is TRUE AND	= 1 Boolean		
	or at zero RPM. The clutch slip speed is calculated based on the transmission lever node design, requiring transmission input shaft			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds		
		the transmission lever node design, requiring			use run crank voltage calibration is FALSE OR	= 0 Boolean		
		speed, transmission output shaft speed, and, one transmission			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		intermediate shaft speed. The clutch pressure control			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		solenoid is tested after an automatic transmission shift occurs and has been considered shift complete, or, steady			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		state gear is deemed active, range shift complete. When the automatic transmission			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		shift is complete, steady state gear is considered, the clutch pressure control solenoid is mapped to			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		transmission line hydraulic pressure	hydraulic pressure					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			available:			
		normally allows the			engine speed	≥ 400.0 RPM	engine speed	
		clutch to maintain full					time ≥	1
		torque holding capacity					engine speed	1
		at the given engine					time for	1
		crankshaft torque, to					transmission	1
		maintain true gear					hydraulic	1
		ratio. When the clutch		1			pressure	1
		pressure control					available	1
		solenoid is failed			enable C1 clutch slip		see supporting	1
		hydraulically off, the			speed fail compare when:		table	1
		clutch does not			diagnostic clutch test C1	= HOLDING CLUTCH		
I		maintain holding			((startle mitigation active	= FALSE		
		capacity at any engine			OR			1
		crankshaft torque, and			(startle mitigation active	= TRUE		1
		the clutch slip speed is			AND			1
		uncontrollable. The			startle mitigation gear))	≠ initial startle mitigation		1
		clutch pressure control			(see startle mitigation	gear		1
1		solenoid test is		1	active NOTE below)			1
l .		suspended if the higher			unintended deceleration	= FALSE		1
		level safety startle			fault pending OR			1
		mitigation function is			unintended deceleration	= 0 Boolean		1
		active. The safety			fault pending enable			1
		startle mitigation			FASLE			1
		function is triggered			(startle mitigation)			1
		when a sudden vehicle		1	clutch steady state	= FALSE		1
		deceleration occurs			adaptive active			1
		due to a clutch		1	transmission output shaft	≥ 89.0 RPM		1
		pressure control		1	speed			1
1		solenoid that has failed			C1 clutch slip speed valid,	= TRUE		
		in the opposite sense,			all speed sesnors are			
		clutch pressure control			functional for lever node			
		solenoid failed			clucth slip speed			
		hydraulically on, while			calculation			
I		the solenoid is						
		electrically functional,			accelerator pedal position			
		which must take priority			engine speed	≥ 1,500.0 RPM		
		over any clutch						
		pressure control			diagnostic clutch test C1			
		solenoid stuck off			set to HOLDING CLUTCH			
		diagnostic monitor. All			when:			
		clutch pressure control			clutch solenoid test state	= NEUTRAL TEST		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C1 clutch pressured map	= FALSE  = TRUE  ≠ initial startle mitigation gear  = mapped to line pressure, C1 clutch pressure has transtioned from off-applying-applied		
		be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck off test is disabled. This diagnostic monitor is relative to the GF9 C1 CB123456, or, GR10 C1 CB123456R, clutch pressure control solenoid.			clutch solenoid test state set to NEUTRAL TEST when: test trigger initialize range shift complete time, when range shift state, range shift complete time must time down to zero when range shift complete	= TRUE ≠ range shift completed	initialize range shift complete time = 1.000 seconds, range shift complete time must time down to zero	
					test trigger set to TRUE: enable forward gear AND direction request OR enable reverse gear AND direction request current loop test trigger clutch control solenoid test state range shift state	= 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST = range shift completed	when range shift complete	
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	Tango Simi Gompiotod		

failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			
	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		
_		P2805	P2805

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Stuck On	P0747	Each pressure control solenoid stuck on diagnostic monitor detects a clutch pressure control solenoid failed	shift type is power down shift, C1 clutch slip speed OR shift type is not power down shift,	< 50.0 RPM			shift type is power down shift, fail time ≥ 0.800 seconds, OR	Type A, 1 Trips
		hydraulically on, while the solenoid is electrically functional. The clutch pressure control solenoid is tested during an	C1 clutch slip speed update fail time 6.25 milliscond update	< 50.0 RPM			shift type is not power down shift, fail time ≥ 0.150 seconds,	
		automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control					update fail count, fail count ≥ 3 counts 6.25 milliscond update	
		solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off,			use battery voltage calibration is FALSE OR	= 1 Boolean		
		the intended off going clutch continues to maintain torque			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		capacity during the transmission automatic shift. In the failure			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		mode, the off going clutch slip speed will remain near zero RPM			use run crank voltage calibration is FALSE OR	= 0 Boolean	000000	
		when the clutch pressure control solenoid is commanded			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
	to an off pressure in the normal operation to release the holding clutch. The clutch slip speed is calculated based on the transmission lever node design, requiring			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds		
			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		speed. As part of the pressure control solenoid stuck on diagnostic monitor, the			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		safety startle mitigation function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control			hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
		solenoid that has failed hydraulically on, while the solenoid is electrically functional.			transmission output shaft speed	≥ 89.0 RPM		
		All clutch pressure control solenoid stuck			set solenoid stuck on test trigger to TRUE when:			
		on diagnostic monitors are emission MIL DTCs. System voltage			clutch pressure control solenoid stuck off stuck intrusive shift request	= FALSE		
		must be normal, all clutch pressure control solenoid driver circuits			startle mitigation active (see startle mitigation active NOTE below)	= FALSE		
		must be functional, no clutch pressure control solenoid electrical or			clutch control solenoid test state clutch control solenoid	≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD		
		performance faults can be present, and no speed sensor electrical			test state (see clutch control solenoid test state NOTE below)			
		or performance faults can be present, or the a clutch pressure control solenoid stuck			initialize active clutch controller (clutch control processing in process of sequencing clutches on	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		on test is disabled. This diagnostic monitor is relative to the GF9 C1 CB123456, or, GR10 C1 CB123456R, clutch pressure control			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift	= 0 Boolean		
		solenoid.			OR shift type enable for garage shift OR	= 0 Boolean		
					shift type enable for negative torque up shift OR	= 1 Boolean		
					shift type enable for open throttle power on up shift OR	= 1 Boolean		
					shift type enable for closed throttle down shift OR	= 1 Boolean		
					shift type enable for open throttle power down shift OR	= 1 Boolean		
					shift type enable for closed throttle lift foot up shift) OR	= 0 Boolean		
					clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state	= TIE UP TEST TEST STATE = TIE UP TEST HOLD		
					NOTE below) transition clutch controller active clutch controller (staged steady sate shift - shift not in process, no new shift type occuring, no interrupted shift)	= TRUE ≠ staged steady state		
					set clutch control solenoid test state to TIE UP TEST			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					TEST STATE when: solenoid stuck on test trigger current loop clutch control solenoid test state OR current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below) range shift state solenoid stuck on test trigger	= TRUE = TEST WAITING = TIE UP TEST HOLD  ≠ range shift complete = TRUE		
					additional off going clutch occured  (clutch control solenoid test state OR clutch control solenoid	= TRUE  = TIE UP TEST TEST STATE = TIE UP TEST HOLD		
					test state) (see clutch control solenoid test state NOTE below) diagnostic clutch test  (C1 off going clutch pressure control ramp time out complete AND	= OFF GOING CLUTCH TEST = TRUE		
					off going clutch pressure ramp control ramp time out enable) OR C1 off going clutch	= 1 Boolean ≤ 350.0 kPa	for C1 off going	
					pressure		clutch pressure time ≥ P0747 C1 clutch exhaust delay time closed throttle lift foot up shift OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					engine torque primary on coming clutch active primary on coming control state closed throttle lift foot up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming	≥ 690.0 kPa	P0747 C1 clutch exhaust delay time open throttle power on up shift OR P0747 C1 clutch exhaust delay time garage shift OR P0747 C1 clutch exhaust delay time closed throttle down shift OR P0747 C1 clutch exhaust delay time negative torque up shift OR P0747 C1 clutch exhaust delay time negative torque up shift OR P0747 C1 clutch exhaust delay time open throttle power down shift see supporting tables	
					clutch pressure OR garage shift primary on	≥ 750.0 kPa		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					coming clutch pressure OR negative torque up shift primary on coming clutch pressure OR open throttle power down shift primary on coming	≥ 690.0 kPa ≥ 400.0 kPa		
					clutch pressure OR closed throttle down shift primary on coming clutch pressure C1 clutch slip speed valid, all speed sesnors are functional for lever node clucth slip speed calculation	≥ 690.0 kPa = TRUE		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions: Current value of clutch			
					control solenoid test state is TIE UP TEST TEST STATE, when one off going clutch pressure control solenoid stuck on diagnostic monitor is currently executing. AND			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					That off going clutch pressure control solenoid stuck on diagnostic monitor currently executing passes, the corresponding clutch slip speed ≥ clutch slip speed fail threshold.  Once clutch control solenoid test state is set to TIE UP TEST HOLD, it remains TIE UP TEST HOLD during the automatic transmission shift, until:  An additional off going clutch occurs, as indicated by solenoid stuck on test trigger = TRUE, subsequently clutch control solenoid test state is reset to TIE UP TEST STATE, to allow the additional corresponding off going clutch pressure control solenoid stuck on diagnostic monitor to execute.  OR  The automatic transmission shift completes, range shift state = range shift state = range shift complete.			
					NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		· ·			solenoid stuck on failure			+
					mode that occurs during			
					steady state gear, not			
					during an automatic			
					transmission shift. The			
					startle mitigation active			
					then forces the			
					transmission clutch			
					pressure control system			
					to a safe gear or neutral			
					state, based on the active			
					and inactive clutches,			
					when the unintended			
					vehicle deceleration			
					occurred. Once a safe			
					vehicle gear state is			
					attained, the gear and			
					clutch pressure control			
					system allows transitions			
					of the clutches on and off,			
					to sequence automatic			
					transmission shifts, single			
					step shifts. As each			
					single step automatic			
					transmission shift occurs			
					the normal pressure			
					control solenoid stuck on			
					diagnostic monitors			
					execute to verify which			
					clutch pressure control			
					solenoid is in the stuck on			
					failure mode, allowing one			
					of the clutch pressure			
					control solenoid stuck on			
					DTCs to set P0747,			
					P0777, P0797, P2715,			
					P2724, P2733, P2821.			
					DTCs not fault pending	P0716 P0717 P0722		
					·	P0723 P077C P077D		
						P07BF P07C0		

Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
				DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
				DTCs not fault active	Accelerator Pedal Failure Crank Sensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		
	Fault	Fault Code Monitor Strategy Description	Fault Code Monitor Strategy Description Malfunction Criteria	Fault Code Monitor Strategy Description Malfunction Criteria Threshold Value	Code Description DTCs not test fail this key on	DTCs not test fail this key on	DTCs not test fail this key on   DTCs not test fail this key on   P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Stuck Off	P0776	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
		the solenoid is electrically functional.			use battery voltage calibration is FALSE	= 1 Boolean		
		In the failure mode the clutch slip speed, and gear box gear slip, will be excessive, not near			OR (use battery voltage calibration is TRUE AND	= 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		the transmission lever node design, requiring transmission input shaft			use run crank voltage calibration is FALSE OR	= 0 Boolean		
		speed, transmission output shaft speed, and, one transmission			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		intermediate shaft speed. The clutch pressure control			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		solenoid is tested after an automatic transmission shift occurs and has been considered shift complete, or, steady			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		state gear is deemed active, range shift complete. When the automatic transmission			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		shift is complete, steady state gear is considered, the clutch pressure control solenoid is mapped to			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		transmission line			hydraulic pressure			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			available:			
		normally allows the			engine speed	≥ 400.0 RPM	engine speed	
		clutch to maintain full					time ≥	1
		torque holding capacity					engine speed	1
		at the given engine					time for	1
		crankshaft torque, to					transmission	1
		maintain true gear					hydraulic	1
		ratio. When the clutch					pressure	1
		pressure control					available	1
		solenoid is failed			enable C2 clutch slip		see supporting	1
		hydraulically off, the			speed fail compare when:		table	1
		clutch does not			diagnostic clutch test C2	= HOLDING CLUTCH		
		maintain holding capacity at any engine			((startle mitigation active OR	= FALSE		
		crankshaft torque, and			(startle mitigation active	= TRUE		1
		the clutch slip speed is			AND	- INOL		
		uncontrollable. The			startle mitigation gear))	≠ initial startle mitigation		
		clutch pressure control			(see startle mitigation	gear		1
		solenoid test is			active NOTE below)	goal		1
		suspended if the higher			unintended deceleration	= FALSE		1
		level safety startle			fault pending OR			
		mitigation function is			unintended deceleration	= 0 Boolean		1
		active. The safety			fault pending enable			1
		startle mitigation			FASLE			1
		function is triggered			(startle mitigation)			1
		when a sudden vehicle			clutch steady state	= FALSE		1
		deceleration occurs			adaptive active			1
		due to a clutch			transmission output shaft	≥ 89.0 RPM		1
		pressure control			speed			1
		solenoid that has failed			C2 clutch slip speed valid,	= TRUE		
		in the opposite sense,			all speed sesnors are			
		clutch pressure control			functional for lever node			
		solenoid failed			clucth slip speed			
		hydraulically on, while			calculation			
		the solenoid is						
		electrically functional,				≥ 2.00 %		
		which must take priority			engine speed	≥ 1,500.0 RPM		
		over any clutch						
		pressure control			diagnostic clutch test C2			
		solenoid stuck off			set to HOLDING CLUTCH			
		diagnostic monitor. All			when:			
		clutch pressure control			clutch solenoid test state	I = NEUTRAL TEST		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C2 clutch pressured map	= FALSE  = TRUE  ≠ initial startle mitigation gear  = mapped to line pressure, C2 clutch pressure has transtioned from off-applying-applied		
		be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck off test is disabled. This diagnostic monitor is relative to the GF9 C2 CB29 or GR10 C2 CB128910R, clutch pressure control solenoid.			clutch solenoid test state set to NEUTRAL TEST when: test trigger initialize range shift complete time, when range shift state, range shift complete time must time down to zero when range shift complete	= TRUE  ≠ range shift completed	initialize range shift complete time = 1.000 seconds, range shift complete time must time down to zero	
					test trigger set to TRUE: enable forward gear AND direction request OR enable reverse gear AND direction request current loop test trigger clutch control solenoid test state range shift state	= 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST = range shift completed	when range shift complete	
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	gc 5 55p.666		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			
					DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Stuck On	P0777	Each pressure control solenoid stuck on diagnostic monitor detects a clutch pressure control solenoid failed	shift type is power down shift, C2 clutch slip speed OR shift type is not power down shift,	< 50.0 RPM			shift type is power down shift, fail time ≥ 0.800 seconds, OR	Type A, 1 Trips
		hydraulically on, while the solenoid is electrically functional. The clutch pressure control solenoid is tested during an	C2 clutch slip speed update fail time 6.25 milliscond update	< 50.0 RPM			shift type is not power down shift, fail time ≥ 0.150 seconds,	
		automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control					update fail count, fail count ≥ 3 counts 6.25 milliscond update	
		solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off,			use battery voltage calibration is FALSE OR	= 1 Boolean		
		the intended off going clutch continues to maintain torque			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		capacity during the transmission automatic shift. In the failure			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		mode, the off going clutch slip speed will remain near zero RPM			use run crank voltage calibration is FALSE OR	= 0 Boolean		
		when the clutch pressure control solenoid is commanded			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		to an off pressure in the normal operation to release the holding clutch. The clutch slip			run crank voltage	≥ 9.00 volts	9.00 volts run crank voltage time ≥ 0.100 seconds	
		speed is calculated based on the transmission lever node design, requiring	ated TCM output driver high side driver 1, clutch pressure control solenoid = TRUE Boolean					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control			hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
		solenoid that has failed hydraulically on, while the solenoid is electrically functional.			transmission output shaft speed	≥ 89.0 RPM		
		All clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage			set solenoid stuck on test trigger to TRUE when: clutch pressure control solenoid stuck off stuck intrusive shift request	= FALSE		
		must be normal, all clutch pressure control solenoid driver circuits			startle mitigation active (see startle mitigation active NOTE below)	= FALSE		
		must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no speed sensor electrical			clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below)	≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD		
		or performance faults can be present, or the a clutch pressure control solenoid stuck			initialize active clutch controller (clutch control processing in process of sequencing clutches on	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		on test is disabled. This diagnostic monitor is relative to the GF9 C2 CB29 or GR10 C2 CB128910R, clutch pressure control			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift	= 0 Boolean		
		solenoid.			OR shift type enable for garage shift OR	= 0 Boolean		
					shift type enable for negative torque up shift OR	= 1 Boolean		
					shift type enable for open throttle power on up shift OR	= 1 Boolean		
					shift type enable for closed throttle down shift OR	= 1 Boolean		
					shift type enable for open throttle power down shift OR	= 1 Boolean		
					shift type enable for closed throttle lift foot up shift ) OR	= 0 Boolean		
					clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below)	= TIE UP TEST TEST STATE = TIE UP TEST HOLD		
					transition clutch controller active clutch controller (staged steady sate shift shift not in process, no new shift type occuring, no interrupted shift)	= TRUE ≠ staged steady state		
					set clutch control solenoid test state to TIE UP TEST			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	TEST STATE when: solenoid stuck on test trigger current loop clutch control solenoid test state OR current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below) range shift state solenoid stuck on test trigger additional off going clutch occured  (clutch control solenoid test state OR clutch control solenoid test state) (see clutch control solenoid test state) (see clutch control solenoid test state) (see clutch control solenoid test state NOTE below) diagnostic clutch test  (C2 off going clutch pressure control ramp time out complete AND off going clutch pressure ramp control ramp time out enable) OR C2 off going clutch pressure	Enable Conditions  = TRUE  = TEST WAITING  = TIE UP TEST HOLD  ≠ range shift complete  = TRUE  = TRUE  = TRUE  = TIE UP TEST TEST STATE  = TIE UP TEST HOLD  = OFF GOING CLUTCH TEST  = TRUE  = 1 Boolean  ≤ 350.0 kPa	for C2 off going clutch pressure time ≥ P0777 C2 clutch	Illum.
							exhaust delay time closed throttle lift foot up shift OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					engine torque primary on coming clutch active primary on coming control state closed throttle lift foot up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR qarage shift primary on	≥ 8,191.8 Nm = TRUE ≠ clutch fill phase ≥ 800.0 kPa ≥ 800.0 kPA	P0777 C2 clutch exhaust delay time open throttle power on up shift OR P0777 C2 clutch exhaust delay time garage shift OR P0777 C2 clutch exhaust delay time closed throttle down shift OR P0777 C2 clutch exhaust delay time negative torque up shift OR P0777 C2 clutch exhaust delay time negative torque up shift OR P0777 C2 clutch exhaust delay time open throttle power down shift see supporting tables	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					coming clutch pressure OR negative torque up shift primary on coming clutch pressure OR open throttle power down shift primary on coming	≥ 800.0 kPa ≥ 800.0 kPa		
					clutch pressure OR closed throttle down shift primary on coming clutch pressure C2 clutch slip speed valid, all speed sesnors are functional for lever node clucth slip speed calculation	≥ 800.0 kPa = TRUE		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions: Current value of clutch			
					control solenoid test state is TIE UP TEST TEST STATE, when one off going clutch pressure control solenoid stuck on diagnostic monitor is currently executing.			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		1			That off going clutch			+
					pressure control solenoid			1
				1	stuck on diagnostic			1
				1	monitor currently			1
				1	executing passes, the			1
				1	corresponding clutch slip			1
				1	speed ≥ clutch slip speed			1
				1	fail threshold.			1
				1	Once clutch control			1
				1	solenoid test state is set			1
				1	to TIE UP TEST HOLD, it			1
				1	remains TIE UP TEST			1
					HOLD during the			
				1	automatic transmission			1
				1	shift, until:			1
				1	An additional off going			1
				1	clutch occurs, as			1
				1	indicated by solenoid			1
				1	stuck on test trigger =			1
				1	TRUE, subsequently			1
				1	clutch control solenoid			1
				1	test state is reset to TIE			1
				1	UP TEST TEST STATE, to			1
				1	allow the additional			1
				1	corresponding off going			1
				1	clutch pressure control			1
				1	solenoid stuck on			1
				1	diagnostic monitor to execute.			1
				1	OR			1
				1	The automatic			1
				1	transmission shift			1
				1	completes, range shift			1
				1	state = range shift			1
				1	complete.			1
					Complete.			
					NOTE: Startle mitigation			
					is used to detect			
					unintended vehicle			
					deceleration due to a			
					clutch pressure control			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		· ·			solenoid stuck on failure			+
					mode that occurs during			
					steady state gear, not			
					during an automatic			
					transmission shift. The			
					startle mitigation active			
					then forces the			
					transmission clutch			
					pressure control system			
					to a safe gear or neutral			
					state, based on the active			
					and inactive clutches,			
					when the unintended			
					vehicle deceleration			
					occurred. Once a safe			
					vehicle gear state is			
					attained, the gear and			
					clutch pressure control			
					system allows transitions			
					of the clutches on and off,			
					to sequence automatic			
					transmission shifts, single			
					step shifts. As each			
					single step automatic			
					transmission shift occurs			
					the normal pressure			
					control solenoid stuck on			
					diagnostic monitors			
					execute to verify which			
					clutch pressure control			
					solenoid is in the stuck on			
					failure mode, allowing one			
					of the clutch pressure			
					control solenoid stuck on			
					DTCs to set P0747,			
					P0777, P0797, P2715,			
					P2724, P2733, P2821.			
					DTCs not fault pending	P0716 P0717 P0722		
					·	P0723 P077C P077D		
						P07BF P07C0		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Circuit Low	P077C	Controller specific analog circuit diagnoses the transmission output speed sensor and wiring for a short to ground fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission output speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≤ 0.2500 volts (≤ 0.5 Ω impedance between signal and controller ground)	service mode \$04 active diagnostic monitor enable P077D fault active service fast learn	= FALSE = 1 Boolean = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate fail count ≥ 16 counts 12.5 millisecond update rate run crank and	Type A, 1 Trips
					P077C fault active P077C test fail this key on	≥ 10.00 volts = FALSE = FALSE	battery voltage time ≥ 5.000 seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Circuit High	P077D	Controller specific analog circuit diagnoses the transmission output speed sensor and wiring for a short to voltage fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission output speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≥ 4.7500 volts (≤ 0.5 Ω impedance between signal and controller power)	service mode \$04 active diagnostic monitor enable P077C fault active service fast learn  run crank voltage battery voltage  P077D fault active P077D test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate  fail count ≥ 16 counts 12.5 millisecond update rate  run crank and battery voltage time ≥ 5.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Stuck Off	P0796	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
		the solenoid is electrically functional.			use battery voltage calibration is FALSE	= 1 Boolean	update	
		In the failure mode the clutch slip speed, and gear box gear slip, will be excessive, not near			OR (use battery voltage calibration is TRUE AND	= 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		the transmission lever node design, requiring transmission input shaft			use run crank voltage calibration is FALSE OR	= 0 Boolean	00001100	
		speed, transmission output shaft speed, and, one transmission			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		intermediate shaft speed. The clutch pressure control			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		solenoid is tested after an automatic transmission shift occurs and has been considered shift complete, or, steady	solenoid is tested after an automatic transmission shift occurs and has been TCM output driver high side driver 1, clutch pressure control solenoid TCM output driver high side driver 1, clutch pressure control solenoid					
		state gear is deemed active, range shift complete. When the automatic transmission			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		shift is complete, steady state gear is considered, the clutch pressure control solenoid is mapped to			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		transmission line			hydraulic pressure			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			available:			
	1	normally allows the			engine speed	≥ 400.0 RPM	engine speed	
	1	clutch to maintain full		1			time ≥	1
	1	torque holding capacity		1			engine speed	1
	1	at the given engine					time for	1
	1	crankshaft torque, to					transmission	1
	1	maintain true gear					hydraulic	1
	1	ratio. When the clutch					pressure	1
	1	pressure control					available	1
	1	solenoid is failed			enable C3 clutch slip		see supporting	1
	1	hydraulically off, the			speed fail compare when:		table	1
	1	clutch does not			diagnostic clutch test C3	= HOLDING CLUTCH		
	1	maintain holding			(startle mitigation active	= FALSE		
	1	capacity at any engine			OR			
	1	crankshaft torque, and			(startle mitigation active	= TRUE		1
	1	the clutch slip speed is			AND			1
	1	uncontrollable. The			startle mitigation gear))	≠ initial startle mitigation		1
	1	clutch pressure control			(see startle mitigation	gear		1
	1	solenoid test is			active NOTE below)			1
	1	suspended if the higher			unintended deceleration	= FALSE		1
	1	level safety startle			fault pending OR			1
	1	mitigation function is			unintended deceleration	= 0 Boolean		1
	1	active. The safety			fault pending enable			1
	1	startle mitigation			FASLE			1
	1	function is triggered			(startle mitigation)	E41.0E		1
	1	when a sudden vehicle			clutch steady state	= FALSE		1
	1	deceleration occurs			adaptive active			1
	1	due to a clutch		1	transmission output shaft	≥ 89.0 RPM		1
	1	pressure control			speed	TOUE		1
	1	solenoid that has failed			C3 clutch slip speed valid,	= TRUE		
	1	in the opposite sense,			all speed sesnors are			
	1	clutch pressure control			functional for lever node			
	1	solenoid failed			clucth slip speed			
	1	hydraulically on, while			calculation			
	1	the solenoid is				> 2.00.0/		
	1	electrically functional,			accelerator pedal position			
	1	which must take priority			engine speed	≥ 1,500.0 RPM		
	1	over any clutch pressure control			diagnostic slutch to t CC			
	1	solenoid stuck off			diagnostic clutch test C3			
	1	diagnostic monitor. All			set to HOLDING CLUTCH			
	1	<u> </u>			when:	NEUTDAL TEST		
		clutch pressure control		1	clutch solenoid test state	I = NEUTRAL [EST		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C3 clutch pressured map	= FALSE  = TRUE  ≠ initial startle mitigation gear  = mapped to line pressure, C3 clutch pressure has transtioned from off-applying-applied		
		be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck off test is disabled. This diagnostic monitor is relative to the GF9 C3 CB38, or, GR10 C3 CB123456R, clutch pressure control solenoid.			clutch solenoid test state set to NEUTRAL TEST when: test trigger initialize range shift complete time, when range shift state, range shift complete time must time down to zero when range shift complete	= TRUE  ≠ range shift completed	initialize range shift complete time = 1.000 seconds, range shift complete time must time down to zero	
					test trigger set to TRUE: enable forward gear AND direction request OR enable reverse gear AND direction request current loop test trigger clutch control solenoid test state range shift state	= 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST = range shift completed	when range shift complete	
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	3-5		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			
					DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Stuck On	P0797	Each pressure control solenoid stuck on diagnostic monitor detects a clutch pressure control solenoid failed hydraulically on, while	shift type is power down shift, C3 clutch slip speed OR shift type is not power down shift, C3 clutch slip speed	< 50.0 RPM			shift type is power down shift, fail time ≥ 0.800 seconds, OR shift type is not power down shift, fail time ≥ 0.150 seconds,	Type A, 1 Trips
		the solenoid is electrically functional. The clutch pressure control solenoid is tested during an	update fail time 6.25 milliscond update	30.0 KI W				
		automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control					update fail count, fail count ≥ 3 counts 6.25 milliscond update	
		solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off,			use battery voltage calibration is FALSE OR	= 1 Boolean		
		the intended off going clutch continues to maintain torque			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		capacity during the transmission automatic shift. In the failure			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		mode, the off going clutch slip speed will remain near zero RPM			use run crank voltage calibration is FALSE OR	= 0 Boolean		
		when the clutch pressure control solenoid is commanded			(use run crank voltage calibration is TRUE AND			
		to an off pressure in the normal operation to release the holding clutch. The clutch slip			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		speed is calculated based on the transmission lever node design, requiring			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control			hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
		solenoid that has failed hydraulically on, while the solenoid is electrically functional.			transmission output shaft speed	≥ 89.0 RPM		
		All clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage			set solenoid stuck on test trigger to TRUE when: clutch pressure control solenoid stuck off stuck intrusive shift request	= FALSE		
		must be normal, all clutch pressure control solenoid driver circuits			startle mitigation active (see startle mitigation active NOTE below)	= FALSE		
		must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no speed sensor electrical			clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below)	≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD		
		or performance faults can be present, or the a clutch pressure control solenoid stuck			initialize active clutch controller (clutch control processing in process of sequencing clutches on	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		on test is disabled. This diagnostic monitor is relative to the GF9 C3 CB38, or, GR10 C3 CB123456R, clutch pressure control			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift	= 0 Boolean		
		solenoid.			OR shift type enable for garage shift OR	= 0 Boolean		
					shift type enable for negative torque up shift OR	= 1 Boolean		
					shift type enable for open throttle power on up shift OR	= 1 Boolean		
					shift type enable for closed throttle down shift OR	= 1 Boolean		
					shift type enable for open throttle power down shift OR	= 1 Boolean		
					shift type enable for closed throttle lift foot up shift ) OR	= 0 Boolean		
					clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state	= TIE UP TEST TEST STATE = TIE UP TEST HOLD		
					NOTE below) transition clutch controller active clutch controller (staged steady sate shift - shift not in process, no new shift type occuring, no interrupted shift)	= TRUE ≠ staged steady state		
					set clutch control solenoid test state to TIE UP TEST			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	TEST STATE when: solenoid stuck on test trigger current loop clutch control solenoid test state OR current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below) range shift state solenoid stuck on test trigger additional off going clutch occured  (clutch control solenoid test state OR clutch control solenoid test state) (see clutch control solenoid test state NOTE below) diagnostic clutch test  (C3 off going clutch pressure control ramp time out complete AND off going clutch pressure ramp control ramp time out enable) OR C3 off going clutch pressure	Enable Conditions  = TRUE  = TEST WAITING  = TIE UP TEST HOLD  ≠ range shift complete  = TRUE  = TRUE  = TRUE  = TIE UP TEST TEST STATE  = TIE UP TEST HOLD  = OFF GOING CLUTCH TEST  = TRUE  = 1 Boolean  ≤ 350.0 kPa	for C3 off going clutch pressure time ≥ P0797 C3 clutch	Illum.
							exhaust delay time closed throttle lift foot up shift OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
							P0797 C3 clutch exhaust delay time open throttle power on up shift OR P0797 C3clutch exhaust delay time garage shift OR P0797 C3 clutch exhaust delay time closed throttle down shift OR P0797 C3 clutch exhaust delay time negative torque up shift OR P0797 C3 clutch exhaust delay time negative torque up shift OR P0797 C3 clutch exhaust delay time open throttle power down shift see supporting	
					engine torque primary on coming clutch active primary on coming control state closed throttle lift foot up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR quarage shift primary on	≥ 500.0 kPa	tables	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					coming clutch pressure OR negative torque up shift primary on coming clutch pressure OR open throttle power down	≥ 500.0 kPa ≥ 500.0 kPa		
					shift primary on coming clutch pressure OR	2 300.0 Ki a		
					closed throttle down shift primary on coming clutch pressure	≥ 500.0 kPa		
					C3 clutch slip speed valid, all speed sesnors are functional for lever node clucth slip speed calculation	= TRUE		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two			
					conditions: Current value of clutch control solenoid test state is TIE UP TEST TEST STATE, when one off going clutch pressure control solenoid stuck on diagnostic monitor is currently executing. AND			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					That off going clutch pressure control solenoid stuck on diagnostic monitor currently executing passes, the corresponding clutch slip speed ≥ clutch slip speed fail threshold.  Once clutch control solenoid test state is set to TIE UP TEST HOLD, it remains TIE UP TEST HOLD during the automatic transmission shift, until:  An additional off going clutch occurs, as indicated by solenoid stuck on test trigger = TRUE, subsequently clutch control solenoid test state is reset to TIE UP TEST STATE, to allow the additional corresponding off going clutch pressure control solenoid stuck on diagnostic monitor to execute.  OR  The automatic transmission shift completes, range shift state = range shift complete.			
					NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		· ·			solenoid stuck on failure			+
					mode that occurs during			
					steady state gear, not			
					during an automatic			
					transmission shift. The			
					startle mitigation active			
					then forces the			
					transmission clutch			
					pressure control system			
					to a safe gear or neutral			
					state, based on the active			
					and inactive clutches,			
					when the unintended			
					vehicle deceleration			
					occurred. Once a safe			
					vehicle gear state is			
					attained, the gear and			
					clutch pressure control			
					system allows transitions			
					of the clutches on and off,			
					to sequence automatic			
					transmission shifts, single			
					step shifts. As each			
					single step automatic			
					transmission shift occurs			
					the normal pressure			
					control solenoid stuck on			
					diagnostic monitors			
					execute to verify which			
					clutch pressure control			
					solenoid is in the stuck on			
					failure mode, allowing one			
					of the clutch pressure			
					control solenoid stuck on			
					DTCs to set P0747,			
					P0777, P0797, P2715,			
					P2724, P2733, P2821.			
					DTCs not fault pending	P0716 P0717 P0722		
					·	P0723 P077C P077D		
						P07BF P07C0		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Input/Turbine Speed Sensor A Circuit Low	P07BF	Controller specific analog circuit diagnoses the transmission input/ turbine speed sensor and wiring for a short to ground fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission intput/turbine speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≤ 0.2500 volts (≤ 0.5 Ω impedance between signal and controller ground)	service mode \$04 active diagnostic monitor enable P07C0 fault active service fast learn	= FALSE = 1 Boolean = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate fail count ≥ 16 counts 12.5 millisecond update rate run crank and	Type A, 1 Trips
					battery voltage	≥ 10.00 volts	battery voltage time ≥ 5.000 seconds	
					P07BF fault active P07BF test fail this key on	= FALSE = FALSE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Input/Turbine Speed Sensor A Circuit High	P07C0	Controller specific analog circuit diagnoses the transmission input/ turbine speed sensor and wiring for a short to voltage fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission input/turbine speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≥ 4.7500 volts (≤ 0.5 Ω impedance between signal and controller power)	service mode \$04 active diagnostic monitor enable P07BF fault active service fast learn  run crank voltage battery voltage  P07C0 fault active P07C0 test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate  fail count ≥ 16 counts 12.5 millisecond update rate  run crank and battery voltage time ≥ 5.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			switch state update fail time 1 100 millisecond update rate	= tap up (upshift) state active	service mode \$04 active diagnostic monitor enable run crank voltage run crank voltage P1761 fault active P0826 fault active P0826 fault active P0826 fault pending (P0815 fault active OR P0815 fault active test fail this key on) PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR D5 OR D6 OR	= FALSE = 1 Boolean ≥ 5.00 volts ≥ 9.00 volts = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = 1 Boolean = 1 Boolean	fail time 1 ≥ 1.00 seconds  run crank voltage time ≥ 25 milliseconds  ≥ 1.00 seconds	
					D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE DTCs not fault pending	= 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 0 Boolean = 0 Boolean = 0 Boolean Transmission Shift Lever Position Validity		
		switch state update fail time 2 100 millisecond update rate	= tap up (upshift) state active	service mode \$04 active diagnostic monitor enable run crank voltage run crank voltage P1761 fault active P0826 fault active P0826 test fail this key on	= FALSE = 1 Boolean ≥ 5.00 volts ≥ 9.00 volts = FALSE = FALSE = FALSE	fail time 2 ≥ 120.00 seconds  run crank voltage time ≥ 25 milliseconds		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0826 fault pending (P0815 fault active OR P0815 fault active test fail this key on) PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR D5 OR D6 OR D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE DTCs not fault pending	= FALSE = FALSE = FALSE = 1 Boolean = 0 Boolean = Transmission Shift Lever Position Validity	≥ 1.00 seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Downshift Switch Circuit	P0816	Diagnoses the state of the downshift switch circuit, stuck in the	switch state update fail time 1 100 millisecond update	= tap down (downshift) state active	service mode \$04 active diagnostic monitor enable	= FALSE = 1 Boolean	fail time 1 ≥ 1.00 seconds	Special Type C
Circuit		state "tap down" (downshift) active.	rate		run crank voltage run crank voltage P1761 fault active P0826 fault active P0826 test fail this key on P0826 fault pending (P0816 fault active OR P0816 fault active test fail this key on) PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR D5 OR D6 OR D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE DTCs not fault pending	≥ 5.00 volts  ≥ 9.00 volts  = FALSE  = TALSE  = 1 Boolean  = 0 Boolean  = 1 Boolean	run crank voltage time ≥ 25 milliseconds ≥ 1.00 seconds	
			switch state	top down (downshift)	service mode \$04 active	Position Validity = FALSE	fail time 2 ≥	
		update fail time 2	= tap down (downshift) state active	diagnostic monitor enable	= FALSE = 1 Boolean	120.00 seconds		
		100 millisecond update rate		run crank voltage	≥ 5.00 volts	run crank voltage time ≥ 25		
					run crank voltage P1761 fault active P0826 fault active P0826 test fail this key on	≥ 9.00 volts = FALSE = FALSE = FALSE	milliseconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0826 fault pending (P0816 fault active OR P0816 fault active test fail this key on) PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR D5 OR D6 OR D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE DTCs not fault pending	= FALSE = FALSE = FALSE = 1 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean Transmission Shift Lever Position Validity	≥ 1.00 seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Up and Down Shift Switch Circuit	P0826	Diagnoses the state of the upshift/downshift switch circuit at an illegal voltage, voltage out of range.	switch state update fail time 100 millisecond update rate	= illegal (voltage out of range)	service mode \$04 active diagnostic monitor enable run crank voltage run crank voltage P1761 fault active (P0826 fault active OR P0826 fault active test fail this key on)	= FALSE = 1 Boolean ≥ 5.00 volts ≥ 9.00 volts = FALSE = FALSE = FALSE	fail time ≥ 60.00 seconds  run crank voltage time ≥ 25 milliseconds	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Control Circuit Open	P0960	Controller specific circuit diagnoses 9 speed CB123456 or 10 speed CB123456R clutch solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit  Increment fail time	≥ 200 K Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Control Circuit Low Voltage	P0962	Controller specific circuit diagnoses 9 speed CB123456 or 10 speed CB123456R clutch solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short  Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Control Circuit High Voltage	P0963	Controller specific circuit diagnoses 9 speed CB123456 or 10 speed CB123456R clutch solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage  Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Control Circuit Open	P0964	Controller specific circuit diagnoses 9 speed CB29 or 10 speed CB128910R clutch solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit  Increment fail time	≥ 200 K Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Control Circuit Low Voltage	P0966	Controller specific circuit diagnoses 9 speed CB123456 or 10 speed CB123456R clutch solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short  Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Control Circuit High Voltage	P0967	Controller specific circuit diagnoses 9 speed CB123456 or 10 speed CB123456R clutch solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage  Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Control Circuit Open	P0968	Controller specific circuit diagnoses 9 speed CB38 or 10 speed C23457910 clutch solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit  Increment fail time	≥ 200 K Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Control Circuit Low Voltage	P0970	Controller specific circuit diagnoses 9 speed CB38 or 10 speed C23457910 clutch solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short  Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Control Circuit High Voltage	P0971	Controller specific circuit diagnoses 9 speed CB38 or 10 speed C23457910 clutch solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage  Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Serial Peripheral Interface Bus 2	P16E9	This DTC detects intermitent and continuous invalid SPI messages. This is based on the detection of missing or invalid receive message within the main processor before receiving a valid message.	after receiving a valid			Run/Crank voltage > 6.41	Number of invalid messages > 64.00 OR Amount of time before first message received since initialization > 0.19 counts continuous; 12.5 ms /count in the TCM secondary processor	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Serial Peripheral Interface Bus 1	P16F0	This DTC detects intermitent and continuous invalid SPI messages. This is based on the detection of missing or invalid receive message within the main processor	This function detects a serial communications fault based upon the detection of missing or invalid (receive) message within the main processor before receiving a valid message.			Run/Crank voltage > 6.41	100 / 16 counts continuous; 12.5 ms /count in the TCM main processor	Type A, 1 Trips
		before receiving a valid message.	This function detects a serial communications fault based upon the detection of missing or invalid (receive) message within the main processor after receiving a valid message.			Run/Crank voltage > 6.41	8 / 16 counts continuous; 12.5 ms /count in the TCM main processor	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal Control Module Redundant Memory Performance	P16F3	Transmission Control Module	Safety Monitor Enable Critera	= FALSE Boolean	Reduandant Memory Command Pressure Enable Calibraiton Not	= 0 Boolean	Single Event	Type A, 1 Trips
			Safety Monitor Enable Critera	= TRUE Boolean	Reduandant Memory Command Pressure Enable Calibraiton	= 1 Boolean	Single Event	
			AND					
			No traction event in progress	diffeerence between driven and non-driven wheel speeds: >= 0.00 pct				
			AND					
			Change in vehicle velocity output speed greater than threshold measure by slip speed across all nodes.	Threshold function: TOSS measured with 25ms running delta sampled 6.25ms > ( <brake gain=""> 0.75 * <pct>brake pedal) index: P2D2 Cltch Slip Sum* *See Attached Supporting Table</pct></brake>				
			Condition timer greater than threshold	>= 0.05 seconds				
			AND					
			Fill factor is grather than thrshold by clch:	Fill factor is >= 1.00 Clch 1 1.00 Clch 2				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
				1.00 Clch 3 1.00 Clch 4 1.00 Clch 5 1.00 Clch 6 1.00 Clch 7				
			Command clutch pressure on released clutch greater than threshold	Calucualte clutch press by clutch: (PCS cmnd pressure - 0.00 pressure offset ) * (1.00 C1 reg gain, 1.00 C2 reg gain, 1.51 C3 reg gain, 2.25 C4 reg gain, 1.00 C5 reg gain, 1.00 C6 reg gain, 1.00 C7 reg gain)				
			AND	Subtract return spring : adapt value from ABOVE PCS pressure > value 1				
				Compare Thresholds for clutches by gear: <= P2D2 Decel Pressure - C1 <= P2D2 Decel Pressure - C2 <= P2D2 Decel Pressure - C3 <=				
				P2D2 Decel Pressure - C4				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
				P2D2 Decel Pressure - C5 <= P2D2 Decel Pressure - C6 <= P2D2 Decel Pressure - C7 *See Attached Supporting Tables				
			AND  Check Min # of clutches by attained gear and by comanded gear take	<= NumClchTieUp				
			lower of the 2 values.  AND	Confirmation of tie up				
				capacity clutches This is done by taking value 1 above and subtracting return spring and confirming fill factor above table value> add up # of clutches calucualted as ON.				
			*Monitor is disabled if Fault Active or codes for: Speeds Sensors 1/2/3, High Side Drivers 1/2 or service fast learn active.	*See Attached Supporting Tables:	Reduandant Memory		Single Event	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Safety Monitor Enable Critera	= FALSE Boolean	Command Gear Enable Calibraiton Not	=0 Boolean		
			AND					
			Safety Monitor Enable Critera	= TRUE Boolean	Reduandant Memory Command Gear Enable Calibraiton	= 1 Boolean		
			Command gear too low for present vehcle velocity and pedal position	Commanded Gear Threshold by vehicle velocity:				
				<= MaxSpdGr1 <= MaxSpdGr2 <= MaxSpdGr3 <= MaxSpdGr4 <= MaxSpdGr5 <= MaxSpdGr6 <= MaxSpdGr7 <= MaxSpdGr7 <= MaxSpdGr8 <= MaxSpdGr9 <= MaxSpdGr10				
				RPR (return to previous range if possible) Input Accel Position and Vehcile speed <b>MinGearAllowed</b> > return min gear.				
			IF (incorrect gear still commanded)					
			THEN	5.00 seconds hold in gear before repeat up to max # of times (3.00 cnt of times that can RPR)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			*Monitor is diabled if: TISS FA or TOSS FA, SFL or HSD 1 or HSD 2 are OFF	*See Attached Supporting Tables:				
			Remedial Action Enable Critera	= FALSE Boolean	Reduandant Memory DDM Enable Calibraiton Not	= 0.00 Boolean	Single Event	
			AND					
			Remedial Action Disable Critera	= TRUE Boolean	Reduandant Memory DDM Enable Calibraiton	= 1.00 Boolean		
			AND					
			Wheel Speed Enable Critera	= FALSE Boolean	Reduandant Memory DDM Enable Calibraiton NotEnable Calibraiton	= 0.00 Boolean		
			AND					
			Wheel Speed Disable Critera	= TRUE Boolean	Reduandant Memory DDM Enable Calibraiton Enable Calibraiton	= 1.00 Boolean		
			AND Vehicle Speed	Vehcile Speed > 10.00 Kph	Enable Condition			
			AND					
			Change in Output Shaft speed	-150.00 < dn output shaft < -75.00	Enable Condition			
			AND					
			Service Brake Pedal	Pct Brake Pedal < 40.00 Pct	Increment Timer Condition			
				OR				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
				Pedal Pct < 20.00 Pct for 0.50 seconds	Decrement Timer Condition			
			AND					
			Fail Timer Percentage	= 100.00 Pct				
			**Note: This monitor is only active in development and is disabled in production.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal Control Module Redundant Memory Performance	P16F3	The diagnostic monitor is a rationalization of command values: command clutch pressures and command gear. The monitor is broken up	command pressure (tie up) fault detection minimum # of clutches ON by attained gear and by comanded gear, take lower of the 2 values,	≤ NumClchTieUp See Attached Supporting Tables	Reduandant Memory Command Pressure Enable Calibraiton Not  Reduandant Memory Command Pressure Enable Calibraiton	= 0 Boolean = 1 Boolean	single event 6.25 millisecond update rate	Type A, 1 Trips
		into two fault detection routines, command pressure (tie up) fault detection and command gear/shift fault detection.	where attained gear is the current operating gear and command gear is the targetted value to transtion toward		No traction event in progress: ABS((driven wheel speed - non-drive wheel speed) / driven wheel speed)	≥ 0.00 %		
		The command pressure (tie up) fault detection is designed to verify the number of clutches applied in a given gear state is	see 9 speed transmission clutch definition and gear state to clutch map and		25 millisecond derivative TOSS RPM, (TOSS delta 25 millisecond loop to 25 milsecond loop) / 25 millisecond for time	< 0.750 * P2D2 Cltch Slip Sum see attached supporting Table ≥ 0.0500 seconds		
		limited, in order to prevent a transmission internal mechanical tieup condition. A condition which could lead to a vehicle	10 speed transmission clutch definition and gear state to clutch map attached supporting tables for clutch 1 through clutch 7 definition and		Clutch 1 hydraulic volume fill factor Clutch 2 hydraulic volume fill factor Clutch 3 hydraulic volume	≥ 1.000 unitless ≥ 1.000 unitless ≥ 1.000 unitless		
		deceleration above the design safety metric. If commanded clutch pressures are above a threshold which would allow multiple clutches	gear state to clutch map		fill factor Clutch 4 hydraulic volume fill factor Clutch 5 hydraulic volume fill factor Clutch 6 hydraulic volume	≥ 1.000 unitless ≥ 1.000 unitless ≥ 1.000 unitless		
		to carry torque, the clutch is considered applied, otherwise the clutch is considered released. If there are more clutches applied,			fill factor Clutch 7 hydraulic volume fill factor  when clutch is off going (releasing) clutch the	≥ 1.000 unitless		
		via the commanded clutch pressures, in a given gear state than is rational, one or more of			(releasing) clutch the commanded clutch pressure equation = ((pressure control solenoid command			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		the clutch pressure			pressure - pressure offset)			
		command values are in			* regulator valve gain) -			
		error. Given rate of			regulator valve return			
		change of transmission			spring pressure adaptive			
		output shaft speed,						
		command gear state			when clutch 1 is off going			
		clutches and clutch			clutch:			
		hydraulic fill volumes,			clutch 1 command			
		those clutches in			pressure	= ((clutch 1 pressure		
		transition from the		1		control solenoid command		
		hydraulic released				pressure - 0.00) * 1.00) -		
		state to the hydraulic				regulator valve return		
ı		applied state and from			clutch 1 state is OFF	spring pressure adaptive,		
		the hydraulic applied		1	when:	kPa		
		state to the hydraulic			clutch 1 command			
		released state, the		1	pressure,	P2D2 Decel Pressure -		
		rationality detects any			else clutch is ON and	≤ C1		
		number of command			count clutch 1 toward	see attached supporting		
		clutch pressures above			minimum # of clutches	tables		
		a threshold, that are			ON			
		simultaneously active						
		to cause a vehicle		1	when clutch 2 is off going			
		deceleration above the			clutch:			
		design safety metric.			clutch 2 command			
					pressure	= ((clutch 2 pressure		
		The command gear/		1		control solenoid command		
		shift fault detection is				pressure - 0.00) * 1.00) -		
		designed to verify the				regulator valve return		
		commanded gear will				spring pressure adaptive,		
		not induce a downshift			clutch 2 state is OFF	kPa		
		resulting in a gear state			when:			
		that is erroneous given			clutch 2 command			
		vehicle operating			pressure,	P2D2 Decel Pressure -		
		conditions. The			else clutch is ON and	≤ <b>C2</b>		
		detection rationalizes			count clutch 2 toward	see attached supporting		
		the command gear			minimum # of clutches	tables		
		against a minimum			ON			
		gear, highest gear ratio,						
		for given vehicle speed			when clutch 3 is off going			
		and driver accelerator			clutch:			
		position.			clutch 3 command			
	I			1	pressure	= ((clutch 3 pressure	l	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					clutch 3 state is OFF when: clutch 3 command pressure, else clutch is ON and count clutch 3 toward minimum # of clutches ON	control solenoid command pressure - 177.00) * 1.51) - regulator valve return spring pressure adaptive, kPa  P2D2 Decel Pressure - ≤ C3 see attached supporting tables		
					when clutch 4 is off going clutch: clutch 4 command pressure  clutch 4 state is OFF when: clutch 4 command pressure, else clutch is ON and count clutch 4 toward minimum # of clutches ON	= ((clutch 4 pressure control solenoid command pressure - 160.00) * 2.25) - regulator valve return spring pressure adaptive, kPa  P2D2 Decel Pressure - ≤ C4 see attached supporting tables		
					when clutch 5 is off going clutch: clutch 5 command pressure  clutch 5 state is OFF when: clutch 5 command pressure,	= ((clutch 5 pressure control solenoid command pressure - 0.00) * 1.00) - regulator valve return spring pressure adaptive, kPa		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					else clutch is ON and count clutch 5 toward minimum # of clutches ON	P2D2 Decel Pressure - ≤ C5 see attached supporting tables		
					when clutch 6 is off going clutch: clutch 6 command pressure			
					clutch 6 state is OFF when: clutch 6 command	= ((clutch 6 pressure control solenoid command pressure - 0.00) * 1.00) - regulator valve return spring pressure adaptive, kPa		
					pressure, else clutch is ON and count clutch 6 toward minimum # of clutches ON	P2D2 Decel Pressure - ≤ C6 see attached supporting tables		
					when clutch 7 is off going clutch: clutch 7 command pressure	= ((clutch 7 pressure		
					clutch 7 state is OFF when: clutch 7 command	control solenoid command pressure - 0.00) * 1.00) - regulator valve return spring pressure adaptive, kPa		
					pressure, else clutch is ON and count clutch 7 toward minimum # of clutches ON	P2D2 Decel Pressure - ≤ C7 see attached supporting tables		
					service fast learn not active			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					no speed sensor DTCs fault active: P0716, P0717, P0721, P0722, P0723, P077C, P077D, P07BF, P07C0, P172A, P172B, P176B, P176C, P176D, P1783, P178F, P17C4, P17C5, P17C6, P17CC, P17CD, P17CE, P17D3, P17D6  no high side driver DTCs fault active: P0658, P2670			
			command gear/shift fault detection		Reduandant Memory Command Gear Enable Calibraiton Not	= 0 Boolean	command gear fail event count ≥ 3 counts	
			1st gear commanded and vehicle seed OR 2nd gear commanded and vehicle seed	> 71.00 KPH > 100.70 KPH	Reduandant Memory Command Gear Enable Calibraiton	= 1 Boolean	6.25 millisecond update rate	
			OR 3rd gear commanded and vehicle seed OR	> 100.70 KPH > 110.52 KPH	service fast learn not active no speed sensor DTCs			
			4th gear commanded and vehicle seed OR 5th gear commanded and vehicle seed OR	> 136.10 KPH > 173.11 KPH	fault active:  P0716, P0717, P0721, P0722, P0723, P077C, P077D, P07BF, P07C0, P172A, P172B, P176B			
			6th gear commanded and vehicle seed OR 7th gear commanded and	> 230.22 KPH	P172A, P172B, P176B, P176C, P176D, P1783, P178F, P17C4, P17C5, P17C6, P17CC, P17CD, P17CE, P17D3, P17D6			
			vehicle seed OR 8th gear commanded and	> 332.90 KPH	no high side driver DTCs fault active:			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			vehicle seed OR 9th gear commanded and	> 445.65 KPH	P0658, P2670			
			vehicle seed OR 10th gear commanded	> 539.54 KPH				
			and vehicle seed THEN increment command gear fail event count and abort commanded gear	> 539.54 KPH				
			and delay for time before next fail evaluation	> 5.00 seconds				

	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Speed Signal Analog to Digital Converter Performance	P16FB	The diagnostic monitor validates the controller calculated transmission output speed sensor data parameters, calculated in multiple paths/subroutines and at different rates.  There are multiple transmission output	ABS(raw transmission output speed, 6.25 millisecond data parameter - raw transmission output speed, 25 millisecond data parameter) update fail and sample time 25 millisecond update rate	≥ 60.0 RPM	service mode \$04 active diagnsotic monitor enable raw transmission output speed, 25 millisecond data parameter raw transmission output speed, 6.25 millisecond data parameter	= FALSE = 1 Boolean ≥ 356.0 RPM ≥ 356.0 RPM	fail time ≥ 8.000 seconds out of sample time ≥ 10.000 seconds 25 millisecond update rate	Type A, 1 Trips
		speed sensor data parameters, calculated at rates of 6.25 milliseconds, 12.5 milliseconds and 25 milliseconds. While the same subroutine, a generic "calculate TOSS" is called from different time loops, each call stores that current value of the calculated TOSS to a different memory location. For example, a 12.5 millisecond loop calling "calculate TOSS" stores the calculated TOSS value to a "12.5 millisecond TOSS calculated" data parameter in memory, while a 25 millisecond loop calling "calculate TOSS" stores the calculated TOSS value to a "25 millisecond TOSS calculated" data parameter in memory. The raw transmission output speed sensor			run crank voltage battery voltage	≥ 10.00 volts ≥ 10.00 volts	run crank and battery voltage time ≥ 5.000 seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		signal is diagnosed independently electrically and for performance of this DTC. The transmission output speed sensor data parameters that are calculated at different rates must always be within a negligible difference of each other.						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Surge Accumulator System Performance	P171D	Detects when the surge accumulator system, used to provide transmission hydraulic pressure, is not capable of supplying	Transmission turbine speed is greater than predicted turbine speed during autostart event, update initial fail count	P171D predicted  ≥ turbine speed error Refer to "Transmission Supporting Tables" for details	PRNDL state defaulted  Transmission shift lever position  Propulsion system active	= False = Forward range A = True	≥ 12 counts (initial fail count) Frequency =12.5ms	Type B, 2 Trips
	adequate hydraulic pressure during an engine auto-start. The transmission holding clutch pressures are			Ignition voltage Ignition voltage	> 9.00 volts < 31.99 volts	counts are achieved then increment the final fail counter		
		clutch pressures are commanded to meet the engine crank shaft			Transmission fluid temp Transmission fluid temp	> 0.00 °C < 110.00 °C	once. The final fail counter can only increment	
		torque output, to prevent clutch slip to those holding clutches,			Hybrid state AutoStop duration min	= Engine off ≥ 1.200 seconds	once per autostart event	
	during the engine auto- start. The diagnostic monitors transmission input shaft speed during the auto-start event as the primary malfunction criteria.	start. The diagnostic monitors transmission		During autostop Engine speed was	< 5.0 RPM	≥ 3 counts (final fail counter)		
		during the auto-start event as the primary		If above conditions are met then the following must occur:		If above counter is greater than threshold then report DTC failed.		
		speed that is excessive is an indication the holding clutches are			Turbine speed Engine speed	≥ 80.0 RPM ≥ 450.0 RPM	Frequency = 12.5ms	
		slipping due to inadequate hydraulic pressure, as a result of a failed surge accumulator system.			Hydraulic pressure delay time	P171D hydraulic ≥ pressure delay Refer to "Transmission Supporting Tables" for details	12.0115	
					If above conditions are met then increment time-out timer. Time-out timer	≤ 0.38 seconds		
					Note: The initial fail			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					counter must achieve it's fail threshold in less than the time-out time.			
					*******			
					If vehicle is launched then:			
					Transmission gear ratio	= 4.689 1st gear ratio = 3.306 2nd gear ratio = 3.012 3rd gear ratio = 2.446 4th gear ratio = 1.923 5th gear ratio = 1.446 6th gear ratio		
					Trans 1st gear ratio	≤ 1.120 % of 1st gear ratio		
					Trans 1st gear ratio	≥ 0.880 % of 1st gear ratio		
					Trans gear ratio not 1st gear Trans gear ratio not 1st gear	≤ 1.070 % of gear ratio ≥ 0.930 % of gear ratio		
					Valid transmission gear ratio achieved time	≥ 0.500 seconds		
					OR			
					If vehicle is not launched but autostart occurs then:			
					Turbine speed	≤ 5.00 RPM		
					Turbine speed less then above threshold for	≥ 0.500 seconds		
					Note: During an autostart event the lack of hydraulic pressure will result in momentary clutch slip in			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					the C1234 clutch. After the clutch slip event, the main transmission pump and clutch will gain capacity, clutch slip will go to zero. If the vehicle is launching (moving) then a valid transmission ratio can be achieved. Or if the brake is continually applied and an autostart occurs naturally, then no ratio can be measured. In this case turbine speed will return to near zero rpm.  ***********************************			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Acceleration Sensor Signal Message Counter Incorrect	P175F	The diagnostic monitor detects an alive rolling count error or checksum error in the CAN frame containing the lateral acceleration signal value and longitudinal acceleration sensor signal value.	rolling count value received from EBCM and expected TCM calculated value not equal OR checksum lateral and longitudinal acceleration CAN frame message value error 50 millisecond update rate	= TRUE	enable alive rolling count error detection: diagnostic monitor enable lateral and longitudinal acceleration CAN frame message received battery voltage run crank voltage enable checksum error detection: diagnostic monitor enable lateral and longitudinal acceleration CAN frame message received normal CAN battery voltage run crank voltage communication enabled  DTCs not fault active	= 1 Boolean = TRUE ≥ 11.0 volts ≥ 11.0 volts = 1 Boolean = TRUE ≥ 11.0 volts ≥ 11.0 volts = TRUE U0073	alive rolling count errors ≥ 54 out of 9 sample counts 50 millisecond update rate  checksum error time ≥ 54.00 seconds	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Up and Down Shift Switch Signal Circuit	P1761	The alive rolling count normally cycles 0, 1, 2, and 3 as a serial data periodic frame is processed normally. The diagnostic monitor counts the number of times an alive rolling count error occurs over a period of time. The TCM receives a serial data frame at a periodic rate, during which, the receive data is processed the comparing the current value of the alive rolling count in the frame date to the incremented value of the diagnostic alive rolling count. When the two values of the alive rolling count do not agree, an alive rolling count error has occurred. The error indicator is saved in an array buffer, and when the number of error indicators in the buffer exceed the fail time is allowed to time up.	alive rolling count error counter update fail time 100 millisecond update rate	≥ 3 counts	service mode \$04 active diagnostic monitor enable run crank voltage  up and down shift serial data frame receive occurred  when up and down shift serial data frame receive occurred: increment the diagnsotic alive rolling count data value, if the diagnsotic alive rolling count data value, set alive rolling count error to TRUE,  when alive rolling count error AND previous alive rolling count arrary buffer, increment alive rolling count error counter	= FALSE = 1 Boolean ≥ 9.00 volts = TRUE ≠ frame alive rolling count data value = TRUE = FALSE	fail time ≥ 10.00 seconds  run crank voltage time ≥ 0.100 seconds	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Upshift Switch Circuit 2	P1765	Diagnoses the state of the upshift switch circuit, stuck in the state "tap up" (upshift) active.	switch state update fail time 1 100 millisecond update rate	= tap up (upshift) state active	service mode \$04 active diagnostic monitor enable run crank voltage run crank voltage P1761 fault active	= FALSE = 0 Boolean ≥ 5.00 volts ≥ 9.00 volts = FALSE	fail time 1 ≥ 1.00 seconds  run crank voltage time ≥ 25 milliseconds	Special Type C
				P1767 fault active P1767 test fail this key on P1767 fault pending (P1765 fault active OR P1765 fault active test fail this key on)	= FALSE = FALSE = FALSE = FALSE = FALSE			
					PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR D5 OR D6 OR D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE DTCs not fault pending	= 1 Boolean = 0 Boolean	≥ 1.00 seconds	
			switch state	= tap up (upshift) state active	service mode \$04 active diagnostic monitor enable	Position Validity = FALSE = 0 Boolean	fail time 2 ≥ 120.00 seconds	
	1		астіvе	run crank voltage run crank voltage P1761 fault active P1767 fault active P1767 test fail this key on	≥ 5.00 volts ≥ 9.00 volts = FALSE = FALSE	run crank voltage time ≥ 25 milliseconds		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P1767 fault pending (P1765 fault active OR P1765 fault active test fail this key on) PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR D5 OR D6 OR D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE DTCs not fault pending	= FALSE = FALSE = FALSE = 1 Boolean = 0 Boolean = Transmission Shift Lever Position Validity	≥ 1.00 seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Downshift Switch Circuit 2	P1766	Diagnoses the state of the downshift switch circuit, stuck in the	switch state update fail time 1 100 millisecond update	= tap down (downshift) state active	service mode \$04 active diagnostic monitor enable	= FALSE = 0 Boolean	fail time 1 ≥ 1.00 seconds	Special Type C
Circuit 2		state "tap down" (downshift) active.	rate		run crank voltage P1761 fault active P1767 fault active P1767 fault active P1767 test fail this key on P1766 fault pending (P1766 fault active OR P1766 fault active test fail this key on) PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR D5 OR D6 OR D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE DTCs not fault pending	≥ 5.00 volts  ≥ 9.00 volts  = FALSE  = FALSE  = FALSE  = FALSE  = FALSE  = FALSE  = TALSE  = 1 Boolean  = 0 Boolean  = Transmission Shift Lever	run crank voltage time ≥ 25 milliseconds ≥ 1.00 seconds	
					2. 33 not launt portaining	Position Validity		
				= tap down (downshift) state active	service mode \$04 active diagnostic monitor enable	= FALSE = 0 Boolean	fail time 2 ≥ 120.00 seconds	
			rate		run crank voltage run crank voltage P1761 fault active P1767 fault active P1767 test fail this key on	≥ 5.00 volts ≥ 9.00 volts = FALSE = FALSE = FALSE	run crank voltage time ≥ 25 milliseconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P1767 fault pending (P1766 fault active OR P1766 fault active test fail this key on) PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR D5 OR D6 OR D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE DTCs not fault pending	= FALSE = FALSE = FALSE = TALSE = 1 Boolean = 0 Boolean = Transmission Shift Lever Position Validity	≥ 1.00 seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Up and Down Shift Switch Circuit 2	P1767	Diagnoses the state of the upshift/downshift switch circuit at an illegal voltage, voltage out of range.	switch state update fail time 100 millisecond update rate	= illegal (voltage out of range)	service mode \$04 active diagnostic monitor enable run crank voltage run crank voltage time run crank voltage P1761 fault active P1767 fault active	= FALSE = 0 Boolean ≥ 5.00 volts ≥ 25 milliseconds ≥ 9.00 volts = FALSE = FALSE	fail time ≥ 60.00 seconds	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Planetary Gearset Ring Gear Speed Sensor Circuit Range/ Performance	P176B	The diagnostic monitor rationalizes the transmission intermediate shaft speed sensor by using the transmission output shaft output speed sensor and the known ratio between the transmission intermediate shaft speed and the transmission output shaft output speed based on the commanded gear and the transmission lever node design. The estimated transmission intermediate shaft speed is equal to the gear ratio times the transmission output shaft output speed. The absolute value of the delta between the measured transmission intermediate shaft speed and the estimated transmission intermediate shaft speed is used to determine if the measured transmission intermediate shaft speed is rational.	delta1 = ABS (transmission input speed - (transmission output speed * gear ratio commanded)) AND delta2 = ABS (transmission input speed - (transmission intermediate speed * ratio calibration)) update faiil time 25 millisecond update rate	> 10.0 RPM  P176B intermediate speed sensor fail > RPM threshold see supporting tables	speed sesnor configuration calibration is single OR dual ratio calibration is function of command gear and intermediate speed sesnor when not REVERSE ratio calibration is function of command gear and intermediate speed sesnor when REVERSE  **********************************	= CeTNSR_e_NSPD_SingleSpdSnsr  P176B ratio calibration = when not REVERSE see supporting tables  P176B ratio calibration = when REVERSE see supporting tables  ***********************************	fail time ≥ P176B intermediate speed sensor fail time threshold see supporting tables  fail time threshold met increments fail count, fail count ≥ P176B intermediate speed sensor fail count threshold see supporting tables	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					speed / ratio calibration) with  transmission input speed	see supporting tables  P176B minimum transmission input speed to enable fail ≥ evaluation see supporting tables  P176B holding clutch = states	P176B delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation see supporting tables	
					input speed sensor ready based on commaned gear and transmission intermediate speed sensor (state output must be FALSE to enable fail evaluation) with with attained gear	see supporting tables  = REVERSE OR = 1st thru 10th		
					transmission input speed transmission output speed neutral idle mode range shift state P0716 fault active P0717 fault active P07BF fault active P07C0 fault active P0722 fault active P0723 fault active P077C fault active P077C fault active P077D fault active P176C fault active P176D fault active battery voltage	*************************************		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		•			service fast learn active run crank voltage  transmission hydraulic pressure available: engine speed	≥ 9.00 volts ≥ 400 RPM	battery voltage time ≥ 0.100 seconds  run crank voltage time ≥ 0.100 seconds  engine speed time ≥ engine speed time for transmission hydraulic pressure	
							available see supporting tables	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Planetary Gearset Ring Gear Speed Sensor Circuit Low	P176C	Controller specific analog circuit diagnoses the transmission intermediate speed sensor and wiring for a short to ground fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission intermediate speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≤ 0.2500 volts (≤ 0.5 Ω impedance between signal and controller ground)	service mode \$04 active diagnostic monitor enable P176D fault active service fast learn  run crank voltage battery voltage  P176C fault active P176C test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate  fail count ≥ 40 counts 12.5 millisecond update rate  run crank and battery voltage time ≥ 5.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Planetary Gearset Ring Gear Speed Sensor Circuit High	P176D	Controller specific analog circuit diagnoses the transmission intermediate speed sensor and wiring for a short to voltage fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission intermediate speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≥ 4.7500 volts (≤ 0.5 Ω impedance between signal and controller power)	service mode \$04 active diagnostic monitor enable P176C fault active service fast learn  run crank voltage battery voltage  P176D fault active P176D test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate  fail count ≥ 40 counts 12.5 millisecond update rate  run crank and battery voltage time ≥ 5.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intermediate Speed Sensor 1 Direction Error	P17D3	The diagnostic monitor determines if the direction transmission intermediate speed sensor value is coherent based on the on period time of the directional sensor and raw speed sensor value. When the on period time indicates a transitional state, the direction must also be transitional as measured by very slow raw signal RPM. When the on period time indicates a nontransitional state, forward or reverse, the direction must also be transition, not forward and not reverse.	intermediate speed sesnor raw direction when transitional period = FALSE AND intermediate speed sesnor raw direction when transitional period = FALSE OR intermediate speed sesnor raw when transitional period = TRUE  update fail and sample time 6.26 millisecond update rate	≠ REVERSE  P17C5 P17D3 intermediate speed ≥ sensor RPM	service mode \$04 active diagnostic monitor enable intermediate speed sesnor count sample period P17D3 fault active OR P17D3 test fail this key on senor type cailbration (senor type is directional)  transitional period detected = FALSE when: on period OR on period when direction unknown OR on period when direction is reverse OR on period on period when direction is forward transitional period detected = TRUE when: on period on period when direction is forward transitional period detected = TRUE when: on period on period when direction unknown	= FALSE = 1 Boolean ≠ 0 counts = FALSE = FALSE = CeTNSR_e_NSPD_SingleSpdSnsr ≥ 0.4434 seconds ≤ 0.2773 seconds < 0.2363 seconds > 0.1240 seconds < 0.0811 seconds > 0.0088 seconds > 0.4434 seconds > 0.2773 seconds	fail time ≥ 3.500 seconds out of sample time ≥ 5.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Position Sensor/ Switch A Circuit/Open	P17F5	The diagnostic monitor detects an illegal voltage on the park valve position sensor circuit.	raw sensor voltage raw sensor voltage	> 1.263 volts < 1.504 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS park sensor configuration type is hall sensor	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Position Sensor/ Switch A Circuit Low	P17F6	The diagnostic monitor detects a ground short or open circuit fault in the park valve position sensor circuit.	raw sensor voltage	< 0.414 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS park sensor configuration type is hall sensor	1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips
			sensor voltage direct proportion  raw sensor % duty cycle  sensor voltage indirect proportion  raw sensor % duty cycle	= CePSCD_e_VoltDirct Prop ≤ 9.998 % duty cycle = CePSCD_e_VoltDirct Prop ≥ 9.998 % duty cycle	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS park sensor configuration type is PWM sensor	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	1.000 seconds in 1.500 second sample 6.25 millisecond update rate	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Position Sensor/ Switch A Circuit High	P17F7	The diagnostic monitor detects a short to voltage circuit fault in the park valve position sensor circuit.	raw sensor voltage	> 2.538 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS park sensor configuration type is hall sensor	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips
			sensor voltage direct proportion  raw sensor % duty cycle  sensor voltage indirect proportion  raw sensor % duty cycle	= CePSCD_e_VoltDirct Prop ≥ 91.998 % duty cycle = CePSCD_e_VoltDirct Prop ≤ 91.998 % duty cycle	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS park sensor configuration type is PWMsensor	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	1.000 seconds in 1.500 second sample 6.25 millisecond update rate	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Position Sensor/ Switch B Circuit/Open	P17FA	The diagnostic monitor detects an illegal voltage on the park valve position sensor circuit.	raw sensor voltage raw sensor voltage	> 1.263 volts < 1.504 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS park sensor configuration type is hall sensor	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Position Sensor/ Switch B Circuit Low	P17FB	The diagnostic monitor detects a ground short or open circuit fault in the park valve position sensor circuit.	raw sensor voltage	< 0.414 volts	diagnostic monitor enable battery voltage battey voltage time ETRS system configuration is internal ERTS park sensor configuration type is hall sensor	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips
			sensor voltage direct proportion  raw sensor % duty cycle  sensor voltage indirect proportion  raw sensor % duty cycle	= CePSCD_e_VoltDirct Prop ≤ 9.998 % duty cycle = CePSCD_e_VoltDirct Prop ≥ 9.998 % duty cycle	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS park sensor configuration type is PWM sensor	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	1.000 seconds in 1.500 second sample 6.25 millisecond update rate	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Position Sensor/ Switch B Circuit High	P17FC	The diagnostic monitor detects a short to voltage circuit fault in the park valve position sensor circuit.	raw sensor voltage	> 2.538 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS park sensor configuration type is hall sensor	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips
			sensor voltage direct proportion  raw sensor % duty cycle  sensor voltage indirect proportion  raw sensor % duty cycle	= CePSCD_e_VoltDirct Prop ≥ 91.998 % duty cycle = CePSCD_e_VoltDirct Prop ≤ 91.998 % duty cycle	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS park sensor configuration type is PWMsensor	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	1.000 seconds in 1.500 second sample 6.25 millisecond update rate	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Up and Down Shift Switch Performance	P1876	This diagnostic monitor rationalizes the PRNDL, transmission shift lever position, against the state for the tap-up-tap-down (TUTD) enable switch or the manual-up-manual-down (MUMD) enable switch. The switch circuit is considered failing when the PRNDL is in park, reverse or neutral, and the switch circuit is indicating the switch in in the enable, or TUTD/MUMD function request state. The switch can only be in the enable state when the PRNDL is in the appropriate drive range, for example D9, D8 or D7, but not in park, reverse or neutral.	AND (shift lever range calibration is tap-up-tap-down (TUTD)	= NEUTRAL = REVERSE = PARK  = CeTUDR_e_TUTD_M odeOnly	service mode \$04 active diagnostic monitor enable (P1876 test fail this key on OR P1876 fault active)  PRNDL OR PRNDL OR PRNDL  DTCs not test fail this key on  DTCs not fault active	= FALSE = 0 Boolean = FALSE = FALSE = NEUTRAL = REVERSE = PARK P0815, P0816, P0826 Transmission Shift Lever Position Validity U0100, P0815, P0816, P0826, P1761, P0707, P0708	fail time ≥ 3.00 seconds, update fail count  fail count ≥ 5 counts  100 millisecond update rate	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Stuck On	P187D	This diagnostic monitor rationalizes the driver ETRS command	when: (Park Valve Position Sensor A OR	= PARK	park servo enable ETRS system type is internal ETRS	= 1 Boolean = CeTRGR_e_InternalETR	fail count ≥ 2 counts	Type A, 1 Trips
		direction of "out of PARK" against the	Park Valve Position Sensor B) AND	= PARK	battery voltage for battery voltage time	S	update rate 6.25 milliseconds	
		actual park valve position, as the park	(out of park state calculated OR	= UNKNOWN	diagnostic monitor enable	≥ 9.00 volts ≥ 1.000 seconds		
		valve position is measured by the park	out of park state calculated)	= PARK	park state transtion is TRUE when:	= 1 Boolean		
	valve position sensor A or B.	update delay time		(out of park state calculated OR				
			when: delay time	2	out of park state calculated) AND	= PARK		
				KtPSDR_t_ParkVIvSt kOn_DlyLim	P187D, P187E Test Fail This Key On	= OUT OF PARK		
			increment fail count		AND ((ETRS command	= FALSE		
					direction AND out of park state)	= PARK		
					OR (ETRS command	≠ PARK		
					direction AND out of park state))	≠ PARK		
					otherwise park state transition is FALSE	≠ OUT OF PARK		
1					park state transition AND			
ĺ					(P17F5, P17F6, P17F7 Fault Active OR	= TRUE		
ĺ					P17FA, P17FB, P17FC Fault Active) AND	= FALSE		
					P187D, P187E Fault Active	= FALSE		
					park servo stuck on	= FALSE		
					availabe is TRUE when: ETRS command direction ((ETRS command			
					direction AND P18AB Test Fail This Key	≠ PARK = DRIVE		
					On) OR	= DVIVE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					(ETRS command	= FALSE		
					direction AND			1
					P18A8 Test Fail This Key	= NEUTRAL LOW		1
					On) OR			1
					(ETRS command	= FALSE		1
					direction AND			1
					P18AD Test Fail This Key	= NEUTRAL HIGH		
					On) OR			1
					((ETRS command	= FALSE		
					direction AND			1
					(P18AB Test Fail This Key	= NEUTRAL SHIFT		
					On OR			1
					P18AD Test Fail This Key	= FALSE		
					On)) OR			
					(ETRS command	= FALSE		1
					direction AND			1
					P18AB Test Fail This Key	= REVERSE		1
					On))			
					otherwise park servo	= FALSE		1
					stuck on available is			1
					FALSE			
l					hydraulic pressure			1
					available = TRUE when:			
					engine speed			1
					for engine speed time			1
					otherwise hydraulic	≥ 400.0 RPM		1
					pressure available =	≥		1
					FALSE	KtTMDC_t_EngOnHydPr esThrsh		
l					hydraulic pressure			
					available			
					park servo stuck on	= TRUE		
					available			
						= TRUE		
					(mode valve A state			
					attained OR			
					P18AA Test Fail This Key	= TRUE		
					On OR			
					P27EC Test Fail This Key	= TRUE		
					On OR			
ı					P27EC Fault Pending)	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					AND (mode valve B state attained OR	= TRUE		
					P18AC Test Fail This Key On OR	= TRUE		
					P27F0 Test Fail This Key On OR P27F0 Fault Pending)	= TRUE = TRUE		
					1 211 01 ddit1 Glidilig)	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Stuck Off	rationalizes the driver ETRS command direction of "PARK" against the actual park valve position, as the park valve position is measured by the mode	ETRS command direction of "PARK" against the actual park valve position, as the park valve position is measured by the mode valve position sensor A	when: ETRS command direction out of park state mode valve A position mode valve B position update delay time when: delay time increment fail time	= PARK ≠ PARK = mode valve low = mode valve low ≥ KtPSDR_t_ParkServo _EngOff_Lim	park servo enable ETRS system type is internal ETRS battery voltage for battery voltage time engine mode run  hydraulic pressure available is TRUE when: engine speed for engine speed time otherwise hydraulic pressure available is FALSE  hydraulic pressure available surge accumulator on/off request engine off diagnostic enabled  P187D, P187E Test Fail This Key On	= 1 Boolean = CeTRGR_e_InternalETR S ≥ 9.00 volts ≥ 1.000 seconds = FALSE  ≥ 400.0 RPM ≥ KtTMDC_t_EngOnHydPr esThrsh  = FALSE = 1 Boolean = FALSE	fail time ≥ KtPSDR_t_Park Servo_EngOff_ Lim seconds update rate 6.25 milliseconds	Type A, 1 Trips
			when: (Park Valve Position Sensor A OR Park Valve Position Sensor B) AND (out of park state calculated OR out of park state calculated) update delay time when: delay time	= OUT OF PARK = OUT OF PARK = UNKNOWN = OUT OF PARK  ≥ KtPSDR_t_ParkVIvSt kOff_DlyLim	park servo enable ETRS system type is internal ETRS battery voltage for battery voltage time diagnsotic monitor enable  park state transtion is TRUE when: (out of park state calculated OR out of park state calculated) AND P187D, P187E Test Fail This Key On AND	= 1 Boolean = CeTRGR_e_InternalETR S ≥ 9.00 volts ≥ 1.000 seconds = 1 Boolean  = PARK = OUT OF PARK = FALSE	fail count ≥ 2 counts update rate 6.25 milliseconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			increment fail count		((ETRS command			<del>                                     </del>
					direction AND			
					out of park state)	= PARK		
					OR (ETD)	/ DADIK		
					(ETRS command direction AND	≠ PARK		
					out of park state))	= PARK		
					otherwise park state	= 1 AIXIX		
					transition is FALSE	≠ OUT OF PARK		
					park servo stuck off			
					availabe is TRUE when:			
					park state transtion			
					((P17F5, P17F6, P17F7			
					Fault Active OR	= TRUE = FALSE		
					P17FA, P17FB, P17FC Fault Active) AND	= FALSE		
					(P187E, P187D Test Fail	= FALSE		
					This Key On))			
					((ETRS command	= FALSE		
					direction AND			
					(P182A Fault Active OR	= PARK		
					P182A Fault Active) AND			
					calculated line pressure))	= FALSE		
					(P18AA Test Fail This Key	= TRUE		
					On P18AC Test Fail This Key	≥ 1,000.0 kPa = FALSE		
					On	- I ALGE		
					ETRS mode enable valve	= FALSE		
					state)			
					otherwise park servo	= ETRS zero limit		
					stuck off availabe is	(hydraulic cicruit		
					FALSE	exhausted)		
					(mode valve A state			
					attained OR			
					P18AA Test Fail This Key	= TRUE		
					On OR	= TRUE		
					P27EC Test Fail This Key On OR	= IRUE		
					P27EC Fault Pending)	= TRUE		
					AND	- 1102		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					(mode valve B state attained OR P18AC Test Fail This Key On OR P27F0 Test Fail This Key On OR P27F0 Fault Pending OR ETRS mode enable valve state)	= TRUE  = TRUE  = TRUE  = TRUE  = TRUE  = TRUE  = ETRS zero limit (hydraulic cicruit exhausted)		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Command Message Performance	P189C	. '	The current alive rolling count value does not equal the previous alive rolling count value incremented by 1	Current ARC ≠ Previous ARC +1	Run Crank Active	True for > 300 msec	10 failures out of 10 samples at 25ms message periodic interval	DTC Type B Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Inhibit Actuator Control Circuit Low	P18A2	Controller specific circuit diagnoses internal ETRS park solenoid for an ground short or open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit  Increment fail time	≥ 200 K Ω impedance between signal and controller ground OR ≤ 0.5 Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Inhibit Actuator Control Circuit High	P18A4	Controller specific circuit diagnoses internal ETRS park solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage  Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Park Inhibit Solenoid Stuck Off	P18A8	This diagnostic monitor rationalizes the park inhibit solenoid based on the driver ETRS command direction and mode valve states.	when: mode valve A position mode valve B position update fail time	= mode valve low = mode valve low	park servo enable ETRS system type is internal ETRS battery voltage for battery voltage time  hydraulic pressure available = TRUE when: engine speed for engine speed time otherwise hydraulic pressure available = FALSE  engine mode run hydraulic pressure available surge accumulator on/off request engine off diagnostic enable (ETRS command direction OR ETRS command direction) P18A8 Test Fail This Key On out of park state	= 1 Boolean = CeTRGR_e_InternalETR S ≥ 9.00 volts ≥ 1.000 seconds  ≥ 400.0 RPM ≥ KtTMDC_t_EngOnHydPr esThrsh  = FALSE = FALSE = FALSE = 1 Boolean = DRIVE = REVERSE = NEUTRAL LOW = NEUTRAL HIGH = NEUTRAL SHIFT = FALSE ≠ OUT OF PARK	fail time ≥ KtPSDR_t_PISA _EngOff_Lim update rate 6.25 milliseconds	Type A, 1 Trips
			when: ETRS command direction P18A8 Test Fail This Key On diagnostic park state	= NEUTRAL LOW = FALSE = OUT OF PARK	park servo enable ETRS system type is internal ETRS battery voltage for battery voltage time	= 1 Boolean = CeTRGR_e_InternalETR S	fail time ≥ KtPSDR_t_PISA _EngOff_Lim update rate 6.25	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			mode valve A position mode valve B position out of park state update fail time	= mode valve low = mode valve low ≠ OUT OF PARK	ignition inputs power mode  hydraulic pressure available = TRUE when: engine speed for engine speed time otherwise hydraulic pressure available = FALSE  hydraulic pressure available ((out of park state OR out of park state) AND P187D, P187E Test Fail This Key On) ETRS command direction	≥ 9.00 volts ≥ 1.000 seconds ≠ power mode off  ≥ 400.0 RPM ≥ KtTMDC_t_EngOnHydPr esThrsh  = TRUE  = PARK = OUT OF PARK = FALSE ≠ PARK	milliseconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control A Position Sensor/ Switch Circuit Stuck On	P18AA	This diagnostic monitor detects a Mode Valve A Position Sensor State in the "on" or "high" state, which is in error, when hydraulic pressure in the circuit used to move the mode valve is not sufficient to overcome the mode valve return spring force, leaving the mode valve mechanically in the "off" or "low" state.		≠ Mode Valve Low	diagnostic monitor enable ETRS system configuration is internal ERTS battery voltage batyer voltage time engine run mode hydraulic system pressure available surge accumulator on/off request GF9 engine off diagnsotic enable P18AA Test Fail This Key On Mode Valve A Position Sensor State  Mode Valve A delay time	= 1 Boolean = CeTRGR_e_InternalETR S  ≥ 9.00 volts ≥ 1.00 seconds = FALSE = FALSE = FALSE = 1 Boolean = FALSE  ≠ Mode Valve Low (updates Mode Valve A delay time) ≥ KtPSDR_t_ModeVIvA_E ngOff_Lim	KtPSDR_t_Mod eVIvA_EngOff_ Lim update rate 6.25 milleseconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control B Position Sensor/ Switch Circuit Stuck On	P18AC	This diagnostic monitor detects a Mode Valve B Position Sensor State in the "on" or "high" state, which is in error, when hydraulic pressure in the circuit used to move the mode valve is not sufficient to overcome the mode valve return spring force, leaving the mode valve mechanically in the "off" or "low" state.		≠ Mode Valve Low	diagnostic monitor enable ETRS system configuration is internal ERTS battery voltage batyer voltage time engine run mode hydraulic system pressure available surge accumulator on/off request GF9 engine off diagnsotic enable P18A Test Fail This Key On Mode Valve A Position Sensor State  Mode Valve A delay time	= 1 Boolean = CeTRGR_e_InternalETR S  ≥ 9.00 volts ≥ 1.00 seconds = FALSE = FALSE = FALSE = 1 Boolean = FALSE  ≠ Mode Valve Low (updates Mode Valve B delay time) ≥ KtPSDR_t_ModeVIvB_E ngOff_Lim	KtPSDR_t_Mod eVIvB_EngOff_ Lim update rate 6.25 milleseconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Actuator Supply Voltage B Circuit Low	P2670	Controller specific output driver circuit diagnoses the high sided driver circuit for a short to ground failure when the output is powered on by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range during driver on state indicates short to ground failure.  Controller specific output driver circuit voltage thresholds are set to meet the following controller specification for a short to ground.	≤≤ 0.5 Ω impedance between signal and controller ground	diagnostic monitor enable high side drive 2 ON P2670 fault active P2670 test fail this key on	= 1 Boolean = TRUE = FALSE = FALSE	fail count ≥ 6 counts out of sample count ≥ 2,400 counts  6.25 millisecond update rate	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Stuck Off	P2714	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
		the solenoid is electrically functional. In the failure mode the			use battery voltage calibration is FALSE OR	= 1 Boolean	update	
		clutch slip speed, and gear box gear slip, will be excessive, not near			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
	the transmission level node design, requiring transmission input shaped, transmission output shaft speed,	the transmission lever node design, requiring			use run crank voltage calibration is FALSE OR	= 0 Boolean	30001143	
		speed, transmission			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		intermediate shaft speed. The clutch pressure control			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		solenoid is tested after an automatic transmission shift occurs and has been considered shift			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
cor sta act cor aut	complete, or, steady state gear is deemed active, range shift complete. When the automatic transmission			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean			
		shift is complete, steady state gear is considered, the clutch pressure control solenoid is mapped to			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		transmission line			hydraulic pressure			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			available:			
		normally allows the			engine speed	≥ 400.0 RPM	engine speed	
		clutch to maintain full					time ≥	
		torque holding capacity					engine speed	
		at the given engine					time for	
		crankshaft torque, to					transmission	
		maintain true gear					hydraulic	
		ratio. When the clutch		1			pressure	1
		pressure control					available	
		solenoid is failed			enable C4 clutch slip		see supporting	
		hydraulically off, the		1	speed fail compare when:		table	1
I		clutch does not			diagnostic clutch test C4	= HOLDING CLUTCH		
		maintain holding			((startle mitigation active	= FALSE		
		capacity at any engine			OR			
		crankshaft torque, and		1	(startle mitigation active	= TRUE		1
		the clutch slip speed is			AND			
		uncontrollable. The			startle mitigation gear))	≠ initial startle mitigation		
		clutch pressure control			(see startle mitigation	gear		
		solenoid test is			active NOTE below)			
		suspended if the higher			unintended deceleration	= FALSE		
		level safety startle			fault pending OR			
		mitigation function is		1	unintended deceleration	= 0 Boolean		1
		active. The safety			fault pending enable			
		startle mitigation			FASLE			
		function is triggered			(startle mitigation)			
		when a sudden vehicle			clutch steady state	= FALSE		
		deceleration occurs			adaptive active			
		due to a clutch			transmission output shaft	≥ 89.0 RPM		
		pressure control			speed			
		solenoid that has failed			C4 clutch slip speed valid,	= TRUE		
		in the opposite sense,			all speed sesnors are			
		clutch pressure control			functional for lever node			
		solenoid failed			clucth slip speed			
1		hydraulically on, while			calculation			
1		the solenoid is						
1		electrically functional,			accelerator pedal position			
		which must take priority			engine speed	≥ 1,500.0 RPM		
		over any clutch						
		pressure control			diagnostic clutch test C4			
I		solenoid stuck off			set to HOLDING CLUTCH			
		diagnostic monitor. All			when:			
		clutch pressure control			clutch solenoid test state	I = NEUTRAL TEST		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C4 clutch pressured map	= FALSE  = TRUE  ≠ initial startle mitigation gear  = mapped to line pressure, C4 clutch pressure has transtioned from off-applying-applied		
		be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck off test is disabled. This diagnostic monitor is relative to the GF9 C4 C4, or, GR10 C4 C123467810R, clutch pressure control solenoid.			clutch solenoid test state set to NEUTRAL TEST when: test trigger initialize range shift complete time, when range shift state, range shift complete time must time down to zero when range shift complete	= TRUE  ≠ range shift completed	initialize range shift complete time = 1.000 seconds, range shift complete time must time down to zero	
					test trigger set to TRUE: enable forward gear AND direction request OR enable reverse gear AND direction request current loop test trigger clutch control solenoid test state range shift state	= 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST = range shift completed	when range shift complete	
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	Tango Simi Gompiotod		

failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			
	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		
_		P2805	P2805

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Stuck On	P2715	Each pressure control solenoid stuck on diagnostic monitor detects a clutch pressure control solenoid failed	shift type is power down shift, C4 clutch slip speed OR shift type is not power down shift,	< 50.0 RPM			shift type is power down shift, fail time ≥ 0.800 seconds, OR	Type A, 1 Trips
		hydraulically on, while the solenoid is electrically functional. The clutch pressure control solenoid is tested during an	C4 clutch slip speed update fail time 6.25 milliscond update	< 50.0 RPM			shift type is not power down shift, fail time ≥ 0.150 seconds,	
		automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control					update fail count, fail count ≥ 3 counts 6.25 milliscond update	
allowing pressure	solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off,			use battery voltage calibration is FALSE OR	= 1 Boolean			
		the intended off going clutch continues to maintain torque			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		capacity during the transmission automatic shift. In the failure			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		mode, the off going clutch slip speed will remain near zero RPM			use run crank voltage calibration is FALSE OR	= 0 Boolean		
		when the clutch pressure control solenoid is commanded			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
	to an off pressure in the normal operation to release the holding clutch. The clutch slip			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds		
		speed is calculated based on the transmission lever node design, requiring			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control			hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
		solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure			transmission output shaft speed set solenoid stuck on test	≥ 89.0 RPM		
		control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage			trigger to TRUE when: clutch pressure control solenoid stuck off stuck intrusive shift request	= FALSE		
		must be normal, all clutch pressure control solenoid driver circuits			startle mitigation active (see startle mitigation active NOTE below)	= FALSE		
		must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no speed sensor electrical			clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below)	≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD		
		or performance faults can be present, or the a clutch pressure control solenoid stuck			initialize active clutch controller (clutch control processing in process of sequencing clutches on	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		on test is disabled. This diagnostic monitor is relative to the GF9 C4 C4, or, GR10 C4 C123467810R, clutch pressure control			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift	= 0 Boolean		
		solenoid.			OR shift type enable for garage shift OR	= 0 Boolean		
					shift type enable for negative torque up shift OR	= 1 Boolean		
					shift type enable for open throttle power on up shift OR	= 1 Boolean		
					shift type enable for closed throttle down shift OR	= 1 Boolean		
					shift type enable for open throttle power down shift OR	= 1 Boolean		
					shift type enable for closed throttle lift foot up shift )	= 0 Boolean		
					OR clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state	= TIE UP TEST TEST STATE = TIE UP TEST HOLD		
					NOTE below) transition clutch controller active clutch controller (staged steady sate shift - shift not in process, no new shift type occuring,	= TRUE ≠ staged steady state		
					no interrupted shift) set clutch control solenoid test state to TIE UP TEST			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
	Fault	Monitor Strategy Description	Malfunction Criteria	Threshold Value	TEST STATE when: solenoid stuck on test trigger current loop clutch control solenoid test state OR current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below) range shift state solenoid stuck on test trigger additional off going clutch occured  (clutch control solenoid test state OR clutch control solenoid test state) (see clutch control solenoid test state) (see clutch control solenoid test state) (see clutch control solenoid test state) (C4 off going clutch pressure control ramp time out complete AND off going clutch pressure ramp control ramp time out enable) OR C4 off going clutch pressure	Enable Conditions  = TRUE = TEST WAITING  = TIE UP TEST HOLD  ≠ range shift complete = TRUE = TRUE  = TRUE  = TIE UP TEST TEST STATE = TIE UP TEST HOLD  = OFF GOING CLUTCH TEST = TRUE  = 1 Boolean  ≤ 350.0 kPa	for C4 off going clutch pressure	
					pressure		clutch pressure time ≥ P2715 C4 clutch exhaust delay time closed throttle lift foot up shift OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					engine torque primary on coming clutch active primary on coming control state closed throttle lift foot up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR	≥ 8,191.8 Nm = TRUE ≠ clutch fill phase ≥ 850.0 kPa ≥ 850.0 kPA	P2715 C4 clutch exhaust delay time open throttle power on up shift OR P2715 C4 clutch exhaust delay time garage shift OR P2715 C4 clutch exhaust delay time closed throttle down shift OR P2715 C4 clutch exhaust delay time negative torque up shift OR P2715 C4 clutch exhaust delay time negative torque up shift OR P2715 C4 clutch exhaust delay time open throttle power down shift see supporting tables	
					garage shift primary on	≥ 750.0 kPa		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					coming clutch pressure OR negative torque up shift primary on coming clutch pressure OR open throttle power down	≥ 850.0 kPa ≥ 850.0 kPa		
					shift primary on coming clutch pressure OR	- 555.5 iii 6		
					closed throttle down shift primary on coming clutch pressure	≥ 850.0 kPa		
					C4 clutch slip speed valid, all speed sesnors are functional for lever node clucth slip speed calculation	= TRUE		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions: Current value of clutch control solenoid test state			
					is TIE UP TEST TEST STATE, when one off going clutch pressure control solenoid stuck on diagnostic monitor is currently executing.			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					That off going clutch pressure control solenoid stuck on diagnostic monitor currently executing passes, the corresponding clutch slip speed ≥ clutch slip speed fail threshold.  Once clutch control solenoid test state is set to TIE UP TEST HOLD, it remains TIE UP TEST HOLD during the automatic transmission shift, until:  An additional off going clutch occurs, as indicated by solenoid stuck on test trigger = TRUE, subsequently clutch control solenoid test state is reset to TIE UP TEST STATE, to allow the additional corresponding off going clutch pressure control solenoid stuck on diagnostic monitor to execute.  OR  The automatic transmission shift completes, range shift			
					state = range shift complete.  NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		· ·			solenoid stuck on failure			+
					mode that occurs during			
					steady state gear, not			
					during an automatic			
					transmission shift. The			
					startle mitigation active			
					then forces the			
					transmission clutch			
					pressure control system			
					to a safe gear or neutral			
					state, based on the active			
					and inactive clutches,			
					when the unintended			
					vehicle deceleration			
					occurred. Once a safe			
					vehicle gear state is			
					attained, the gear and			
					clutch pressure control			
					system allows transitions			
					of the clutches on and off,			
					to sequence automatic			
					transmission shifts, single			
					step shifts. As each			
					single step automatic			
					transmission shift occurs			
					the normal pressure			
					control solenoid stuck on			
					diagnostic monitors			
					execute to verify which			
					clutch pressure control			
					solenoid is in the stuck on			
					failure mode, allowing one			
					of the clutch pressure			
					control solenoid stuck on			
					DTCs to set P0747,			
					P0777, P0797, P2715,			
					P2724, P2733, P2821.			
					DTCs not fault pending	P0716 P0717 P0722		
					·	P0723 P077C P077D		
						P07BF P07C0		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Control Circuit Open	P2718	Controller specific circuit diagnoses 9 speed C4 or 10 speed C123467810R clutch solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit  Increment fail time	≥ 200 K Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Control Circuit Low	P2720	Controller specific circuit diagnoses 9 speed C4 or 10 speed C123467810R clutch solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short  Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ s 0.500 econds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Control Circuit High	P2721	Controller specific circuit diagnoses 9 speed C4 or 10 speed C123467810R clutch solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage  Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Stuck Off	P2723	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
		the solenoid is electrically functional. In the failure mode the			use battery voltage calibration is FALSE OR	= 1 Boolean	upuate	
		clutch slip speed, and gear box gear slip, will be excessive, not near			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		the transmission lever node design, requiring transmission input shaft			use run crank voltage calibration is FALSE OR	= 0 Boolean	30001103	
		speed, transmission output shaft speed, and, one transmission			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		intermediate shaft speed. The clutch pressure control			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		solenoid is tested after an automatic transmission shift occurs and has been considered shift			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
	complete, or, steady state gear is deemed active, range shift complete. When the automatic transmission shift is complete, steady state gear is considered, the clutch pressure control solenoid is mapped to			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean			
		steady state gear is considered, the clutch			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		transmission line			hydraulic pressure			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			available:			
		normally allows the			engine speed	≥ 400.0 RPM	engine speed	
		clutch to maintain full					time ≥	1
		torque holding capacity					engine speed	1
		at the given engine					time for	1
		crankshaft torque, to					transmission	
		maintain true gear					hydraulic	
		ratio. When the clutch					pressure	
		pressure control		1			available	1
		solenoid is failed		1	enable C5 clutch slip		see supporting	1
		hydraulically off, the			speed fail compare when:		table	
		clutch does not			diagnostic clutch test C5	= HOLDING CLUTCH		
		maintain holding			(startle mitigation active	= FALSE		
		capacity at any engine			OR			
		crankshaft torque, and			(startle mitigation active	= TRUE		
		the clutch slip speed is			AND			
		uncontrollable. The			startle mitigation gear))	≠ initial startle mitigation		
		clutch pressure control			(see startle mitigation	gear		
		solenoid test is			active NOTE below)			
		suspended if the higher			unintended deceleration	= FALSE		
		level safety startle			fault pending OR			
		mitigation function is			unintended deceleration	= 0 Boolean		
		active. The safety			fault pending enable			1
		startle mitigation			FASLE			1
		function is triggered			(startle mitigation)	E41.0E		1
		when a sudden vehicle			clutch steady state	= FALSE		1
		deceleration occurs			adaptive active			1
		due to a clutch		1	transmission output shaft	≥ 89.0 RPM		1
		pressure control			speed	TDUE		
		solenoid that has failed			C5 clutch slip speed valid,	= TRUE		1
		in the opposite sense,			all speed sesnors are			
		clutch pressure control			functional for lever node			
		solenoid failed			clucth slip speed			
		hydraulically on, while			calculation			
		the solenoid is				> 2.00.0/		
		electrically functional,			accelerator pedal position			
		which must take priority			engine speed	≥ 1,500.0 RPM		
		over any clutch pressure control			diagnostic slutch to t OF			
		solenoid stuck off			diagnostic clutch test C5			
		diagnostic monitor. All			set to HOLDING CLUTCH			
					when:	NEUTDAL TEST		
		clutch pressure control		1	clutch solenoid test state	I = NEUTRAL [EST		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C5 clutch pressured map	= FALSE  = TRUE  ≠ initial startle mitigation gear  = mapped to line pressure, C5 clutch pressure has transtioned from off-applying-applied		
		be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck off test is disabled. This diagnostic monitor is relative to the GF9 C5 C57R, or, GR10 C5 C1356789, clutch pressure control solenoid.			clutch solenoid test state set to NEUTRAL TEST when: test trigger initialize range shift complete time, when range shift state, range shift complete time must time down to zero when range shift complete	= TRUE  ≠ range shift completed	initialize range shift complete time = 1.000 seconds, range shift complete time must time down to zero when	
					test trigger set to TRUE: enable forward gear AND direction request OR enable reverse gear AND direction request current loop test trigger clutch control solenoid test state range shift state	= 1 Boolean = forward gear  = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST = range shift completed	range shift complete	
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	- rango omit oomploted		

failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			
	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		
_		P2805	P2805

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Stuck On	P2724	Each pressure control solenoid stuck on diagnostic monitor detects a clutch pressure control solenoid failed	shift type is power down shift, C5 clutch slip speed OR shift type is not power down shift,	< 50.0 RPM			shift type is power down shift, fail time ≥ 0.400 seconds, OR	Type A, 1 Trips
		hydraulically on, while the solenoid is electrically functional. The clutch pressure control solenoid is tested during an	C5 clutch slip speed update fail time 6.25 milliscond update	< 50.0 RPM			shift type is not power down shift, fail time ≥ 0.150 seconds,	
		automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control					update fail count, fail count ≥ 3 counts 6.25 milliscond update	
	solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off,			use battery voltage calibration is FALSE OR	= 1 Boolean			
		the intended off going clutch continues to maintain torque			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		capacity during the transmission automatic shift. In the failure			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		mode, the off going clutch slip speed will remain near zero RPM			use run crank voltage calibration is FALSE OR	= 0 Boolean		
	when pressi solend to an olenoma release	when the clutch pressure control solenoid is commanded			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		to an off pressure in the normal operation to release the holding clutch. The clutch slip			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		speed is calculated based on the transmission lever node design, requiring			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control			hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
		solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure			transmission output shaft speed set solenoid stuck on test	≥ 89.0 RPM		
		control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage			trigger to TRUE when: clutch pressure control solenoid stuck off stuck intrusive shift request	= FALSE		
		must be normal, all clutch pressure control solenoid driver circuits			startle mitigation active (see startle mitigation active NOTE below)	= FALSE		
		must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no speed sensor electrical			clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below)	≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD		
		or performance faults can be present, or the a clutch pressure control solenoid stuck			initialize active clutch controller (clutch control processing in process of sequencing clutches on	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		on test is disabled. This diagnostic monitor is relative to the GF9 C5 C57R, or, GR10 C5 C1356789, clutch pressure control			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift	= 0 Boolean		
		solenoid.			OR shift type enable for garage shift OR	= 0 Boolean		
					shift type enable for negative torque up shift OR	= 1 Boolean		
					shift type enable for open throttle power on up shift OR	= 1 Boolean		
					shift type enable for closed throttle down shift OR	= 1 Boolean		
					shift type enable for open throttle power down shift OR	= 1 Boolean		
					shift type enable for closed throttle lift foot up shift)	= 0 Boolean		
					OR clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below)	= TIE UP TEST TEST STATE = TIE UP TEST HOLD		
					transition clutch controller active clutch controller (staged steady sate shift shift not in process, no new shift type occuring, no interrupted shift)	= TRUE ≠ staged steady state		
					set clutch control solenoid test state to TIE UP TEST			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	TEST STATE when: solenoid stuck on test trigger current loop clutch control solenoid test state OR current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below) range shift state solenoid stuck on test trigger additional off going clutch occured  (clutch control solenoid test state OR clutch control solenoid test state) (see clutch control solenoid test state) (see clutch control solenoid test state NOTE below) diagnostic clutch test  (C5 off going clutch pressure control ramp time out complete AND off going clutch pressure ramp control ramp time out enable) OR C5 off going clutch pressure	Enable Conditions  = TRUE  = TEST WAITING  = TIE UP TEST HOLD  ≠ range shift complete  = TRUE  = TRUE  = TRUE  = TIE UP TEST TEST STATE  = TIE UP TEST HOLD  = OFF GOING CLUTCH TEST  = TRUE  = 1 Boolean  ≤ 350.0 kPa	for C5 off going clutch pressure time ≥ P2724 C5 clutch exhaust delay	Illum.
							time closed throttle lift foot up shift OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					engine torque primary on coming clutch active primary on coming control state closed throttle lift foot up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR open shift primary on	≥ 8,191.8 Nm = TRUE ≠ clutch fill phase ≥ 703.0 kPa ≥ 703.0 kPA	P2724 C5 clutch exhaust delay time open throttle power on up shift OR P2724 C5 clutch exhaust delay time garage shift OR P2724 C5 clutch exhaust delay time closed throttle down shift OR P2724 C5 clutch exhaust delay time negative torque up shift OR P2724 C5 clutch exhaust delay time negative torque up shift OR P2724 C5 clutch exhaust delay time open throttle power down shift see supporting tables	

Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
				coming clutch pressure OR negative torque up shift primary on coming clutch pressure OR	≥ 703.0 kPa		
				shift primary on coming clutch pressure	≥ 703.0 kPa		
				closed throttle down shift primary on coming clutch pressure	≥ 703.0 kPa		
				C5 clutch slip speed valid, all speed sesnors are functional for lever node clucth slip speed calculation	= TRUE		
				NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two			
				conditions: Current value of clutch control solenoid test state is TIE UP TEST TEST STATE, when one off going clutch pressure control solenoid stuck on diagnostic monitor is			
	Fault				Code Description  Coming clutch pressure OR negative torque up shift primary on coming clutch pressure OR open throttle power down shift primary on coming clutch pressure OR closed throttle down shift primary on coming clutch pressure OR closed throttle down shift primary on coming clutch pressure C5 clutch slip speed valid, all speed sesnors are functional for lever node clutch slip speed calculation  NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions:  Current value of clutch control solenoid test state is TIE UP TEST TEST STATE, when one off going clutch pressure control solenoid stuck one off going clutch pressure control solenoi	Code Description   Coming clutch pressure OR negative torque up shift primary on coming clutch pressure OR open throttle power down shift primary on coming clutch pressure OR closed throttle down shift primary on coming clutch pressure OR closed throttle down shift primary on coming clutch pressure CS clutch slips speed valid, all speed seasons are functional for lever node clutch slips peed calculation  NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions:  Current value of clutch control solenoid test state is TIE UP TEST HOLD during an automatic transmission shift due to two conditions:  Current value of clutch control solenoid stuck on diagnostic monitor is currently executing.	Code Description    Coming clutch pressure OR negative torque up shift primary on coming clutch pressure OR OR OPEN INTERPRESSURE OR

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					That off going clutch pressure control solenoid stuck on diagnostic monitor currently executing passes, the corresponding clutch slip speed ≥ clutch slip speed fail threshold.  Once clutch control solenoid test state is set to TIE UP TEST HOLD, it remains TIE UP TEST HOLD during the automatic transmission shift, until:  An additional off going clutch occurs, as indicated by solenoid stuck on test trigger = TRUE, subsequently clutch control solenoid test state is reset to TIE UP TEST STATE, to allow the additional corresponding off going clutch pressure control solenoid stuck on diagnostic monitor to execute.  OR  The automatic transmission shift completes, range shift state = range shift state = range shift complete.			
					NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		· ·			solenoid stuck on failure			+
					mode that occurs during			
					steady state gear, not			
					during an automatic			
					transmission shift. The			
					startle mitigation active			
					then forces the			
					transmission clutch			
					pressure control system			
					to a safe gear or neutral			
					state, based on the active			
					and inactive clutches,			
					when the unintended			
					vehicle deceleration			
					occurred. Once a safe			
					vehicle gear state is			
					attained, the gear and			
					clutch pressure control			
					system allows transitions			
					of the clutches on and off,			
					to sequence automatic			
					transmission shifts, single			
					step shifts. As each			
					single step automatic			
					transmission shift occurs			
					the normal pressure			
					control solenoid stuck on			
					diagnostic monitors			
					execute to verify which			
					clutch pressure control			
					solenoid is in the stuck on			
					failure mode, allowing one			
					of the clutch pressure			
					control solenoid stuck on			
					DTCs to set P0747,			
					P0777, P0797, P2715,			
					P2724, P2733, P2821.			
					DTCs not fault pending	P0716 P0717 P0722		
					·	P0723 P077C P077D		
						P07BF P07C0		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Control Circuit Open	P2727	Controller specific circuit diagnoses 9 speed C57R or 10 speed C1356789 clutch solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit  Increment fail time	≥ 200 K Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Control Circuit Low	P2729	Controller specific circuit diagnoses 9 speed C57R or 10 speed C1356789 clutch solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short  Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Control Circuit High	P2730	Controller specific circuit diagnoses 9 speed C57R or 10 speed C1356789 clutch solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage  Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Stuck Off	P2732	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
		the solenoid is electrically functional. In the failure mode the			use battery voltage calibration is FALSE OR	= 1 Boolean	upuate	
		clutch slip speed, and gear box gear slip, will be excessive, not near			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
	the transmission lever node design, requiring transmission input shaft speed, transmission output shaft speed, and, one transmission			use run crank voltage calibration is FALSE OR	= 0 Boolean	30001103		
				(use run crank voltage calibration is TRUE AND	= 0 Boolean			
		intermediate shaft speed. The clutch pressure control			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		solenoid is tested after an automatic transmission shift occurs and has been considered shift			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
	complete, or, steady state gear is deemed active, range shift complete. When the automatic transmission shift is complete, steady state gear is considered, the clutch pressure control			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean			
		steady state gear is considered, the clutch			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		transmission line			hydraulic pressure			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			available:			
		normally allows the			engine speed	≥ 400.0 RPM	engine speed	1
		clutch to maintain full					time ≥	1
		torque holding capacity					engine speed	1
		at the given engine					time for	1
		crankshaft torque, to					transmission	1
		maintain true gear					hydraulic	1
		ratio. When the clutch		1			pressure	
		pressure control					available	1
		solenoid is failed			enable C6 clutch slip		see supporting	1
		hydraulically off, the			speed fail compare when:		table	1
		clutch does not			diagnostic clutch test C6	= HOLDING CLUTCH		
I		maintain holding			((startle mitigation active	= FALSE		
		capacity at any engine			OR			1
		crankshaft torque, and			(startle mitigation active	= TRUE		1
		the clutch slip speed is			AND			1
		uncontrollable. The			startle mitigation gear))	≠ initial startle mitigation		1
		clutch pressure control			(see startle mitigation	gear		1
		solenoid test is			active NOTE below)			1
		suspended if the higher			unintended deceleration	= FALSE		1
		level safety startle			fault pending OR			1
		mitigation function is			unintended deceleration	= 0 Boolean		1
		active. The safety			fault pending enable			1
		startle mitigation			FASLE			1
		function is triggered			(startle mitigation)			1
		when a sudden vehicle		1	clutch steady state	= FALSE		
		deceleration occurs			adaptive active			1
		due to a clutch		1	transmission output shaft	≥ 89.0 RPM		
		pressure control		1	speed			
		solenoid that has failed			C6 clutch slip speed valid,	= TRUE		1
		in the opposite sense,		1	all speed sesnors are			
		clutch pressure control			functional for lever node			
1		solenoid failed			clucth slip speed			
		hydraulically on, while			calculation			
I		the solenoid is						
		electrically functional,			accelerator pedal position			
		which must take priority			engine speed	≥ 1,500.0 RPM		
		over any clutch						
		pressure control			diagnostic clutch test C6			
		solenoid stuck off			set to HOLDING CLUTCH			
		diagnostic monitor. All			when:			
		clutch pressure control			clutch solenoid test state	= NEUTRAL TEST		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C6 clutch pressured map	= FALSE  = TRUE  ≠ initial startle mitigation gear  = mapped to line pressure, C6 clutch pressure has transtioned from off-applying-applied		
		speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck off test is disabled. This diagnostic monitor is relative to the GF9 C6 C6789/Selectable One Way Clutch (SOWC) CBR1, or, GR10 C6 C45678910R, clutch			clutch solenoid test state set to NEUTRAL TEST when: test trigger initialize range shift complete time, when range shift state, range shift complete time must time down to zero when range shift complete	= TRUE  ≠ range shift completed	initialize range shift complete time = 1.000 seconds, range shift complete time must time down to zero when	
		pressure control solenoid.			test trigger set to TRUE: enable forward gear AND direction request OR enable reverse gear AND direction request current loop test trigger clutch control solenoid test state	= 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST	range shift complete	
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	= range shift completed		

failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			
	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		
_		P2805	P2805

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Stuck On	P2733	Each pressure control solenoid stuck on diagnostic monitor detects a clutch pressure control solenoid failed	shift type is power down shift, C6 clutch slip speed OR shift type is not power down shift,	< 50.0 RPM			shift type is power down shift, fail time ≥ 0.800 seconds, OR	Type A, 1 Trips
		hydraulically on, while the solenoid is electrically functional. The clutch pressure control solenoid is tested during an	C6 clutch slip speed update fail time 6.25 milliscond update	< 50.0 RPM			shift type is not power down shift, fail time ≥ 0.150 seconds,	
		automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control					update fail count, fail count ≥ 3 counts 6.25 milliscond update	
	solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off,			use battery voltage calibration is FALSE OR	= 1 Boolean			
		the intended off going clutch continues to maintain torque			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		capacity during the transmission automatic shift. In the failure			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		mode, the off going clutch slip speed will remain near zero RPM			use run crank voltage calibration is FALSE OR	= 0 Boolean		
		when the clutch pressure control solenoid is commanded			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
	t r c s b	to an off pressure in the normal operation to release the holding clutch. The clutch slip			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		speed is calculated based on the transmission lever node design, requiring			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control			hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
		solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure			transmission output shaft speed set solenoid stuck on test	≥ 89.0 RPM		
		control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage			trigger to TRUE when: clutch pressure control solenoid stuck off stuck intrusive shift request	= FALSE		
		must be normal, all clutch pressure control solenoid driver circuits			startle mitigation active (see startle mitigation active NOTE below)	= FALSE		
		must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no speed sensor electrical			clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below)	≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD		
		or performance faults can be present, or the a clutch pressure control solenoid stuck			initialize active clutch controller (clutch control processing in process of sequencing clutches on	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		on test is disabled. This diagnostic monitor is relative to the GF9 C6 C6789/Selectable One Way Clutch (SOWC) CBR1, or, GR10 C6			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift	= 0 Boolean		
		C45678910R, clutch pressure control solenoid.			OR shift type enable for garage shift OR	= 0 Boolean		
					shift type enable for negative torque up shift OR	= 1 Boolean		
					shift type enable for open throttle power on up shift OR	= 1 Boolean		
					shift type enable for closed throttle down shift OR	= 1 Boolean		
					shift type enable for open throttle power down shift OR	= 1 Boolean		
					shift type enable for closed throttle lift foot up shift)	= 0 Boolean		
					OR clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state	= TIE UP TEST TEST STATE = TIE UP TEST HOLD		
					NOTE below) transition clutch controller active clutch controller (staged steady sate shift - shift not in process, no new shift type occuring, no interrupted shift)	= TRUE ≠ staged steady state		
					set clutch control solenoid test state to TIE UP TEST			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	TEST STATE when: solenoid stuck on test trigger current loop clutch control solenoid test state OR current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below) range shift state solenoid stuck on test trigger additional off going clutch occured  (clutch control solenoid test state OR clutch control solenoid test state) (see clutch control solenoid test state NOTE below) diagnostic clutch test  (C6 off going clutch pressure control ramp time out complete AND off going clutch pressure ramp control ramp time out enable) OR C6 off going clutch pressure	Enable Conditions  = TRUE  = TEST WAITING  = TIE UP TEST HOLD  ≠ range shift complete  = TRUE  = TRUE  = TRUE  = TIE UP TEST TEST STATE  = TIE UP TEST HOLD  = OFF GOING CLUTCH TEST  = TRUE  = 1 Boolean  ≤ 350.0 kPa	for C6 off going clutch pressure time ≥ P2733 C6 clutch exhaust delay	Illum.
							time closed throttle lift foot up shift OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					engine torque primary on coming clutch	≥ 8,191.8 Nm = TRUE	P2733 C6 clutch exhaust delay time open throttle power on up shift OR P2733 C6 clutch exhaust delay time garage shift OR P2733 C6 clutch exhaust delay time closed throttle down shift OR P2733 C6 clutch exhaust delay time negative torque up shift OR P2733 C6 clutch exhaust delay time negative torque up shift OR P2733 C6 clutch exhaust delay time open throttle power down shift see supporting tables	
					active primary on coming control state closed throttle lift foot up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR garage shift primary on	≥ 655.0 kPa		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					coming clutch pressure OR negative torque up shift primary on coming clutch pressure OR open throttle power down shift primary on coming	≥ 655.0 kPa ≥ 655.0 kPa		
					clutch pressure OR closed throttle down shift primary on coming clutch pressure C6 clutch slip speed valid, all speed sesnors are functional for lever node clucth slip speed calculation	≥ 655.0 kPa = TRUE		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions: Current value of clutch control solenoid test state			
					is TIE UP TEST TEST STATE, when one off going clutch pressure control solenoid stuck on diagnostic monitor is currently executing. AND			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					That off going clutch pressure control solenoid stuck on diagnostic monitor currently executing passes, the corresponding clutch slip speed ≥ clutch slip speed fail threshold.  Once clutch control solenoid test state is set to TIE UP TEST HOLD, it remains TIE UP TEST HOLD during the automatic transmission shift, until:  An additional off going clutch occurs, as indicated by solenoid stuck on test trigger = TRUE, subsequently clutch control solenoid test state is reset to TIE UP TEST STATE, to allow the additional corresponding off going clutch pressure control solenoid stuck on diagnostic monitor to execute.  OR  The automatic transmission shift completes, range shift state = range shift state = range shift complete.			
					NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		· ·			solenoid stuck on failure			+
					mode that occurs during			
					steady state gear, not			
					during an automatic			
					transmission shift. The			
					startle mitigation active			
					then forces the			
					transmission clutch			
					pressure control system			
					to a safe gear or neutral			
					state, based on the active			
					and inactive clutches,			
					when the unintended			
					vehicle deceleration			
					occurred. Once a safe			
					vehicle gear state is			
					attained, the gear and			
					clutch pressure control			
					system allows transitions			
					of the clutches on and off,			
					to sequence automatic			
					transmission shifts, single			
					step shifts. As each			
					single step automatic			
					transmission shift occurs			
					the normal pressure			
					control solenoid stuck on			
					diagnostic monitors			
					execute to verify which			
					clutch pressure control			
					solenoid is in the stuck on			
					failure mode, allowing one			
					of the clutch pressure			
					control solenoid stuck on			
					DTCs to set P0747,			
					P0777, P0797, P2715,			
					P2724, P2733, P2821.			
					DTCs not fault pending	P0716 P0717 P0722		
					·	P0723 P077C P077D		
						P07BF P07C0		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Control Circuit Open	P2736	Controller specific circuit diagnoses 9 speed C6789 or 10 speed C45678910R clutch solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit  Increment fail time	≥ 200 K Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Control Circuit Low	P2738	Controller specific circuit diagnoses 9 speed C6789 or 10 speed C45678910R clutch solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short  Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Control Circuit High	P2739	Controller specific circuit diagnoses 9 speed C6789 or 10 speed C45678910R clutch solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage  Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Calibration Incorrect	P27A7	The diagnostic monitor verifies that the pressure control solenoid A (GF9 line pressure or GR10 C1 C123456R clutch) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid A electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Calibration Incorrect	P27A8	The diagnostic monitor verifies that the pressure control solenoid B (GF9 TCC pressure or GR10 C2 C128910R clutch) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid B electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power event during the controller initialization before normal time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Calibration Incorrect	P27A9	The diagnostic monitor verifies that the pressure control solenoid C (GF9 C1 CB123456 clutch or GR10 C3 C23457910 clutch) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid C electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Calibration Incorrect	P27AA	The diagnostic monitor verifies that the pressure control solenoid D (GF9 C2 CB29 clutch or GR10 C5 C1356789 clutch) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid D electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Calibration Incorrect	P27AB	The diagnostic monitor verifies that the pressure control solenoid E (GF9 C3 CB38 clutch or GR10 C4 C23467810R clutch) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid E electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Calibration Incorrect	P27AC	The diagnostic monitor verifies that the pressure control solenoid F (GF9 C4 C4 clutch or GR10 C6 C45678910R clutch) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid F electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid G Calibration Incorrect	P27AD	The diagnostic monitor verifies that the pressure control solenoid G (GF9 C5 C57R clutch or GR10 line pressure) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid G electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid H Calibration Incorrect	P27AE	The diagnostic monitor verifies that the pressure control solenoid H (GF9 C6 C6789 clutch or GR10 TCC) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid H electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control A Position Sensor/ Switch Circuit Range/ Performance	P27EC	Sensor signal fails to transition to PARK, DRIVE or REVERSE state when solenoid mode valve control commands to PARK, DRIVE or REVERSE occur.	when:  (ETRS command direction mode valve delay time)  out of park state)  OR  (ETRS command direction mode valve delay time)  out of park state mode valve steady state fail turbine speed)  OR  (ETRS command direction mode valve delay time)  out of park state mode valve delay time  out of park state mode valve delay time  out of park state mode valve steady state fail turbine speed)  OR  (ETRS command direction mode valve delay time)	= PARK  ≥ KtPSDR_t_ParkStatDI yLim = PARK  = DRIVE  ≥ KtPSDR_t_ParkStatDI yLim = OUT OF PARK ≥ KtPSDR_t_ModeVIvA _TurbDIyLim ≤ 500.0 RPM  = REVERSE  ≥ KtPSDR_t_ParkStatDI yLim = OUT OF PARK ≥ KtPSDR_t_ModeVIvA _TurbDIyLim ≤ 500.0 RPM  = REVERSE ≥ KtPSDR_t_ModeVIvA _TurbDIyLim ≤ 500.0 RPM  = REVERSE ≥ KtPSDR_t_ParkStatDI yLim = OUT OF PARK ≥ KtPSDR_t_ParkStatDI yLim ≤ 500.0 RPM	park servo enable ETRS system type is internal ETRS battery voltage for battery voltage time (engine mode run OR hydraulic pressure available) auto stop active diagnostic monitor enable  hydraulic pressure available = TRUE when: engine speed for engine speed time otherwise hydraulic pressure available = FALSE  hydraulic pressure available ETRS diagnostic range  P0968, P0970, P0971, P27EB, P27ED, P27EE Fault Active P18AA, P18AB, P27EC Test Fail This Key On mode valve A state  set mode valve delay time enable = TRUE when none of the following occur: [ETRS mode enable valve state OR	= 1 Boolean = CeTRGR_e_InternalETR S ≥ 9.00 volts ≥ 1.000 seconds = TRUE = TRUE = FALSE = 1 Boolean  ≥ 400.0 RPM ≥ KtTMDC_t_EngOnHydPr esThrsh  = TRUE = ETRS command direction = FALSE = FALSE  ≠ KaPSDR_e_GFX_ModeV IvA_StFnI	set sensor fault = TRUE, set DTC fault active update rate 6.25 milliseconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			out of park state) set sensor fault to TRUE otherwise set sensor fault to FALSE	≠ OUT OF PARK	ETRS drive latch present) AND (ETRS command direction OR ETRS command direction)] OR [(ETRS command direction OR ETRS command direction) AND C3 clutch pressure]  update mode valve delay time when mode valve delay time enable  update mode valve steady state fail when: mode valve delay time enable mode valve delay time enable mode valve delay time	exhausted) < 200.0 kPa = FALSE = DRIVE = NEUTRAL SHIFT  = PARK = REVERSE = NEUTRAL LO = NEUTRAL HI > 25.0 kPa  = TRUE  = TRUE  \(\textstyle \textstyle \te		
			when: (ETRS command direction ETRS mode enable valve state  out of park state) OR (ETRS command direction	= PARK  ≠ ETRS zero limit (hydraulic cicruit exhausted) = PARK = DRIVE	park servo enable ETRS system type is internal ETRS battery voltage for battery voltage time (engine mode run OR hydraulic pressure available) auto stop active diagnostic monitor enable	im  = 1 Boolean = CeTRGR_e_InternalETR S ≥ 9.00 volts ≥ 1.000 seconds = TRUE = TRUE	set sensor fault = TRUE, set DTC fault active update rate 6.25 milliseconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			ETRS diagnostic range out of park state) set sensor fault to TRUE otherwise set sensor fault to FALSE	= PARK = OUT OF PARK	hydraulic pressure available = TRUE when: engine speed for engine speed time otherwise hydraulic pressure available = FALSE  ***********************************	= FALSE = 1 Boolean  ≥ 400.0 RPM ≥  KtTMDC_t_EngOnHydPr esThrsh  **********************************	Timo noquilou	
					Pending P18AA, P18AB, P18AE,	= FALSE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P27EC Test Fail This Key On P27EB, P27ED, P27EE Fault Active otherwise set mode valve stuck on test to FALSE	= FALSE = FALSE		
					(mode valve stuck on test P0968, P0970, P0971, P27EB, P27ED, P27EE, Fault Active P18AA, P18AB, P18AF, P27EC Test Fail This Key On)	= FALSE = FALSE = FALSE		
					hydraulic pressure available ETRS command direction	**************************************		
					mode valve A state attained mode valve A transition  ((ETRS diagnostic range	direction previous = FALSE = FALSE		
					OR mode valve B transition OR mode valve B state attained) OR	= NEUTRAL SHIFT = TRUE = TRUE		
					(ETRS mode enable valve state AND  ETRS diagnostic range))	= ETRS zero limit (hydraulic cicruit exhausted) = DRIVE		
					(mode valve A transition mode valve A garage shift transition delay) OR	*************************************		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					mode valve A garage shift transition delay	command range] see supporting tables > 0.0 seconds		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control A Position Sensor/ Switch Circuit Low	P27ED	The diagnostic monitor detects a ground short or open circuit fault on the mode valve A position sensor circuit.	raw sensor voltage	< 0.414 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS park sensor configuration type is hall sensor	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control A Position Sensor/ Switch Circuit High	P27EE	The diagnostic monitor detects a short to voltage on the mode valve A position sensor circuit.	raw sensor voltage	> 2.538 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS park sensor configuration type is hall sensor	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control B Position Sensor/ Switch Circuit/Open	P27EF	The diagnostic monitor detects an illegal voltage on the mode valve B position sensor circuit.	raw sensor voltage raw sensor voltage	> 1.263 volts < 1.504 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS park sensor configuration type is hall sensor	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control B Position Sensor/ Switch Circuit Low	P27F1	The diagnostic monitor detects a ground short or open circuit fault on the mode valve B position sensor circuit.	raw sensor voltage	> 0.414 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS park sensor configuration type is hall sensor	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control B Position Sensor/ Switch Circuit High	P27F2	The diagnostic monitor detects a short to voltage on the mode valve B position sensor circuit.	raw sensor voltage	> 2.538 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS park sensor configuration type is hall sensor	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S = CePSCR_e_HallSns	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid G Control Circuit Open	P2812	Controller specific circuit diagnoses 9 speed Line Pressure Control Circuit or 10 speed Line Pressure Control Circuit for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit  Increment fail time	≥ 200 K Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid G Control Circuit Low	P2814	Controller specific circuit diagnoses 9 speed Line Pressure Circuit or 10 speed Line Pressure Circuit for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short  Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid G Control Circuit High	P2815	Controller specific circuit diagnoses 9 speed Line Pressure Circuit or 10 speed Line Pressure Circuit for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage  Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid H Performance /Stuck Off	detects the transmission torque converter control solenoid failed hydraulically off. I monitor executes the transmission to converter is	transmission torque converter control valve solenoid failed hydraulically off. The monitor executes when the transmission torque	if use TCC slip speed error OR TCC control mode TCC slip speed error = TCC slip speed - TCC comand slip speed	= 0 Boolean  = ON mode (controlled slip mode) ≥ P2817 TCC stuck off fail TCC slip speed see supporting table	diagnostic monitor enable	= 1 Boolean	fail time ≥ 2.500 seconds increment fail count fail count ≥ 3 counts 25 millisecond update rate	Type B, 2 Trips
		commanded to a "lock" mode during which the torque converter will be controlled to near zero	else if TCC control mode torque convert slip = engine speed -	= LOCK ≥ 130.0 RPM	TCC command capacity	≥ 0.00 %	TCC command capacity time ≥ 0.00 seconds	
		(0.0) RPM slip speed, or, an "on" mode during which the torque	transmission input shaft		TCC command pressure	≥ 800.0 kPa	TCC command pressure time ≥ 2.00 seconds	
	converter will be controlled to target s speed using slip spe error. The transmiss torque converter control valve solenoi is considered failed hydraulically off whe the "lock" mode slip speed is excessive, when the 'on' mode	converter will be controlled to target slip speed using slip speed error. The transmission torque converter control valve solenoid	then update fail time 25 millisecond update rate		(TCC control mode previous TCC control mode previous TCC control mode previous) AND	≠ TCC control mode current ≠ ON mode (controlled slip mode) ≠ LOCK		
		hydraulically off when the "lock" mode slip speed is excessive, or, when the 'on" mode			(TCC control mode current OR TCC control mode current)	= ON mode (controlled slip mode) = LOCK		
		slip speed error is excessive.			(TCC stuck off enable OR TCC stuck on enable) hydraulic pressure available:	= 1 Boolean = 1 Boolean		
					engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
							see supportinf	
							table	
					service fast learn active	= FALSE		
					battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
					run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100	
							seconds	
					P281B falut active	= FALSE		
					P281D falut active	= FALSE		
					P281E falut active	= FALSE		
					P0722 fault pending	= FALSE		
					P0723 fault pending	= FALSE		
					P0716 fault pending	= FALSE		
					P0717 fault pending	= FALSE		
					P07BF fault pending	= FALSE		
					P07C0 fault pending	= FALSE		
					(PTO active OR	= FALSE		
					PTO disable calibration)	= 1 Boolean		
					accelerator pedal position	≥ 8.0 %		
					accelerator pedal position	≤ 100.0 %		
					range shift state	= range shift complete		
					transmission fluid	≥ -6.66 °C		
					temperature			
					transmission fluid	≤ 130.0 °C		
					temperature			
					engine torque	≥ 50.0 Nm		
					engine torque	≤ 8,191.8 Nm		
					P2817 test fail this key on	= FALSE		
					(TCC control mode OR	= ON mode (controlled		
						slip mode)		
					TCC control mode)	= LOCK		
					break latch state (clutch	= disabled (clutch select		
					select valve solenoid)	valve not transitioning)		
					attained gear	≥ CeCGSR_e_CR_Third		
					attained gear slip	≤ 25 RPM		
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccura		
				1		te		I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						P0716, P0717, P07BF, P07C0 P0722, P0723, P077C, P077D		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid H Stuck On - GF9 specific	P2818	The diagnostic monitor detects the transmission torque converter control valve solenoid failed hydraulically on. The torque converter hydraulic control circuit is multiplexed with the transmission clutch select valve hydraulic control circuit, allowing for the torque converter control valve solenoid stuck on test to execute when the clutch select valve solenoid is commanded ON. When the clutch select valve solenoid is commanded ON as the vehicle speed decreases toward zero KPH, and, if the torque converter control valve solenoid is stuck on, the torque converter slip speed rate of change will have a	while control valve test time timing down: rate of change of torque convert slip speed = (ABS (current loop value torque convert slip speed - previous loop value torque convert slip speed) / 25 milliseconds) when clutch select valve soleniod multiplexed to TCC hydraulic AND torque convert slip speed = ABS(engine speed - transmission input shaft speed) AND torque convert slip speed = engine speed - transmission input shaft speed torque convert slip speed to	≥ P2818 torque convert derivative slip speed fail threshold see supporting table  ≤ P0741 (GF9 specific) TCC slip speed crash RPM  ≥ -50.0 RPM ≤ 30.0 RPM	diagnostic monitor enable (TCC stuck off enable OR TCC stuck on enable) hydraulic pressure available: engine speed	= 1 Boolean = 1 Boolean = 1 Boolean ≥ 400.0 RPM = FALSE ≥ 9.00 volts	fail time ≥ 1.500 seconds increment fail count fail count ≥ 4 counts 25 millisecond update rate  engine speed time ≥ engine speed time for transmission hydraulic pressure available see supportinf table  battery voltage time ≥ 0.100 seconds	Type A, 1 Trips
		large slope while decreasing toward zero RPM, and the torque			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		converter slip speed will remain low near zero RPM.			P281B falut active P281D falut active P281E falut active	= FALSE = FALSE = FALSE		
					PRNDL PRNDL transmission fluid temperature transmission fluid	≠ NEUTRAL ≠ REVERSE ≥ -6.66 °C ≤ 130.00 °C		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					temperature			
					accelerator pedal position	≥ 0.00 %		
					accelerator pedal position	≤ 1.00 %		
					vehicle speed	≥ 3.0 KPH		
					vehicle speed	≤ 9.5 KPH		
					TCC command mode	= OFF		
					break latch state (clutch	≠ disabled (clutch select		
					select valve solenoid)	valve transitioning)		
					P0722 fault pending	= FALSE		
					P0723 fault pending	= FALSE		
					P0716 fault pending	= FALSE		
					P0717 fault pending	= FALSE		
					P07BF fault pending	= FALSE		
					P07C0 fault pending	= FALSE		
					(PTO active OR	= FALSE		
					PTO disable calibration)	= 1 Boolean		
					transmission fluid	≥ -6.66 °C		1
					temperature			1
					transmission fluid	≤ 130.00 °C		1
					temperature			1
					engine torque	≥ 55.0 Nm		1
					engine torque	≤ 800.0 Nm		1
					P2818 test fail this key on	= FALSE		1
					vehicle speed	≤ 45.0 KPH		1
					engine speed	≥ 400.0 RPM		1
					engine speed	≤ 5,500.0 RPM		1
					accelerator pedal position	≤ 95.0 %		
					4WD low state	= FALSE		
					(driver shift mode active	= FALSE		
					OR			
					driver shift mode	= 0 Boolean		
					calibration)			
					(misfire requests TCC off	= FALSE		
					OR	0.5		
					misfire TCC off	= 0 Boolean		
					calibration)	FALOE		1
					(clucth control solenoid	= FALSE		
					stuck on OR stuck OFF			
					intrusive shift active)	FALOE		
					P0746 fault pending	= FALSE		
					P0747 fault pending	= FALSE		
			1	1	P0776 fault pending	= FALSE		1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0777 fault pending P0796 fault pending P0797 fault pending P0797 fault pending P2714 fault pending P2715 fault pending P2723 fault pending P2724 fault pending P2732 fault pending P2732 fault pending P2820 fault pending P2820 fault pending P2821 fault pending vehicle speed accelerator pedal position hysteresis  when: break latch state (clutch select valve solenoid) previous break latch state (clutch select valve solenoid) set stuck on test time and begin time down, stuck on test time must time down from calibration value to zero (0.0) seconds	= FALSE ≤ 8.0 KPH ≥ 4.0 % > 1.0 %  = disabled (clutch select valve not transitioning) = complete (clutch select valve transition complete) = P2818 stuck on test time see supporting tables		
					break latch state (clutch select valve solenoid) AND	= clutch select valve solenoid mutliplexed to TCC hydraulic		
					previous break latch state (clutch select valve solenoid) THEN initialize control valve test time, control valve test time must time down from calibration value to zero (0.0) seconds	= disabled (clutch select valve not transitioning)  = P2818 (GF9 specific) control valve test time see supporting tables		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccura te P0716, P0717, P07BF, P07C0 P0722, P0723, P077C, P077D		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid H Control Circuit/Open	P281B	Controller specific circuit diagnoses 9 speed TCC Control Circuit or 10 speed TCC Control Circuit for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit  Increment fail time	≥ 200 K Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type B, 2 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid H Control Circuit Low	P281D	Controller specific circuit diagnoses 9 speed TCC Pressure Control Circuit or 10 speed TCC Control Circuit for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short  Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid H Control Circuit High	P281E	Controller specific circuit diagnoses 9 speed TCC Pressure Control Circuit or 10 speed TCC Control Circuit for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage  Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type B, 2 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid J Stuck Off	P2820	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed	gear ratio gear ratio OR C6 clutch slip speed, update fail time 6.25 milliscond update	≤ 1.700 ≥ 1.200 ≤ 20.0 RPM			fail time ≥ 0.250 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond	Type A, 1 Trips
		hydraulically off, while the solenoid is electrically functional. This diagnostic monitor			use battery voltage calibration is FALSE OR	= 1 Boolean	update	
		detects the clutch select valve solenoid failed hydraulically off.			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		The clutch select valve is used to route hydraulic fluid to, either,			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		the selectable one way clutch hydraulic circuit used to attain			use run crank voltage calibration is FALSE OR	= 0 Boolean	Scoonas	
		transmission 1st gear lock state, or, to the C6 - C6789 clutch			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		hydraulic circuit necessary for transmission higher gear states.			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		When the clutch select valve is failed hydraulically off, and transmission is in 1st			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		gear lock state, it is possible to measure low C6 - C6789 clutch slip speed as hydraulic			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		fluid is routed to the clutch C6 - C6789, or, 6th gear transmission gear ratio, based on transmission lever			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		node design, the			hydraulic pressure			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft speed, the transmission output shaft speed, and one transmission intermediate shaft speed, while not commanding 6th-9th gear, as the indication of the failure mode.			available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
		This diagnostic monitor is relative to the GF9 clutch select valve pressure control solenoid.			diagnostic monitor enabled transmission output shaft speed transmission fluid temperature transmission fluid temperature P2820 test fail this key on (command gear OR attained gear)  DTCs not fault pending	= 1 Booelan  ≥ 35 RPM  ≥ -256.00 °C  ≤ 130.0 °C  = FALSE = 1st lock = 1st lock P0716 P0717 P0722 P0723 P077C P077D		
					DTCs not test fail this key on	P07BF P07C0  P0707 P0708 P0746  P0747 P0776 P0777  P0796 P0797 P2714  P2715 P2723 P2724  P2732 P2733 P2820  P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid J Stuck On	P2821	Each pressure control solenoid stuck on diagnostic monitor detects a clutch pressure control solenoid failed hydraulically on, while the solenoid is electrically functional. The clutch select pressure control solenoid must be hydraulically off and the clutch select valve in the off state, to allow hydraulic fluid supply to the C3 (CB38) or C4 (C4) or C5 (C57R) clutches, such that when activated, commanded gear 3rd or 4th or 5th can be attained. With the clutch select valve pressure control solenoid failed hydraulically on, commanded gear 3rd or 4th or 5th cannot be attained. In the failure mode, the clutch slip speed, and gear box gear slip, will be excessive, not near or at zero RPM, when commanding 3rd or 4th or 5th gear, but due to the clutch select pressure control solenoid failed hydraulically on and not	C4 (C4) OR C5 (C57R) update Cx clutch slip speed fail time 6.25 milliscond update once intrusive gear is commanded and clutch select stuck on test active remains and Cx clutch fail count limit occurs, increment clutch select valve solenoid stuck on fail count and time up clutch select stuck on test gear time 6.25 milliscond update	≥ 200.0 RPM ≥ 200.0 RPM ≥ 200.0 RPM			Cx clutch slip speed fail time ≥ C3 (CB38) 3.00 seconds OR C4 (C4) 3.00 seconds OR C5 (C57R) 3.00 seconds update Cx fail count, Cx fail count ≥ C3 (CB38) 3 counts OR C4 (C4) 3 counts OR C5 (C57R) 3 counts, Cx clutch fail count limit occurs 6.25 milliscond update clutch select valve solenoid stuck on fail count ≥ 2 counts OR clutch select stuck on test gear time ≥ 9.00 seconds 6.25 milliscond update	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		individual clutch control			use battery voltage	= 1 Boolean		
		faults. It is thus			calibration is FALSE			
		necessary, when			OR			
		individual clutch slip		1	(use battery voltage	= 1 Boolean		
		occurs in 3rd or 4th or			calibration is TRUE			
		5th gear and counted		1	AND			
		toward the clutch		1	battery voltage	≥ 9.00 volts	battery voltage	
		pressure control		1			time ≥ 0.100	
		solenoid stuck on		1			seconds	
		failure, for an intrusive		1	use run crank voltage	= 0 Boolean		
		gear commanded from		1	calibration is FALSE			
		3rd or 4th or 5th to		1	OR			
		verify the clutch slip in			(use run crank voltage	= 0 Boolean		
		the remaining gear		1	calibration is TRUE			
		states. The individual		1	AND			
		clutch slip that occurs		1	run crank voltage	≥ 9.00 volts	run crank voltage	
		in those intrusive		1			time ≥ 0.100	
		gears, 3rd or 4th or 5th,		1			seconds	
		is also counted toward		1	TOM A COLUMN TO A	TOUE 0 .		
		the clutch pressure		1	TCM output driver high	= TRUE Boolean		
		control solenoid stuck		1	side driver 1, clutch			
		on failure. As individual		1	pressure control solenoid			
		clutch slip is accumulated in each			driver circuit enabled			
		commanded gear 3rd		1	TCM output driver high	= TRUE Boolean		
		or 4th or 5th, that			side driver 2, clutch	= TRUE Boolean		
		failure time is the		1	pressure control solenoid			
		verification of the clutch		1	driver circuit enabled			
		pressure control		1	driver circuit eriabled			
		solenoid failed		1	service fast learn active	= FALSE Boolean		
		hydraulically on.			service solenoid cleaning	= FALSE Boolean		
		Try at admodify of it.			procedure active	- I ALGE BOOKAIT		
		The clutch slip speed is			procedure delive			
		calculated based on			hydraulic pressure	≥ 400.0 RPM	engine speed	
		the transmission lever			available:		time ≥	
		node design, requiring			engine speed		engine speed	
		transmission input shaft			]		time for	
		speed, transmission					transmission	
		output shaft speed,					hydraulic	
		and, one transmission					pressure	
		intermediate shaft					available	
		speed. The clutch		1			see supporting	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control		1			table	
l		solenoid is tested after		1	diagnostic monitor enable	= 1 Boolean		
		an automatic			1			
		transmission shift		1	P2821 test fail this key on	= FALSE		
		occurs and has been		1				
		considered shift		1	test trigger set to TRUE:			
		complete, or, steady		1	enable forward gear AND	= 1 Boolean		
		state gear is deemed		1	direction request	= forward gear		
		active, range shift		1	OR			
		complete. When the		1	enable reverse gear AND	= 0 Boolean		
		automatic transmission		1	direction request	= reverse gear		
		shift is complete,		1	current loop test trigger	= FALSE		
		steady state gear is		1	clutch control solenoid	≠ NEUTRAL TEST		
		considered, the clutch		1	test state			
		pressure control		1	range shift state	= range shift completed		
		solenoid is mapped to		1				
		transmission line		1	clutch solenoid test state			
		pressure control, which		1	set to NEUTRAL TEST			
		normally allows the		1	when:			
		clutch to maintain full		1	test trigger	= TRUE		
		torque holding capacity		1	initialize range shift			
		at the given engine		1	complete time,			
		crankshaft torque, to		1	when			
		maintain true gear		1	range shift state,	≠ range shift completed	initialize range	
		ratio. When the clutch		1	range shift complete time		shift complete	
		select pressure control		1	must time down to zero		time = $1.000$	
		solenoid is failed		1	when		seconds,	
		hydraulically on, C3		1	range shift complete		range shift	
		(CB38) or C4 (C4) or		1			complete time	
		C5 (C57R) clutches		1			must time down	
		cannot maintain		1			to zero	
I		holding capacity at any					when	
l		engine crankshaft			Cx indicates any one of		range shift	
I		torque, and the clutch			the 4 clutches:		complete	
1		slip speed is			C3 (CB38) OR			
		uncontrollable.			C4 (C4) OR			
I					C5 (C57R)			
		The clutch pressure						
		control solenoid test is			enable Cx clutch slip			
l		suspended if the higher			speed fail compare when:			
		level safety startle			diagnostic clutch test Cx	= HOLDING CLUTCH		
		mitigation function is			((startle mitigation active	= FALSE		

System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		active. The safety			OR			
		startle mitigation			(startle mitigation active	= TRUE		
		function is triggered		1	AND			
		when a sudden vehicle		1	startle mitigation gear))	≠ initial startle mitigation		
		deceleration occurs		1	(see startle mitigation	gear		
		due to a clutch		1	active NOTE below)			
		pressure control		1	unintended deceleration	= FALSE		
		solenoid that has failed		1	fault pending OR			
		hydraulically on, while		1	unintended deceleration	= 0 Boolean		
		the solenoid is		1	fault pending enable			
		electrically functional,		1	FASLE			
		which, must take			(startle mitigation)			
		priority over this clutch			clutch steady state	= FALSE		
		select pressure control		1	adaptive active			
		solenoid stuck off		1	transmission output shaft	≥ 89.0 RPM		
		diagnostic monitor. All		1	speed			
		clutch pressure control		1	Cx clutch slip speed valid,			
		solenoid stuck on/off		1	all speed sesnors are			
		diagnostic monitors are		1	functional for lever node			
		emission MIL DTCs.		1	clucth slip speed			
		System voltage must		1	calculation			
		be normal, all clutch		1				
		pressure control		1	accelerator pedal position			
		solenoid driver circuits		1	engine speed	≥ 1,500.0 RPM		
		must be functional, no		1				
		clutch pressure control		1	diagnostic clutch test Cx			
		solenoid electrical or		1	set to HOLDING CLUTCH			
		performance faults can		1	when:			
		be present, and no			clutch solenoid test state	= NEUTRAL TEST		
		speed sensor electrical			((startle mitigation active	= FALSE		
		or performance faults			OR	TDUE		
		can be present, or the			(startle mitigation active	= TRUE		
		a clutch pressure		1	AND	-/ :-:ti-  -tt :titi		
		control solenoid stuck off test is disabled.			startle mitigation gear))	≠ initial startle mitigation		
		on test is disabled.			(see startle mitigation	gear		
		This diagnostic monitor			active NOTE below) Cx clutch pressured map	manned to line		
		is relative to the GF9			Ox clutch pressured map	= mapped to line pressure, Cx clutch		
		clutch select valve				pressure, Cx clutch pressure has transtioned		
						from off-applying-applied		
		pressure control solenoid.				nom on-applying-applied		
		Soleriola.			clutch select stuck on test			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code				active set to TRUE when: command gear clutch control solenoid test state any Cx clutch fail count limit occurs break latch state, clutch select valve hydraulic latch fluid is applied, hydraulic latch fluid force balance acts with clutch select valve return spring, to force the clutch select valve to the off postion in normal operation, allowing hydraulic fluid to C3 (CB38) C4 (C4) and C5 (C57R) clutches clutch select stuck on test			Illum.
					active driver direction (PRNDL) change request, select intrusive gear to verify clutch select valve solenoid when HOLDING CLUTCH: C3 (CB38) C4 (C4) C5 (C57R) enable clutch select stuck on test gear time	= FALSE  = CeCGSR_e_Fourth = CeCGSR_e_Fifth = CeCGSR_e_Fourth		
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on failure modes, the clutch pressure control solenoid stuck on DTCs being			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0747 P0777 P0797 P2715 P2724 P2733 P2821			
					DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid J Control Circuit Low	P2826	Controller specific circuit diagnoses 9 speed Clutch Select Valve Control Circuit or 10 speed PISA Valve Control Circuit for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short  Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid J Control Circuit High	P2827	Controller specific circuit diagnoses 9 speed Clutch Valve Control Circuit or 10 speed PISA Valve Control Circuit for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage  Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/	Fault	Monitor Strategy	Malfunction			eshold	Secondary Malfunction	Enable	Time		Mil
System	Code	Description	Criteria		V	alue	Malfunction	Conditions	Requir	ed	Illum.
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	= TF	RUE	Boolean			>= 5	Fail Counts	One Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0601 ECM: None			
Transmission Control Module (TCM)	P0603	Transmission Electro-Hydraulic Control Module Long-Term Memory Reset	Non-volatile memory (static or dynamic) checksum failure at Powerup	= Tf	RUE	Boolean			Runs Continously		One Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0603 ECM: None			
Transmission Control Module (TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access Memory	RAM Read/Write Failure (Single Word)	= Tf	RUE	Boolean			>= 5 = 16	Fail Counts Sample Counts	One Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0604 ECM: None			
Transmission Control Module (TCM)	P062F	Transmission Electro-Hydraulic Control Module Long Term Memory Performance	TCM Non-Volatile Memory bit Incorrect flag at Powerdown	= TI	RUE	Boolean			Runs Continously		One Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P062F ECM: None			
Transmission Control Module (TCM)		Transmission Electro-Hydraulic Control Module Internal Temperature Too High	<u>Fail Case 1</u> Substrate Temperature	>= 146.2	296875	5 °C			>= 5	Fail Time (Sec)	One Trip

Component/	Fault	Monitor Strategy	Malfunction Criteria	Thr	eshold alue	Secondary Malfunction		Enable Conditions			Tir Requ	ne	Mil Illum.
System	Code	Description	Fail Case 2  Substrate Temperature		°C	manufiction		Conditions		>=	2	Fail Time (Sec)	illulli.
			Ignition Voltage	>= 18	Volts								
			Note: either fail case can set the DTC										
						Ignition Voltage Lo Ignition Voltage Hi Substrate Temp Lo Substrate Temp Hi Substrate Temp Between Temp Range for Time	>= <=	8.5996094 31.990234 0 170 0.25	Volts Volts °C °C Sec				
						P0634 Status is	<b>≠</b>	Test Failed This Key On or Fault Active					
					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	One Trip
								Test Failed This Key		out of	6	Sample Counts	
						P0658 Status is not		On or Fault Active					
•						High Side Driver 1 On	=	True	Boolean	I			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
- Oystom	Osus	Description	5	Disable Conditions:	MIL not Illuminated for DTC's:				
Transmission Control Module (TCM)	P0667	TCM Internal Temp (substrate) Sensor Circuit Range/Performance	If transmission oil temp to substrate temp $\Delta$ If TCM substrate temp to power up temp $\Delta$ Both conditions above required to increment fail counter Note: table reference temp = to the	Refer to Table  19 in supporting documents  Refer to Table 20 in supporting documents			>= 3000	(100ms 100p)	Two Trips
			median temp of trans oil temp, substrate temp and power up temp. Non-continuous (intermittent) fail conditions will delay resetting fail				Out 3750	(Tourns 100p)	
			counter until				Out 875	Cample Counts	
					Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi	= 1ROE Boolean >= 8.5996094 Volts			
					Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 400 RPM <= 7500 RPM			
					Brake torque active Below describes the brake torque entry criteria Engine Torque	= FALSE >= 90 N*m			

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable		Time	Mil
System	Code	Description	Criteria	Value			Conditions		Required	Illum.
					Throttle	>=	30.000305	Pct		'
					Transmission Input Speed	<=	200	RPM		'
					Vehicle Speed	<=	8	Kph		'
					Transmission Range	≠	Park			'
					Transmission Range	<b>≠</b>	Neutral			'
					PTO	=	Not Active			'
					Set Brake Torque Active					'
					TRUE if above conditions are	>=	7	sec		'
					met for:					'
					Below describes the brake				1	
					torque exit criteria					'
					Brake torque entry criteria	=	Not Met			'
							Clutch			'
							Hydraulic			'
					Clutch hydraulic pressure	≠	Air Purge			'
							Event			'
							CeTFTD_e			'
					Clutch used to exit brake	=	_C3_RatlE			'
					torque active	_	_C3_Ratic			
					The above clutch pressure is		IIDI			'
					greater than this value for one		600	kno		'
						>=	000	kpa		'
					loop					'
					Set Brake Torque Active		20			'
					FALSE if above conditions are	>=	20	Sec		
					met for:					
							Test Failed			
							This Key			
					P0667 Status is	≠	On or Fault			
	I						Active			
	I									
	I									

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria	Value Disab Condition	le MIL not Illuminated for	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	Required	inum.
Transmission Control Module (TCM)	P0668	TCM internal temperature (substrate) thermistor failed at a low voltge	Type of Sensor Used  If TCM Substrate Temperature Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and Temp Either condition above will satisfy the fail conditions	p		<= 31.990234 Volts   >= 400 RPM   <= 7500 RPM   >= 5 Sec   Test Failed   This Key   On or Fault   Active	>= 60 Fail Timer (Se	Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0669	TCM internal temperature (substrate) thermistor failed at a high voltage	Type of Sensor Used  If TCM Substrate Temperature Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and	p >= 249 °C				Two Trips
			Temp Either condition above will satisfy the fail conditions				>= 60 Fail Timer (Sec)	
			The full continues		Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 8.5996094 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		
					P0669 Status is	Test Failed Fhis Key On or Fault Active		
					For Hybrids, below conditions must also be met Estimated Motor Power Loss Estimated Motor Power Loss greater than limit for time Lost Communication with Hybrid Processor Control	>= 0 kW >= 0 Sec = FALSE		
					Module Estimated Motor Power Loss Fault	= FALSE		
				Disable Conditions		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					Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Oyacm	Jour	Description	If transmission oil temp to power up temp Δ	Refer to Table  18 in  supporting documents				
			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				>= 3000 Fail Counts (100ms loop) Out 3750 Sample Counts (100ms loop)	S
			temp. Non-continuous (intermittent) fail conditions will delay resetting fail counter until				>= 700 Pass Counts (100ms loop) Out 875 Sample Counts (100ms loop)	S
					Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	= TRUE Boolean = TRUE Boolean >= 8.5996094 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM		
					Engine Speed is within the allowable limits for Brake torque active Below describes the brake torque entry criteria Engine Torque Throttle	>= 5 Sec = FALSE >= 90 N*m >= 30.000305 Pct		
					Transmission Input Speed Vehicle Speed Transmission Range Transmission Range PTO Set Brake Torque Active TRUE if above conditions are	<= 200 RPM <= 8 Kph ≠ Park ≠ Neutral = Not Active >= 7 sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
.,					Below describes the brake torque exit criteria			
					Brake torque entry criteria			
						Clutch		
					Clutch hydraulic pressure	Hydraulic ≠ Air Purge Event		
					Clutch used to exit brake torque active	CeTFTD_e - C3_RatIE		
					·	noi		
					The above clutch pressure is greater than this value for one			
					loop			
					Set Brake Torque Active			
					FALSE if above conditions are met for:	>= 20 Sec		
					metioi.			
						Test Failed , This Key		
					P06AC Status is	≠ On or Fault		
						Active		
				Disable	MII III	TOM DOVED DOV/O DOV/O DOV/AD		
				Disable Conditions:		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	P06AD	TCM power-up thermistor circuit	Power Up Temp	<= -59 °C			>= 60 Fail	Time (Sec)
(TCM)	I OUAD	voltage low	1 ower op remp		Institut Value	0.5007004	>- 00 Tall	Trips
					Ignition Voltage Lo Ignition Voltage Hi	>= 8.5996094 Volts <= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime quired	Mil Illum.
Cycloni	-	2000			Engine Speed is within the allowable limits for	>=	5	Sec				
					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 Lost Communication with Hybrid Processor Control	>=	0 FALSE	Sec				
					Module Estimated Motor Power Loss Fault	=	FALSE					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, ECM: None	, P0717, P0722	, P0723				
Transmission Control Module (TCM)	P06AE	TCM power-up thermistor circuit voltage high	Power Up Temp	>= 164 °C					>=	60	Fail Time (Sec)	Two Trips
(i oily		volage ligh			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
					P06AE Status is	≠	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction		Enable Conditions				me	Mil Illum.
System	Code	Description	Criteria		Mairunction		Conditions			Keq	uired	Two
Transmission Fluid Temperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp $\Delta$									Trips
			lf transmission oil temp to power up temp Δ	Refer to Table  18 in °C  supporting documents								
			Both conditions above required to increment fail counter Note: table reference temp = to the						>=	3000	Fail Counts (100ms loop)	
			median temp of trans oil temp, substrate temp and power up temp.						Out of	3750	Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>=	700	Pass Counts (100ms loop)	
			country and						Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Accelerator Position Signal							
					Valid	=	TRUE	Boolean				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
					Engine Speed is within the							
					allowable limits for	>=	5	Sec				
					Brake torque active	=	FALSE					
					Below describes the brake							
					torque entry criteria		00	N.1+				
	1				Engine Torque Throttle	>= >=	90 30.000305	N*m Pct				
	1				Transmission Input Speed	>= <=	200	RPM				
	1				Vehicle Speed	<=	8	Kph				
	1				Transmission Range	<i>≠</i>	Park	. · · · · · ·				
	1				Transmission Range	<b>≠</b>	Neutral					
					PTO	=	Not Active					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
						Set Brake Torque Active					
						TRUE if above conditions are	>=	7	sec		
						met for:					
						Below describes the brake					
						torque exit criteria					
						Brake torque entry criteria	=	Not Met			
								Clutch			
						Clutch hydraulic pressure	<b>≠</b>	Hydraulic			
						, ,		Air Purge			
								Event			
						Clutch used to exit brake		CeTFTD_e			
						torque active	=	_C3_RatlE			
						The characteristic accesses to		nbl			
						The above clutch pressure is greater than this value for one		/00	lino		
						·	>=	600	kpa		
						loop Set Brake Torque Active					
						FALSE if above conditions are	>=	20	Sec		
						met for:	>=	20	Sec		
						metion.					
								Test Failed			
						P0711 Status is	<b>≠</b>	This Key			
						1 07 11 Status is	7	On or Fault			
								Active			
					Disable	MIL not Illuminated for	TCM: P0658	P0668 P0669	P06AD		
				1	Conditions:			16, P0712, P071			
								23, P0962, P0963			
								70, P0971, P2150			
							P2721, P272				
							ECM: P010	1, P0102, P0103	, P0106,		
							P0107, P010	08, P0171, P0172	2, P0174,		
	1						P0175, P020	01, P0202, P0203	3, P0204,		
	1						P0205, P020	06, P0207, P0208	3, P0300,		
	1							02, P0303, P0304			
							P0306, P030	07, P0308, P040	1, P042E		
Transmission Fluid		Transmission fluid temperature		CeTFTI_e_Vol							Two
Temperature Sensor (TFT)	P0712	thermistor failed at a low voltage	Type of Sensor Used	•							Trips
		and at a lost tollage		р							

System	Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
i	Code	Description	If Transmission Fluid Temperature	Value	Mananotion	Conditions	Required	
1			Sensor = Direct Proportional and	<= -74 °C				
1			Temp					
İ			If Transmission Fluid Temperature					
1			Sensor = Indirect Proportional and	>= -74 °C				
1			Temp					
İ			Either condition above will satisfy				>= 60 Fail Time (Sec)	\
İ			the fail conditions				>= 00 Tail Time (Sec)	
1					Ignition Voltage Lo	>= 8.5996094 Volts		
1					Ignition Voltage Hi			
İ					Engine Speed Lo	>= 400 RPM		
İ					Engine Speed Hi			
İ					Engine Speed is within the	>= 5 Sec		
İ					allowable limits for			
İ						Test Failed		
İ					P0712 Status is	This Key ≠		
1					PU/ 12 Status is	On or Fault		
İ						Active		
İ					For Hybrids, below conditions			
İ					must also be met			
İ					Estimated Motor Power Loss	>= 0 kW		
İ					Estimated Motor Power Loss			
İ					greater than limit for time			
İ					Lost Communication with			
İ					Hybrid Processor Control	= FALSE		
İ					Module			
İ					Estimated Motor Power Loss	= FALSE		
İ					Fault	= TALSE		
1								
ı				Disable		TCM: P0716, P0717, P0722, P0723		
İ				Conditions:				
I						ECM: None		
	+			CoTETL o Vol				Tues
Transmission Fluid	P0713	Transmission fluid temperature	Type of Sensor Used	CeTFTI_e_Vol = tageDirectPro				Two Trips
Temperature Sensor (TFT)	P0/13	thermistor failed at a high voltage	i ype or Sensor Used	•				Trips
1			If Transmission Fluid Temperature	p				
I			Sensor = Direct Proportional and	>= 174 °C				
1			Sensor = bliect Proportional and Temp	7- 174 C				

Component/	Fault	Monitor Strategy	Malfunction			eshold		Secondary Malfunction		Enable Conditions			T	ime Juired	Mil Illum.
System	Code	Description	Criteria  If Transmission Fluid Temperature			/alue		Mairunction		Conditions		<u> </u>	Kec	quirea	illum.
			Sensor = Indirect Proportional and	<=	174	°C									
			Temp		., .	Ü									
			Either condition above will satisfy										/0	F-11 Ti (C)	
			the fail conditions									>=	60	Fail Time (Sec)	
								Ignition Voltage Lo	>=	8.5996094	Volts				
								Ignition Voltage Hi	<=	31.990234	Volts				
								Engine Speed Lo	>=	400	RPM				
								Engine Speed Hi	<=	7500	RPM				
								Engine Speed is within the	>=	5	Sec				
								allowable limits for							
										Test Failed					
								P0713 Status is	<b>≠</b>	This Key					
								1 07 10 3 11 13 13	, , , , , , , , , , , , , , , , , , ,	On or Fault					
										Active					
							Disable			3, P0716, P0717	7, P0722,				
						C	onditions:	DTC's:	P0723						
									ECM: None						
Transmission Input Speed	D071/	land Carad Caran Dafaman	Transmission Input Speed Sensor		1350	RPM							0.0	F-!  Ti (C)	One Trip
Sensor (TISS)	P0/16	Input Speed Sensor Performance	. Drops	>=	1350	KPIVI						>=	8.0	Fail Time (Sec)	
								Engine Torque is	>=	0	N*m				
								Engine Torque is Engine Speed	<=	8191.875 400	N*m RPM				
								Engine Speed Engine Speed	>= <=	7500	RPM				
								Engine Speed is within the	\-						
								allowable limits for	>=	5	Sec				
								Vehicle Speed is	>=	10	Kph				
								Throttle Position is	>=	0	Pct				
								Transmission Input Speed is	>=	0	RPM				
								The previous requirement has	>=	0	Sec				
								been satisfied for		U	300				
								The change (loop to loop) in	<	8191.875	RPM/Loop				
	1							transmission input speed is			-11				

Component/	Fault	Monitor Strategy		Malfunction		Thres		Secondary Malfunction		Enable			Time	Mil
System	Code	Description		Criteria		Val	ue	Malfunction		Conditions			Required	Illum.
								The previous requirement has been satisfied for	>=	0	Sec			ļ ļ
								Throttle Position Signal Valid	=	TRUE	Boolean			
								Engine Torque Signal Valid		TRUE	Boolean			
								Ignition Voltage		8.5996094	Volts			
								Ignition Voltage	<=	31.990234	Volts			
								P0716 Status is not	=	Test Failed This Key On or Fault Active				
							Disable Conditions:	MIL not Illuminated for DTC's:		1, P0102, P0103				
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 (S	One Trip
			Fail Case 2	When P0722 DTC Status equal to Test Failed and Transmission Input	<	1000	RPM	Controller uses a single power	=	1	Boolean			
				Speed is				supply for the speed sensors						
								Engine Torque is	>=	50	N*m			
								Engine Torque is	<=	8191.875	N*m			
								Vehicle Speed	>=	16	Kph			
								Engine Torque Signal Valid		TRUE	Boolean			
								Ignition Voltage	>=	8.5996094	Volts			
								Ignition Voltage	<=	31.990234	Volts			
								Engine Speed	>=	400	RPM			
								Engine Speed	<=	7500	RPM			
								Engine Speed is within the		5	Sec			
								allowable limits for						
								P0717 Status is not	=	Test Failed This Key				
										On or Fault Active				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
						Disable Conditions:	MIL not Illuminated for DTC's:		P0723 P0102, P0103					
Mode Switch	P071A	Transmission Mode Switch A Circuit	Tow Haul Mode Switch state	= T	RUE	Boolean					>=	600	Fail Time (Sec)	Special No MIL
							Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
						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					>=	3.75	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 Throttle Position	= >=	TRUE 8.0001831	Boolean Pct				
							Transmission Fluid Temperature	>=	-40	°C				
							Disable this DTC if the PTO is active	=	1	Boolean				
							Engine Torque Signal Valid Throttle Position Signal Valid Ignition Voltage is Ignition Voltage is Engine Speed is	= = >= <= >=	TRUE TRUE 8.5996094 31.990234 400	Boolean Boolean Volts Volts RPM				
							Engine Speed is Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
- Cystom	Ocac	Description	0.1.0.1.0		Enable_Flags Defined Below					
					The Engine Torque Check is TRUE, if either of the two					
					following conditions are TRUE					
					Engine Torque Condition 1		Range			
					Range Shift Status OR	<i>≠</i>	shift completed	ENUM		
					Transmission Range is	=	Park or Neutral 8191.75	N*m		
					Engine Torque is Engine Torque is	>= <=	8191.75	N*m		
					Engine Torque Condition 2		0.5			
					Engine Torque is Engine Torque is	>= <=	35 8191.75	N*m 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 Transmission Input Speed is	>= <=	1000 8191	RPM RPM		
					TIS Check Condition 2 Engine Speed without the brake applied is	>=	3200	RPM		
					Engine Speed with the brake applied is	>=	3200	RPM		
					Engine Speed is	<=	8191	RPM		
					Controller uses a single power supply for the speed sensors	=	1	Boolean		
					Powertrain Brake Pedal is Valid	=	TRUE	Boolean		
					1					1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue		Secondary Malfunction		Enable Conditions			Ti	me uired	Mil Illum.
- Cystom	Joan	2000, p. 10.					Disable nditions:	MIL not Illuminated for DTC's:		6, P0717, P0723 1, P0102, P0103			•		
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 8191 650 Driven range (R,D)	RPM RPM RPM		Range_Disable OR Neutral_Range_Enable And Neutral_Speed_Enable are TRUE concurrently		FALSE TRUE TRUE	See Below See Below See Below	>= >= >=	0.2 0 1.5	Enable Time (Sec) Enable Time (Sec) Output Speed Drop Recovery Fail Time (Sec)	One Trip
								Transmission_Input_Speed_En able No Change in Transfer Case Range (High <-> Low) for P0723 Status is not	= >= =	TRUE 5 Test Failed This Key On or Fault	See Below Seconds				
								Disable this DTC if the PTO is active Ignition Voltage is Ignition Voltage is Engine Speed is Engine Speed is Engine Speed is within the allowable limits for	= >= <= >= <= >=	Active  1 8.5996094 31.990234 400 7500 5	Boolean Volts Volts RPM RPM				

Component/	Fault Code	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum
System	Code	Description	Criteria	value	Enable_Flags Defined Below	Conditions		Required	indin
					·				
					Transmission_Input_Speed_En				
					able is TRUE when either TIS				
					Condition 1 or TIS Condition 2				
					is TRUE:				
					TIS Condition 1 is TRUE when				
					both of the following conditions		Enable Time		
					are satsified for		(Sec)		
					Input Speed Delta		RPM		
					Raw Input Speed		RPM		
					TIS Condition 2 is TRUE when				
					ALL of the next two conditions				
					are satisfied		DDM		
					Input Speed		RPM		
					A Single Power Supply is used	= TRUE	Boolean		
					for all speed sensors				
					Neutral_Range_Enable is				
					TRUE when any of the next 3				
					conditions are TRUE				
					Transmission Range is	= Neutral	ENUM		
						Reverse/N			
					Transmission Range is	= eutral	ENUM		
						Transitona	l		
						Neutral/Dri			
					T	VA			
					Transmission Range is	= Transitiona	ENUM		
						1			
					And when a drop occurs				
					Loop to Loop Drop of	/50	DDM		
					Transmission Output Speed is	> 650	RPM		
					Range_Disable is TRUE when				
					any of the next three conditions				
					are TRUE				
					Transmission Range is	= Park	ENUM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
System	Code	Description	Criteria	value	Manufiction				Required	illulii.
					Transmission Range is	=	Park/Rever se Transitonal	ENUM		
					Input Clutch is not	=	ON (Fully Applied)	ENUM		
					Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified	>	1.5	Seconds		
					for 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					1
					is TRUE when one of the next					
					six conditions is TRUE					
					Transmission Range is	=	Neutral Reverse/N	ENUM		
					Transmission Range is	=	eutral Transitiona	ENUM		
					Transmission Range is	=	I Neutral/Dri ve Transitiona I	ENUM		
					Time since a driven range (R,D) has been selected	>=	Table Based Time Please Refer to Table 21 in supporting documents	Sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Gneria	value	Transmission Output Speed Sensor Raw Speed Output Speed when a fault was detected	>= 500 RPM >= 500 RPM	Kedulleu	indin.
				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 Either Condition (A) or (B) Must be Met	'			>= 2 Enable Time (Sec)	Two Trips
			(A) TCC Slip Error @ TCC On Mode	Refer to Table  1 in RPM Supporting Documents			>= 5 Fail Time (Sec)	
			(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  Ignition Voltage Lo  Ignition Voltage Hi  Engine Speed Engine Speed is within the allowable limits for Engine Torque Lo Engine Torque Hi Throttle Position Hi 2nd Gear Ratio Lo 2nd Gear Ratio Lo 3rd Gear Ratio Lo 3rd Gear Ratio Lo 4th Gear Ratio Lo 4th Gear Ratio Lo	>= 8.5996094 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec >= 50 N*m <= 8191.875 N*m >= 8.0001831 Pct <= 99.998474 Pct >= 2.6710205 Ratio <= 3.072998 Ratio >= 1.7130127 Ratio <= 1.9709473 Ratio >= 1.3150635 Ratio		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
System	Code	Description	Criteria		v	aiue	5th Gear Ratio Lo		0.9300537	Ratio	-	Keq	uirea	mum.
							5th Gear Ratio Hi	>= <=	1.0699463	Ratio				
							6th Gear Ratio Lo	>=	0.6900635	Ratio				
							6th Gear Ratio High	<=	0.7939453	Ratio				
							Transmission Fluid	\						
							Temperature Lo	>=	-6.664063	°C				
							Transmission Fluid							
							Temperature Hi	<=	130	°C				
							PTO Not Active	=	TRUE	Boolean				
							Engine Torque Signal Valid	=	TRUE	Boolean				
							Throttle Position Signal Valid	=	TRUE	Boolean				
							Dynamic Mode	=	FALSE	Boolean				
							Dynamic wode			Doolcan				
									Test Failed					
							P0741 Status is	<b>≠</b>	This Key					
							. o r status is	ĺ	On or Fault					
									Active					
						Disable	MIL not Illuminated for	TCM: P0716	5 P0717 P0722	P0723				
						Conditions:		P0742, P27		., 1 0720,				
						Conditions.	2103.	0712,127	00,12701					
								FCM: P010	1, P0102, P010	3 P0106				
									08, P0171, P017					
									00, F0171, F017 01, P0202, P020					
									06, P0207, P020					
									00, 1 0207, 1 020 02, P0303, P030					
									02, P0303, P030 07, P0308, P040					
								0300,103	07,1 0300,1 040	J1,1 042L				
														One Trip
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>=	-50	RPM								One mp
			TCC Slip Speed	<=	13	RPM								
			Too Slip Speed	~-	15	IXI IVI					>=	2	Fail Time (Sec)	
			If Above Conditions Have been									2	raii riine (See)	
			Met, and Fail Timer Expired,								>=	6	Fail Counter	
			Increment Fail Counter								/-	0	I all Counter	
			morement Fall Counter				TCC Mode	=	Off					
							Enable test if Cmnd Gear =	_	OII					
							1stFW and value true	=	1	Boolean				
							Enable test if Cmnd Gear =							
							2nd and value true	=	0	Boolean				
							Engine Speed Hi		6000	RPM				
							Engine Speed Hi	<=	0000	KPIVI	l			l

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable		Time	Mil Illum.
System	Code	Description	Criteria	Value			Conditions	DDM	Required	illum.
					Engine Speed Lo	>=	500	RPM		
					Vehicle Speed HI	<=	511	KPH		
					Vehicle Speed Lo	>=	1	KPH		
					Engine Torque Hi	<=	8191.875	Nm		
					Engine Torque Lo	>=	80	Nm		
					Current Range	<i>≠</i>	Neutral	Range		
					Current Range	≠	Reverse	Range		
					Transmission Sump	<=	130	°C		
					Temperature					
					Transmission Sump	>=	18	°C		
					Temperature					
					Throttle Position Hyst High	>=	5.0003052	Pct		
					AND					
					Max Vehicle Speed to Meet	<=	8	KPH		
					Throttle Enable	<-	0	KFII		
					Once Hyst High has been met,					
					the enable will remain while	>=	2.0004272	Pct		
					Throttle Position					
					Disable for Throttle Position	>=	75	Pct		
					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	-	TALSE	Doolean		
					value false	=	0	Boolean		
							ENICE	Dooloon		- 1
					RVT Diagnostic Active	=	FALSE	Boolean		- 1
					Ignition Voltage	>=	8.5996094	V		- 1
					Ignition Voltage	<=	31.990234	V	1	
					Vehicle Speed	<=	511	KPH		- 1
					Engine Speed	>=	400	RPM		- 1
					Engine Speed	<=	7500	RPM	1	
					Engine Speed is within the	>=	5	Sec		- 1
					allowable limits for	-				- 1
				1	Engine Torque Signal Valid	=	TRUE	Boolean		- 1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Throttle Position Signal Valid P0742 Status is	= TRUE Boolean Test Failed This Key ≠ On or Fault Active		
				Disable Conditions:	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		= 1st Lock rpm <= 1.484985352 >= 1.343017578	Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Transmission Fluid Temperature Range Shift State	>= 5 Sec >= -6.65625 °C Range	>= 0.3 Fail Tmr = 5 Fail Counts ≠ 0 Neutral Timer (Sec) >= 0.3 Fail Timer (Sec) >= 8 Counts	

Component/	Fault	Monitor Strategy	Malfunction		eshold alue	Secondary Malfunction		Enable Conditions		Time	)	Mil Illum.
System	Code	Description	Criteria	Va	liue	TPS	>=	0.5004883	%	Require	ea	illum.
						OR	>-	0.3004003	/0			
						Output Speed	>=	36	RPM			
						Throttle Position Signal Valid			Boolean			
						from ECM	=	TRUE	Boolean			
						Engine Torque Signal Valid						
						from ECM, High side driver is		TRUE	Boolean			
						enabled High-Side Driver is Enabled		TRUE	Boolean			
						Input Speed Sensor fault		FALSE	Boolean			
						Output Speed Sensor fault		FALSE	Boolean			
						Default Gear Option is not		TRUE				
						present	=	IRUE				
					Disable	MIL not Illuminated for	TCM, D071	/ D0717 D072	D0722			
					Conditions:	DTC's:		0, P0/1/, P0/22	2, PU/23,			
					oonanons.	D10 3.	1 102L					
								1, P0102, P0103				
								08, P0171, P01				
								01, P0202, P020 06, P0207, P020				
								02, P0303, P030				
								07, P0308, P040				
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 400	RPM							One Trip
			Commanded Gear	Jed	Gear							
			Commanded Gear has Achieved	= 3rd	Geal							
			1st Locked OR 1st Free-Wheel OR									
			2nd with Mode 2 Sol. Commanded	= TRUE	Boolean							
			On									
			If the above parameters are true									
										Please Refer		
										>= to Table 16 in	Neutral Timer (Sec)	
										Supporting Documents	(Sec)	
			Command 4th Gear once Output		2014					Documents		
			Shaft Speed	<= 800	RPM							
			If Gear Ratio	>= 4.259765625								
			And Gear Ratio	<= 4.708251953	3							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresh Value		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
										>=	1.5	Fail Timer (Sec)	
										>=	5	Counts	
						Ignition Voltage Lo	>=	8.5996094	Volts				ĺ
						Ignition Voltage Hi	<=	31.990234	Volts				1
						Engine Speed Lo	>=	400	RPM				1
						Engine Speed Hi		7500	RPM				1
						Engine Speed is within the		5	Sec				1
						allowable limits for		TDUE	DI				ı
						High-Side Driver is Enabled Throttle Position Signal Valid	=	TRUE	Boolean				ı
						from ECM	=	TRUE	Boolean				ı
						Output Speed	>=	36	RPM				ı
						OR Output Speed	-	55	101 101				ı
						TPS	>=	0.5004883	%				
								D					ĺ
						Range Shift State	=	Range Shift	ENUM				ĺ
						Range Shiit State	=	Completed	EIVUIVI				ĺ
								Completed					<b>l</b> '
						Transmission Fluid	>=	-6.65625	°C				ĺ
						Temperature							ĺ
						Input Speed Sensor fault	=	FALSE	Boolean				1
						Output Speed Sensor fault		FALSE	Boolean				1
						Default Gear Option is not present	=	TRUE					ı
						present							ĺ
													ı
					Disable	MIL not Illuminated for	TCM: P0716	, P0717, P0722,	P0723,				ĺ
					Conditions:	DTC's:							ı
													ı
													1
								, P0102, P0103					1
								8, P0171, P017					1
								1, P0202, P020					1
								6, P0207, P020 2, P0303, P030					1
								12, P0303, P030 17, P0308, P040					1
							1 0300, 1 030	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1, 1 U4ZL				1
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gea	ar = 1st Locked									One Trip

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable			Time		Mil
System	Code	Description	Criteria	Value	Malfunction		Conditions			Requir	ed	Illum.
										ase Refer		
			Gear Box Slip	>= 400 RPM							Neutral Timer	
			Geal Box Silp	>= 400 KFWI					Su	pporting	(Sec)	
									Do	cuments		
			Intrusive Shift to 2nd									
			Commanded Gear Previous									
				<= 3.015991211								
				>= 2.728027344								
			If the above parameters are true									
									>=	1	sec	
									>=	3	counts	
					Ignition Voltage Lo	>=	8.5996094	Volts				ļ !
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the	>=	5	Sec				
					allowable limits for		0.4	DD14				
					Output Speed	>=	36	RPM				
					OR		0.5004000	0/				
					TPS	>=	0.5004883	%				
							Range					
					Range Shift State	=	Shift	ENUM				
					_		Completed					
					Transmission Fluid							
						>=	-6.65625	°C				
					Temperature High-Side Driver is Enabled		TRUE	Boolean				
					Throttle Position Signal Valid	=	IKUE	DUUIEdil				
					from ECM	=	TRUE	Boolean				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not	_		וושטוטמו				
					present	=	TRUE					
					present							
												1
	<u> </u>								<u> </u>			

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction	Enable Conditions	Time	Mil
System	Code	Description	Criteria	Value Disable		TCM: P0716, P0717, P0722, P0723,	Required	Illum.
				Conditions:	DTC's:			
						FOM D0101 D0102 D0102 D0107		
						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		
						F0300, F0307, F0308, F0401, F042L		
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid B	Fail Case 1 Case: Steady State 3rd Gear					One Trip
		Stuck Off [C35R]	Commanded Gear					
			Gearbox Slip					
			·				Please Refer	
							>= to Table 16 in Neutral Timer Supporting (Sec)	
							Documents	
			Command 4th Gear once Output	<= 800 RPM				
			Shaft Speed	>= 1.343261719				
				<= 1.484741211				
							>= 3 Fail Timer (Sec)	
			It the above condiations are true,				3rd Gear Fail	
			Increment 3rd gear fail counter				>= 3 Counts	
			J				or	
			and C35R Fail counter				>= 14 3-5R Clutch Fai	il
			Fail Case 2 Case: Steady State 5th Gear				Counts	1
			Commanded Gear					
							DI . D. (	
							Please Refer to Table 5 in Neutral Timer	
			Gearbox Slip	>= 400 Rpm			>= Supporting (Sec)	
							Documents	
			Intrusive Test: Command 6th Gear					

Code   Conditions	Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable			Т	ime	Mil
If altained Gear-ofth gear Tame supporting documents  If the above conditations are true, increment 5th gear fail counter  and C3SR Fail counter  and C3SR Fail counter  PRNDL State defaulted FALSE Bookean Inhibit RVI FALSE Bookean FALSE FAL						Malfunction							Illum.
It the above conditations are true. Increment 5th gear fail counter  and C35R Fail counter  PRNDL State defaulted inhibit RVT = FALSE Boolean FALSE FALS					Please refer to								
If the above condictions are true increment 5th gear fail counter  and C35R Fail counter  PRNDL State defaulted inhibit RVT = FALSE Boolean in				If attained Gear=6th gear Time	>= Shift Time (Sec)								
Increment 5th gear fail counter				It the above condictions are true	documents							Eth Coor Foil	
A Case   Fall counter   PRNDL State defaulted     FALSE   Boolean										>=	3		
and C35R Fall counter  PRNDL State defaulted inhibit RVT = FALSE Boolean inhibit RVT = FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE Boolean FALSE FAL				increment stir gear fail counter									
PRNDL State defaulted inhibit RVT = FALSE Boolean inhibit RVT = FALSE Boolean Inhibit RVT = FALSE Boolean    MS aut pending indication = FALSE Boolean    TPS validity flag													
PRNDL State defaulted				and C35R Fail counter						>=	14		
inhibit RVT = FALSE Boolean IMS fault pending indication = FALSE Boolean TPS validity flag = TRUE Boolean Hydraulic System Pressurized = TRUE Boolean Hydraulic System Pressurized = TRUE Boolean Minimum output speed or RVT >= 36 RPM  A OR B  (A) Output speed enable >= 36 RPM  (B) Accelerator Pedal enable >= 0.5004883 Pct  Common Enable Criteria Ignition Voltage Lo  = 8.5996094 Volts Ignition Voltage Lo  = 8.15996094 Volts Ignition Voltage H  = 31.990234 Volts Engine Speed to  = 400 RPM Engine Speed to  = 400 RPM Engine Speed to  = 400 RPM Engine Speed to  = 7500 RPM  Engine Speed is within the allowable limits for Throttle Position Signal valid  = TRUE Boolean HSD Enabled  = TRUE Boolean Transmission Fluid  = FALSE Boolean Input Speed Sensor fault  = FALSE Boolean Updruf Speed Sensor fault  = FALSE Boolean Output Speed Sensor fault  = FALSE Boolean Default Gear Option is not  = TRUE Boolean						PRNDL State defaulted	=	FALSE	Boolean				1
TPS validity lag							=	FALSE	Boolean				
TPS validity lag						IMS fault pending indication	=	FALSE	Boolean				
Minimum output speed for RVT							=	TRUE	Boolean				
A OR B  (A) Output speed enable (B) Accelerator Pedal enable Common Enable Criteria Ignition Voltage Lo Ignilion Voltage Lo Ignilion Voltage Hi Engine Speed Lo Engine Speed Lo Engine Speed Is within the Engine Speed Is within the allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Output Speed Sensor fault Default Gear Option is not  TRUE Boolean FALSE Boolean Default Gear Option is not						Hydraulic System Pressurized	=	TRUE	Boolean				
(A) Output speed enable (B) Accelerator Pedal enable >= 36 RPM (B) Accelerator Pedal enable >= 0.5004883 Pct Common Enable Criteria Ignition Voltage Lo						Minimum output speed for RVT	>=	36	RPM				
(B) Accelerator Pedal enable Common Enable Criteria Ignition Voltage Lo Ignition Voltage HI Engine Speed Lo Engine Speed Lo Engine Speed HI En						A OR B							
Common Enable Criteria Ignition Voltage Lo >= 8.5996094 Volts Ignition Voltage Hi <= 31.990234 Volts Engine Speed Lo >= 4000 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for Throttle Position Signal valid HSD Enabled = TRUE Boolean Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not TRUE  TRUE						(A) Output speed enable	>=	36	RPM				
Ignition Voltage Lo Ignition Voltage Hi Ignition Hi Ignition Voltage Hi Ignition Hi Ignition Voltage Hi Ignition Hi Ignition Voltage Hi Ignition Hi Ignition Voltage Hi Ignition Hi Ignition Voltage Hi Ignition Hi Ignition Voltage Hi Ignition Hi Ignition Voltage Hi Ignition Hi Ignition Voltage Hi Ignition Hi Ignition Voltage Hi Ignition Hi Ignition Voltage Hi Ignition Hi Ignition Voltage Hi Ignition Hi Ig						(B) Accelerator Pedal enable	>=	0.5004883	Pct				
Ignition Voltage Hi <= 31.990234 Volts Engine Speed Lo >= 400 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for Throttle Position Signal valid = TRUE Boolean HSD Enabled = TRUE Boolean Transmission Fluid Transmission Fluid Temperature Input Speed Sensor fault = FALSE Boolean Output Speed Sensor fault = FALSE Boolean Default Gear Option is not = TRUE  TRUE TRUE TRUE TRUE TRUE TRUE TRUE													
Engine Speed Lo Engine Speed Hi Engine Speed Hi Engine Speed is within the allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not  Engine Speed Lo FALSE							>=						
Engine Speed Hi <= 7500 RPM  Engine Speed is within the allowable limits for Throttle Position Signal valid = TRUE Boolean HSD Enabled = TRUE Boolean Transmission Fluid Temperature							<=						
Engine Speed is within the allowable limits for Throttle Position Signal valid = TRUE Boolean HSD Enabled = TRUE Boolean Transmission Fluid >= -6.65625 °C Temperature   FALSE Boolean Output Speed Sensor fault   FALSE Boolean Output Speed Sensor fault   FALSE Boolean Default Gear Option is not   TRUE							>=						
allowable limits for Throttle Position Signal valid = TRUE Boolean HSD Enabled = TRUE Boolean Transmission Fluid Temperature Input Speed Sensor fault = FALSE Boolean Output Speed Sensor fault = FALSE Boolean Default Gear Option is not = TRUE							<=	7500	RPM				
allowable limits for Throttle Position Signal valid = TRUE Boolean HSD Enabled = TRUE Boolean Transmission Fluid Temperature Input Speed Sensor fault = FALSE Boolean Output Speed Sensor fault = FALSE Boolean Default Gear Option is not = TRUE							>=	5	Sec				
HSD Enabled = TRUE Boolean  Transmission Fluid Temperature  Input Speed Sensor fault = FALSE Boolean  Output Speed Sensor fault = FALSE Boolean  Default Gear Option is not = TRUE													
Transmission Fluid Temperature  Input Speed Sensor fault Output Speed Sensor fault  FALSE Boolean Output Speed Sensor fault Default Gear Option is not TRUE													
Temperature >= -0.05025 °C Input Speed Sensor fault = FALSE Boolean Output Speed Sensor fault = FALSE Boolean Default Gear Option is not = TRUE							=	TRUE	Boolean				
Input Speed Sensor fault = FALSE Boolean Output Speed Sensor fault = FALSE Boolean Default Gear Option is not = TRUE							>=	-6.65625	°C				
Output Speed Sensor fault = FALSE Boolean Default Gear Option is not = TRUE								EALCE	Daalaa				
Default Gear Option is not													
							=	FALSE	Dunigan				
nrecent						present	=	TRUE					
ргозоп						present							

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable			me	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions TCM, D0717, D0717, D0712		Req	uired	Illum.
				Disable Conditions:	MIL not illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723,				
				Conditions.	DIC 3.	FIOZE				
						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				
						F0300, F0307, F0300, F0401, F042L				l
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solinoid B	Fail Case 1 Case: Steady State 1st							One Trip
variable bleed Solehold (VBS)	10///	Stuck On [C35R] (Steady State)	Attained Gear slip							
			Attairied Gear Silp	Table Based						
				Time Please						
			If the Above is True for Time	Refer to Table Enable Time						
			II the Above is true for time	4 in (Sec)						
				supporting						
			Intrusive test:	documents						
			(CBR1 clutch exhausted)							
				<= 1.933959961						
			Gear Ratio							
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	2	Fail Count in 1st	
							>-	2	Gear	1
									or Total Fail	
							>=	3	Counts	
			Fail Case 2 Case: Steady State 2nd gear							
				Table Based						
			Man Dalla C. L. C.	value Please						l
			Max Delta Output Speed Hysteresis							
			I I I I I I I I I I I I I I I I I I I	supporting						1
				documents						

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction	Enable Conditions	Time	Mil Illum.
System	Code	Description	Criteria	Table Based	Manunction	Conditions	Required	illulli.
				value Diagos				
				Pofor to Tablo				
			Min Delta Output Speed Hysteresis	>= 23 in rpm/sec				
				supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Sec 17 in				
				supporting				
				documents				
			Intrusive test:					
			(CB26 clutch exhausted)					
				<= 1.933959961				
			Gear Ratio					
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)	)
							Fail Count in	
							>= 3 2nd Gear	
							or	
							>= 3 Total Fail	
							Counts	
			Fail Case 3 Case: Steady State 4th gear					
				Table Based				
			M 5 11 6 1 16 1	value Please				
			Max Delta Output Speed Hysteresis	>= Refer to Table rpm/sec 22 in				
			Hysteresis	supporting				
				documents				
				Table Based				
				value Please				
			Min Dolto Output Cood di licata-a-da					
			Min Delta Output Speed Hysteresis	>= Refer to Table rpm/sec 23 in				
				supporting				
				documents				

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	В.	Time equired	Mil Illum.
System	Code	Description	Criteria	Table Based	Ivialiulicuoli	Conditions	R	equireu	mun.
				Timo Dloggo					
			16 Ab - Ab :- T 6 Ti	Pefer to Table					
			If the Above is True for Time	>= 17 in Sec					
				supporting					
				documents					
			Intrusive test:						
			(C1234 clutch exhausted)	<= 1.050048828					
				>= 0.949951172					
			If the above parameters are true	0.747731172					
			ii tilo abovo paramotoro aro tiao					/	
							>= 1.1	Fail Timer (Sec)	
							>= 3	Fail Count in 4th	1
							>= 3	Gear	
								or	
							>= 3	Total Fail	
			Fail Case 4 Case: Steady State 6th gear					Counts	-
			Case. Steady State of year	Table Based					
				value Diegeo					
			Max Delta Output Speed	>= Refer to Table rpm/sec					
			Hysteresis	>= rpm/sec					
				supporting					
				documents					
				Table Based					
				value Please					
			Min Delta Output Speed Hysteresis	>= Refer to Table rpm/sec 23 in					
				supporting					
				documents					
				Table Based					
				Time Please					
			If the Above is True for Time	>= Refer to Table Sec					
			ii the Above is The for Time	17 111					
				supporting					
			formula and a	documents					
			Intrusive test: (CB26 clutch exhausted)						
			· · · · · · · · · · · · · · · · · · ·						
			Gear Ratio	<= 1.050048828			>= 1.1	Fail Timer (Sec)	
			Gear Ratio	>= 0.949951172			>= 3	counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime quired	Mil Illum.
System	Code	Description	If the above parameters are true	Value			Conditions			1100	quirou	
			, , , , , , , , , , , , , , , , , , ,							1.1	Fail Timer (Sec)	
									>=	1.1		
									>=	3	Fail Count in 6th Gear	
											or	
										3	Total Fail	
									>=	3	Counts	
					PRNDL State defaulted	=	FALSE	Boolean				'
					inhibit RVT	=	FALSE	Boolean				1
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				1
					HSD Enabled	=	TRUE	Boolean				1
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							1
					(A) Output speed enable	>=	36	Nm				1
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				1
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				1
					Engine Speed Lo	>=	400	RPM				1
					Engine Speed Hi	<=	7500	RPM				1
					Engine Speed is within the	>=	5	Sec				1
					allowable limits for		· ·	000				1
					if Attained Gear=1st FW	>=	5.0003052	Pct				1
					Accelerator Pedal enable							1
					if Attained Gear=1st FW	>=	20	Nm				1
					Engine Torque Enable							1
					if Attained Gear=1st FW	<=	8191.875	Nm				1
					Engine Torque Enable Transmission Fluid							1
					Temperature	>=	-6.65625	°C				
					Input Speed Sensor fault	=	FALSE	Boolean				1
					Output Speed Sensor fault	=	FALSE	Boolean				1
												1

Component/	Fault	Monitor Strategy	Malfunction			eshold alue	Secondary Malfunction	Enable Conditions	Time	Mil Illum.
System	Code	Description	Criteria		Va	Disable		TCM: P0716, P0717, P0722, P0723,	Required	illum.
						Conditions:	DTC's:			
								FOM D0404 D0400 D0400 D0404		
								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		
			Primary Offgoing Clutch is							One Trip
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B	exhausted (See Table 12 in	=	TRUE	Boolean				
` ′		StuckOn [C35R] (Dymanic)	Supporting Documents for Exhaust Delay Timers)							
			Primary Oncoming Clutch Pressure		Maximum					
			Command Status	=	pressurized					
			Primary Offgoing Clutch Pressure		Clutch					
			Command Status	=	exhaust command					
					Initial Clutch	1				
			Range Shift Status	<b>≠</b>	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	>=	0.5	Fail Time (Sec)				
			(3-2 shifting with Throttle)		0.0	. u (000)				
			fail timer 1 (3-2 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1	>=	0.5	Fail Time (Sec)				
			(3-4 shifting with Throttle)	_	0.5	r un rime (Sec)				1
			fail timer 1 (3-4shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1		0.5	Fail Time (Sec)				1
			(3-5 shifting with Throttle)	>=	0.0	i all Tille (Sec)				1
			fail timer 1 (3-5 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
2,000			fail timer 1	-=	0.5	Fail Time (Sec)								
			(5-3 shifting with Throttle) <sup>&gt;</sup> fail timer 1			(2 30)								
			(5-3 shifting with Closed Throttle)	-=	0.5	Fail Time (Sec)								
			fail timer 1		0.5	Fail Time (Sec)								
			(5-4 shifting with 1 hrottle)	·=	0.5	Fall Time (Sec)								
			fail timer 1 (5-4 shifting with Closed Throttle)	·=	0.5	Fail Time (Sec)								
			fail timer 1	·=	0.5	Fail Time (Sec)								
			(5-6 shifting with Throttle)	-	0.5	Tall Tille (Sec)								
			fail timer 1 > (5-6 shifting with Closed Throttle)	-=	0.5	Fail Time (Sec)								
												Total Fail		
												me = (Fail 1		
												Fail 2) See		
			If Attained Gear Slip is Less than									able Timers r Fail Timer		
			Above Cal Increment Fail Timers									1, and	sec	
											F	Reference		
												Supporting		
												able 15 for		
											F	ail Timer 2		
			If fail timer is greater than threshold											
			increment corresponding gear fail											
			counter and total fail counter											
			2rd goar fail countar									3	3rd gear fail	
			3rd gear fail counter								>=	3	counts	
													OR	
			5th gear fail counter								>=	5	5th gear fail counts	
													OR	
			Total fail counter								>=	5	total fail counts	
							TUT Enable temperature	>=	-6.65625	°C				
							Input Speed Sensor fault	=	FALSE FALSE	Boolean				
							Output Speed Sensor fault Command / Attained Gear	= ≠	FALSE 1st	Boolean Boolean				
							High Side Driver ON	<i>+</i>	TRUE	Boolean				
							output speed limit for TUT	>=	100	RPM				
							input speed limit for TUT	>=	200	RPM	1			
							PRNDL state defaulted	=	FALSE	Boolean	I			

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Fault Code	Description  Description	Malfunction Criteria  Fail Case 1  Case: Steady State 4th Gear Gear slip Intrusive test: commanded 5th gear If attained Gear ≠5th for time if the above conditions have been met Increment 4th Gear Fail Counters	Value  Disable Conditions:  >= 400 RPM  Please refer to Table 3 in Supporting Documents  Shift Time (Sec)	Malfunction  IMS Fault Pending Service Fast Learn Mode HSD Enabled Default Gear Option is not present  MIL not Illuminated for DTC's:	Conditions	Please See Table 5 For Neutral >= Neutral Time (Se Cal	One Trip  Timer  Trail  Trail
			Fail Case 2 Case: Steady State 5th Gear Slip				Please See Table 5 For Neutral Neutral Time (Se	Timer

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Tin Requ		Mil Illum.
Gystein	Code	Description	Intrusive test:	74140							
			commanded 6th gear								
				Please Refer							
			If attained Gear ≠ 6th for time	>= to Table 3 in Supporting Shift Time (Sec)							
				Documents							
			if the above conditions have been								
			met							5th Gear Fail	
			Increment 5th Gear Fail Counter						>= 3	Count	
										OR	
			and C456 Fail Counters						>= 14	C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gear							Counts	1
									Please See		
			Gear slip	>= 400 RPM					Table 5 For	Neutral Timer	
									Neutral Time Cal	(Sec)	
			Intrusive test:						Cai		
			commanded 5th gear								
				Please refer to  Table 3 in Shift Time (Sec.)							
			If attained Gear ≠ 5th for time	>= Supporting Shift Time (Sec)							
				Documents							
			if the above conditions have been								
			met Increment 6th Gear Fail Counter							6th Gear Fail	
			and C456 Fail Counter						>= 3	Count	
										OR	
			and C456 Fail Counter						>= 14	C456 Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean		Counts	1
					inhibit RVT	=	FALSE	Boolean			
					IMS fault pending indication	=	FALSE	Boolean			
					TPS validity flag Hydraulic System Pressurized	= =	TRUE TRUE	Boolean Boolean			
					Minimum output speed for RVT	>=	36	RPM			
						>=	30	Krivi			
					A OR B (A) Output speed enable	>=	36	RPM			
					(B) Accelerator Pedal enable	>=	0.5004883	Pct			
					Common Enable Criteria	•					

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
					Ignition Voltage Lo	>= 8.5996094 Volts		
1					Ignition Voltage Hi			
1					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
1					Engine Speed is within the	>= 5 Sec		
1					allowable limits for			
1					Throttle Position Signal valid	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
1					Transmission Fluid	>= -6.65625 °C		
					Temperature	EALCE Dealess		
1					Input Speed Sensor fault	= FALSE Boolean = FALSE Boolean		
1					OutputSpeed Sensor fault Default Gear Option is not	= FALSE Boolean		
					· ·	= TRUE		
					present			
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,		
				Conditions:	DTC's:			
				Conditions.	5103.	1 1022		
						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,		
1						P0306, P0307, P0308, P0401, P042E		
		Pressure Control (PC) Solenoid C	Fail Case 1					One Trip
Variable Bleed Solenoid (VBS)	P0797	Stuck On [C456] (Steady State)	Case: Steady State 1st					0.10 T.1.p
1		Class on [5 155] (clean) class,	Attained Gear slip	>= 400 RPM				
1				Table Based				
				Time Please				
				Pofor to Table Enable Time				
			If the Above is True for Time	>= 4 in (Sec)				
				supporting				
				documents				
			Intrusive test:					
			(CBR1 clutch exhausted)					
			` '	<= 1.484985352				
				>= 1.343017578				
			If the above parameters are true					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Ti Req	me uired	Mil Illum.
							>=	1.1	Fail Timer (Sec)	
							>=	2	Fail Count in 1st Gear	
							>=	3	or Total Fail Counts	
				Table Based value Please Refer to Table 22 in supporting documents Table Based value Please Refer to Table 23 in supporting documents Table Based Time Please Refer to Table 17 in supporting documents  Table Based Time Please Refer to Table 17 in supporting documents					Fall Times (Cool	
							>=	1.1	Fail Timer (Sec) Fail Count in 2nd Gear	
									or	
							>=	3	Total fail counts	
			Fail Case 3 Case Steady State 3rd				1			1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable			Т	ime	Mil
System	Code	Description	Criteria	Value	Mairunction		Conditions			Rec	juired	Illum.
				Table Based value Please								
			Max Delta Output Speed	Pofor to Table								
			Hysteresis									
			пузіегезіз	supporting								
				documents								
				Table Based								
				value Please								
				Pofor to Tablo								
			Min Delta Output Speed Hysteresis	>= 23 in rpm/sec								
				supporting								
				documents								
	1			Table Based								
				Time Please								
				Pofor to Tablo								
			If the Above is True for Time	>= 17 in Sec								
				supporting								
				documents								
			Intrusive test:									
			(C35R clutch exhausted)									
				<= 1.484985352								
				>= 1.343017578								
			If the above parameters are true									
			· ·						>=	1.1	Fail Timer (Sec)	
										1.1		
									>=	3	Fail Count in	
										OD	3rd Gear	
										OR	Total Fail	
	I								>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean			Courts	ł
					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	>=	36	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>=	8.5996094	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
- Cyololii	0000	2000p			Ignition Voltage Hi	<=	31.990234	Volts		+
					Engine Speed Lo		400	RPM		
					Engine Speed Hi	(=	7500	RPM		
					Engine Speed is within the		5	Sec		
					allowable limits for		3	360		
					if Attained Gear=1st FW	>=	5.0003052	Pct		
					Accelerator Pedal enable		0.000002			
					if Attained Gear=1st FW	\	20	Nm		
					Engine Torque Enable					
					if Attained Gear=1st FW		8191.875	Nm		
					Engine Torque Enable Transmission Fluid					
					Tansmission Fluid Temperature		-6.65625	°C		
					Input Speed Sensor fault		FALSE	Boolean		
					Output Speed Sensor fault		FALSE	Boolean		
					Default Gear Option is not			Doolcan		
					present	=	TRUE			
					prosoni					
				Disal			6, P0717, P0722	, P0723,		
				Condition	ns: DTC's:	P182E				
							1, P0102, P0103			
							08, P0171, P017			
							01, P0202, P020			
							06, P0207, P020			
							02, P0303, P030 07, P0308, P040			
						P0300, P03	07, 20306, 2040	71, PU42E		
			Primary Offgoing Clutch is			1			<del> </del>	One Trip
		Pressure Control (PC) Solenoid C	exhausted (See Table 11 in							One mp
Variable Bleed Solenoid (VBS)		Stuck On [C456] (Dynamic)	Supporting Documents for Exhaust	= TRUE Boolean						
		Stack on [o loo] (bylianic)	Delay Timers)							
			Primary Oncoming Clutch Pressure							
			Command Status							
			Drimon, Official Children	Clutch						
			Primary Offgoing Clutch Pressure Command Status	- ovhauet						
			Command Status	command						
			Range Shift Status	Initial Clutch						
				Control						
			Attained Gear Slip	<= 40 RPM						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold ′alue	Secondary Malfunction	Enable Conditions	Time Require	1	Mil Illum.
Oystem	Code	Description	omena					- Containent			
			If the above conditions are true increment appropriate Fail 1								
			Timers Below:								
			(4-1 shifting with throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (4-1 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (4-2 shifting with throttle)	>=	0.5	Fail Time (Sec)					
			(4-2 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			(4-3 shifting with throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (4-3 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			(5-3 shifting with throttle)	>=	0.5	Fail Time (Sec)					
			(5-3 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (6-2 shifting with throttle)	>=	0.5	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	sec	
									Supporting Table 15 for Fail Timer 2		
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter								
			4th gear fail counter							Fail Counter rom 4th Gear OR	

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		reshold Value	Secondary Malfunction	Enable Conditions				ime quired	Mil Illum.
				5th gear fail counter						>=	3	Fail Counter From 5th Gear	
				6th gear fail counter						>=	3	OR Fail Counter From 6th Gear OR	
				Total fail counter						>=	5	Total Fail Counter	
						Disable Conditions:	TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Drivver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled  MIL not Illuminated for DTC's:	= FALSE ≠ 1st = TRUE >= 100 >= 200 = FALSE = FALSE = TRUE TCM: P0716, P0717, P072	3, P0106, 72, P0174, 03, P0204, 08, P0300, 04, P0305,				
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 Tap Up Switch Stuck in the Up	= 0	Boolean							
				Position in Range 3 Enabled Tap Up Switch Stuck in the Up	= 0	Boolean Boolean							
				Position in Range 4 Enabled Tap Up Switch Stuck in the Up Position in Range 5 Enabled		Boolean							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	T	hreshold Value	Secondary Malfunction	Enable Conditions		me uired	Mil Illum.
5,5			Tap Up Switch Stuck in the Position in Range 6 Enal		Boolean					
			Tap Up Switch Stuck in the Position in Neutral Enal	Up led = 1	Boolean					
			Tap Up Switch Stuck in the Position in Park Enal	led	Boolean					
			Tap Up Switch Stuck in the Position in Reverse Enal	Up led = 0	Boolean					
			Tap Up Switch		Boolean			>= 1	Fail Time (Sec)	
			Fail Case 2 Tap Up Switch Stuck in the Position in Range 1 Enal	led = I	Boolean					
			Tap Up Switch Stuck in the Position in Range 2 Enal	led I	Boolean					
			Tap Up Switch Stuck in the Position in Range 3 Enat	led = I	Boolean					
			Tap Up Switch Stuck in the Position in Range 4 Enal	led = 1	Boolean					
			Tap Up Switch Stuck in the Position in Range 5 Enal	led = I	Boolean					
			Tap Up Switch Stuck in the Position in Range 6 Enal	eled = 1	Boolean					
			Tap Up Switch Stuck in the Position in Neutral Enal	led = 0	Boolean					
			Tap Up Switch Stuck in the Position in Park Enal Tap Up Switch Stuck in the	led = 0	Boolean					
			Position in Reverse Enal Tap Up Switch	led = 0	Boolean Boolean					
			NOTE: Both Failcase1 Failcase 2 Must Be	and	boolean			>= 600	Fail Time (Sec)	
			Tulicuse 2 Must be	viol						
	1 1					1				ĺ

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
							Time Since Last Range Change Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 400 RPM <= 7500 RPM >= 5 Sec	е	
							P0815 Status is	Test Failed This Key Øn or Fault Active		
						Disable Conditions:	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		EOW. NOTIC		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				
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	=	1	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	1	hreshold Value	Secondary Malfunction	Enable Conditions		Time Required		Mil Illum.
System	Oode	Description	Tap Down Switch Stuck in the Down Position in Range Park	= 1	Boolean		65.14.110.10		oquou		
			Enabled 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						
			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	

Component/	Fault	Monitor Strategy	Malfunction	Thres	hold	Secondary Malfunction		Enable			Tir	me	Mil
System	Code	Description	Criteria	Val	ue	Malfunction		Conditions			Requ	uired	Illum.
						Time Since Last Range Change Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>=	1 8.5996094 31.990234 400 7500 5	Enable Time (Sec) Volts Volts RPM RPM Sec				
					Disable Conditions:		≠ TCM: P0815 P1877, P19 <sup>2</sup> ECM: None		:, P1876,				
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	= TRUE	Boolean	Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >=	8.5996094 31.990234 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec	>=	60	Fail Time (Sec)	Special No MIL

Component/	Fault	Monitor Strategy	Malfunction		reshold	Secondary	I	Enable				me	Mil
System	Code	Description	Criteria	\	/alue	Malfunction		Conditions			Req	uired	Illum.
					Disable	MIL not Illuminated for	TCM: P1761						
					Conditions:	DTC's:							
							ECM: None						
		Pressure Control (PC) Solenoid A	The HWIO reports an invalid										Two
Variable Bleed Solenoid (VBS)		Control Circuit Rationality Test	voltage (out of range) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	Trips
		(Line Pressure VBS)	voltage (out of range) error hag										
										out	5	Sample Time	
										of	J	(Sec)	]
						Ignition Voltage	>=	8.5996094	Volts				
						Ignition Voltage	<=	31.990234	Volts				
						Engine Speed	>=	400	RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the		5	Sec				
						allowable limits for	>=	5	Sec				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:							
							ECM: None						
		Pressure Control (PC) Solenoid A	TI 1840										One Trip
Variable Bleed Solenoid (VBS)		Control Circuit Low Voltage	The HWIO reports a low voltage	= TRUE	Boolean					>=	1.5	Fail Time (Sec)	
1		(Line Pressure VBS)	(ground short) error flag									, ,	
		,								out		Sample Time	
										of	1.875	(Sec)	
						Ignition Voltage	>=	8.5996094	Volts			(/	1
						Ignition Voltage	<=	31.990234	Volts				
						Engine Speed	>=	400	RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the							
						allowable limits for	>=	5	Sec				
						anomable initiation							
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:	I SIVI. INOTIC						
					Conditions.	D10 3.	ECM: None						
							LOWI. NOTIC						
										<u> </u>			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold /alue	Secondary Malfunction		Enable Conditions			Ti Reg	me uired	Mil Illum.
Variable Bleed Solenoid (VBS)	P0963	Pressure Control (PC) Solenoid A	The HWIO reports a high voltage (open or power short) error flag	_ TDIJE	Boolean					>=	4.4	Fail Time (Sec)	Two Trips
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec	out of	5	Sample Time (Sec)	
		Pressure Control (PC) Solenoid B	TI INNO 1 I I		Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						One Trip
Variable Bleed Solenoid (VBS)		Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low voltage (ground short) error flag		Boolean	1 % M h		0.500,4004	V II	>= out of	0.3	Fail Time (Sec) Sample Time (Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
						P0966 Status is not	=	This Key On or Fault Active					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold /alue	Secondary Malfunction		Enable Conditions				ime uired	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
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					>= out	0.3	Fail Time (Sec) Sample Time	One Trip
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM	of	0.375	(Sec)	
						P0967 Status is not	=	Test Failed This Key On or Fault Active					
					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					>= out of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip
						P0970 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				

Component/	Fault	Monitor Strategy	Malfunction	reshold	Secondary Malfunction		Enable Conditions			Ti	me uired	Mil Illum.
System	Code	Description	Criteria	Value Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None	Conditions			Keq	uirea	illum.
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	Boolean					>= out of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip
					P0971 Status is not	=	Test Failed This Key On or Fault Active					
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM 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	Boolean					>= out of	1.2 1.5	Fail Time (Sec) Sample Time (Sec)	One Trip
					P0973 Status is not	=	Test Failed This Key On or Fault Active					
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed		8.5996094 31.990234 400 7500	Volts Volts RPM RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
						Engine Speed is within the allowable limits for		5	Sec				
					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		Boolean					>= out of	1.2 1.5	Fail Time (Sec) Sample Time (Sec)	Two Trips
						P0974 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM 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					>= out	1.2 1.5	Sec Sec	One Trip
						P0977 Status is not	=	Test Failed This Key On or Fault Active		of	-		
						Ignition Voltage Ignition Voltage	>= <=	8.5996094 31.990234	Volts Volts				

Component/	Fault	Monitor Strategy	Malfunction		eshold	Secondary		Enable			Ti	ime	Mil
System	Code	Description	Criteria	V	alue	Malfunction		Conditions			Req	uired	Illum.
						Engine Speed Engine Speed	>= <=	400 7500	RPM 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	Special No MIL
										>	10	Sample Timer (Sec)	
						Tap Up Tap Down Message Health	=	TRUE	Boolean				
						Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:							
							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	Special No MIL
			value							>	10	Sample Timer (Sec)	
						Pattern Switch Message Health	=	TRUE	Boolean				
						Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
						Engine Speed is within the allowable limits for	>=	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		
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1  Current range  Previous range	1110)				One Trip
			Previous range	≠ CeTRGR_e_P ≠ RNDL_Drive4 Range				
			Attained Gear	<= 50 rpm <= Sixth >= First				
			Throttle Position Available Throttle Position Output Speed Engine Torque Engine Torque If the above conditions are met	>= 8.000183105 pct >= 200 rpm >= 50 Nm			>= 1 Fail Seconds	
			then Increment Fail Timer  If Fail Timer has Expired then Increment Fail Counter  Fail Case 2  The following PRNDL sequence	<= 70 rpm			>= 5 Fail Counts	_
			events occur in this exact order:  PRNDL state  PRNDL state = Drive 6 for  PRNDL state	>= 1 Sec Transition 8				
			PRNDL state PRNDL state	0111) Drive 6 (bit				

omponent/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold /alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
0,00011	0000	Description	5.115.10	Transition				,					
			PRNDL state =	0.00									
				1110)									
			Above sequencing occurs in <		Sec								
			Neutral Idle Mode =	Inactive									
			If all conditions above are met Increment delay Timer										
			If the below two conditions are met										
			In the below two conditions are men Increment Fail Timer							>=	3	Fail Seconds	
			delay timer >	= 1	Sec								
			Input Speed >		Sec								
			If Fail Timer has Expired then							>=	2	Fail Counts	
			Increment Fail Counter							/-		I all Counts	
			Fail Case 3	Transition 1				CeTRGR_					
			Current range =	(bit state	Range	Previous range	≠	e_PRNDL					
				0010)				_Drive4					
			Engine Torque >	= -8192	Nm	Previous range	≠	CeTRGR_ e_PRNDL					
			Engine roique	0172	IVIII	Frevious range	7	_Drive1					
			Engine Torque <	= 8191.75	Nm	IMS is 7 position configuration	=	0	Boolean				
			3										
			If the above conditions are met			1 then the "previous range" criteria above must also be					0.225	Seconds	
			then, Increment Fail Timer			satsified when the "current				>=	0.225	Seconds	
						rango" "Transition 12"							
			If Fail Timer has Expired then							>=	15	Fail Counts	
			Increment Fail Counter										-
			Fail Case 4	Transition	8	Disable Fail Case 4 if last							
			Current range =	(Dit State	Range	positive range was Drive 6 and							
				0111)		current range is transition 8							
						Set inhibit bit true if PRNDL =							
						1100 (rev) or 0100 (Rev-Neu							
			Inhibit bit (see definition)	FALSE		transition 11)							
						Set inhibit bit false if PRNDL =							
						1001 (park)							
			Steady State Engine Torque >		Nm								
			Steady State Engine Torque <  If the above conditions are met	= 8191.75	Nm								
			then Increment Fail Timer							>=	0.225	Seconds	
			If the above Condtions have been							>=	15	Fail Counts	
			met, Increment Fail Counter							l .			

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria Fail Case 5 Throttle Position Available		IWAIIUIICUOII	Conditions	Kequirea	mum.
				= IKUE BUUIEAI1				
			The following PRNDL sequence events occur in this exact order:					
			events occur in this exact order:	Dayarsa (bit				
			PRNDL State	= Reverse (bit state 1100) Range				
				Transition 11				
			PRNDL State					
			T NIVE State	0100)				
				Moutral (bit				
			PRNDL State	state 0101)				
				Transition 11				
			PRNDL State					
			· ····································	0100)				
			Above sequencing occurs in					
			Then delay timer increments					
			Delay timer	>= 5 sec				
			· ·	Danga Chiff				
			Range Shift State	= Complete				
			Absolute Attained Gear Slip					
			Attained Gear	<= Sixth				
			Attained Gear					
			Throttle Position	>= 8.000183105 pct				
			Output Speed	>= 200 rpm				
			If the above conditions are met				>= 20 Seconds	
			Increment Fail Timer				>= 20 Seconds	
			Fail Case 6	Illegal (bit	A Open Circuit Definition (flag			
			Current range		set false if the following			
				1000 or 0001)	conditions are met):			
						Transition		
			and		Current Range	≠ 11 (bit		
					3.	state 0100)		
				541.05		,		1
			A Open Circuit (See Definition)	= FALSE Boolean	or			1
					1	_ Neutral (bit		1
					Last positive state	≠ state 0101)		1
					or	Transition		
					Previous transition state	Transition ≠ 8 (bit state		
					Previous transition state	•		
					Fail case 5 delay timor	0111)		
	I				Fail case 5 delay timer	= 0 sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction	Enable Conditions			Tim Requi		Mil Illum.
			If the above Conditions are met then, Increment Fail timer  Fail Case 7 Current PRNDL State and Previous PRNDL state Input Speed Reverse Trans Ratio Reverse Trans Ratio If the above Conditions are met then, Increment Fail timer	ABCP = 1101  PRNDL circuit  ABCP = 1111  >= 150  <= 2.678344727	Range RPM ratio				>=	6.25	Seconds	
			P182E will report test fail when any of the above 7 fail cases are met			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Hi Engine Speed is within the allowable limits for Engine Torque Signal Valid	<= 31.990234 >= 400 <= 7500 >= 5	Volts Volts RPM RPM Sec Boolean				_
					Disable Conditions:	DTC's:	TCM: P0716, P0717, P072: P07C0, P07BF, P077C, P0 ECM: P0101, P0102, P010 P0107, P0108, P0171, P01 P0175, P0201, P0202, P02 P0205, P0206, P0207, P02 P0301, P0302, P0303, P03 P0306, P0307, P0308, P04	3, P0106, 72, P0174, 03, P0204, 08, P0300, 04, P0305,				
nternal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	PRNDL State is	≠ Park or Neutral	Enumeration							One Tr

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Т	hreshold Value	Secondary Malfunction	Enable Conditio			Tir Requ		Mil Illum.
,,,,,			The following events must occur Sequentially Initial Engine speed <	= 50	RPM				>=	0.25	Enable Time (Sec)	
			Then Engine Speed Between Following Cals Engine Speed Lo Hist >	= 50	RPM						, ,	
			Engine Speed Hi Hist <		RPM				>=	0.06875	Enable Time (Sec)	
			Then Final Engine Speed > Final Transmission Input Speed >		RPM RPM				>=	1.25	Fail Time (Sec)	
						DTC has Ran this Key Cycle? Ignition Voltage Lo Ignition Voltage Hi	>= 6	٧				
						Ignition Voltage Hyst High (enables above this value)		V				
						Ignition Voltage Hyst Low (disabled below this value) Transmission Output Speed	<= Z	V rpm				
						P1915 Status is	Test Fai This Ko ≠ On or Fa Active	y ult				
					Disable Conditions	DTC's:						
Transmission Control Module (TCM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below) = Ignition Voltage High Hyst (run	= FALSE							Fail Counts	One Trip
			crank goes true when above this value)	5	Volts				>=	280	(25ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
System	Code	Description	Ignition Voltage Low Hyst (run crank goes false when below this value)	2						Out of	280	Sample Counts (25ms loop)	
						ECM run/crank active status available	S =	TRUE	Boolean				
						ECM run/crank active status	s =	TRUE	Boolean				
					Disa Conditio		:						
							ECM: None						
Transmission Control Module (TCM)	P2535	Ignition Switch Run/Start Position Circuit High	TCM Run crank active (based on voltage thresholds below) Ignition Voltage High Hyst (run	= TRU	E Boolean								One Trip
			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 statu:	s =	FALSE	Boolean				
					Disa Conditio		:						
			5.110				ECM: None						0 71
Variable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D Stuck Off [CB26]	Fail Case 1 Case: Steady State 2nd Gear							١,	Please See		One Trip
			Gear slip	>= 400	) RPM					_ 1	able 5 For eutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 3rd gear	Table B	acad								
			If attained Gear = 3rd for Time		ease le 2 in (Sec)								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Condition		Tim Requi		Mil Illum.
	3323	2000.p.s.	If Above Conditions have been met	** ** *						
			Increment 2nd gear fail count					>= 3	2nd Gear Fail Count	
			and CB26 Fail Count					>= 14	or CB26 Fail Count	
			Fail Case 2 Case: Steady State 6th Gear Gear slip	>= 400 RPM				Please See Table 5 For Neutral Time	Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear	Table Based				Cal		
			If attained Gear = 5th For Time							
			If Above Conditions have been met, Increment 5th gear fail counter					>= 3	5th Gear Fail Count	
			and CB26 Fail Count					>= 14	or CB26 Fail Count	
					PRNDL State defaulted inhibit RVT	= FALS = FALS	Boolean			
					IMS fault pending indication TPS validity flag Hydraulic System Pressurized	= FALS = TRUI = TRUI	Boolean			
					Minimum output speed for RVT	>= 0	RPM			
					A OR B  (A) Output speed enable  (B) Accelerator Pedal enable  Common Enable Criteria	>= 36 >= 0.50048	RPM 83 Pct			
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= 8.59960 <= 31.9902 >= 400	34 Volts RPM			
					Engine Speed Hi Engine Speed is within the allowable limits for	<= 7500 >= 5	RPM Sec			

Component/	Fault	Monitor Strategy	Malfunction	1	hreshold	Secondary	Enable		Time	Mil
System	Code	Description	Criteria		Value	Malfunction	Conditions		Required	Illum.
						Throttle Position Signal valid	= TRUE	Boolean		
						HSD Enabled	= TRUE	Boolean		
						Transmission Fluid	>= -6.65625	°C		
						Temperature	FALCE	DI		
						Input Speed Sensor fault Output Speed Sensor fault	= FALSE = FALSE	Boolean Boolean		
						Default Gear Option is not	= FALSE	Boolean		
						present	= TRUE			
						present				
					Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722,	P0723.		
					Conditions:	DTC's:				
							ECM: P0101, P0102, P0103,			
							P0107, P0108, P0171, P017			
							P0175, P0201, P0202, P0203			
							P0205, P0206, P0207, P020			
							P0301, P0302, P0303, P030			
							P0306, P0307, P0308, P040	1, P042E		
			21 00 1 01 11							0 7:
		D C (DC) C	Primary Offgoing Clutch is							One Trip
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	exhausted (See Table 13 in Supporting Documents for Exhaust	= TRUI	Boolean					
		Stuck Off [CB20] (Dynamic)	Delay Timers)							
			Primary Oncoming Clutch Pressure	Maxim	ım					
			Command Status							
				Clutc						
			Primary Offgoing Clutch Pressure	= exhau						
			Command Status	comma						
			Danga Chiff Ctatua	_ Initial Cl	utch					
			Range Shift Status	≠ Contr						
			Attained Gear Slip	<= 40	RPM					
			If above coditons are true,							
			increment appropriate Fail 1							
			Timers Below:							
			fail timer 1	>= 0.5	Fail Time (Sec)					
			(2-1 shifting with throttle)		, , ,					
			fail timer 1	>= 0.5	Fail Time (Sec)					
			(2-1 shifting without throttle)							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold /alue	Secondary Malfunction	Ena Cond	ble		Tin Requ	ne ired	Mil Illum.
System	Code	Description	fail timer 1	·= 0.5	Fail Time (Sec)	a.ra.ra.ra.r	Cond	itionio		rtoqu	ii cu	
			(2-3 shifting with throttle) > fail timer 1	- 0.5	r all Time (Sec)							1
			(2-3 shifting without throttle)	>= 0.5	Fail Time (Sec)							1
			fail timer 1 (2-4 shifting with throttle)	-= 0.5	Fail Time (Sec)							1
			fail timer 1	·= 0.5	Fail Time (Sec)							1
			(2-4 shifting without throttle) > fail timer 1	»=	rali Tille (Sec)							1
			(6-4 shifting with throttle)	>= 0.5	Fail Time (Sec)							1
			fail timer 1 (6-4 shifting without throttle) >	-= 0.5	Fail Time (Sec)							1
			fail timer 1	·= 0.5	Fail Time (Sec)							1
			(6-5 shifting with throttle) > fail timer 1									1
			(6-5 shifting without throttle)	>= 0.5	Fail Time (Sec)							1
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers						Tim + F Ena for >= R S Ta	Total Fail ne = (Fail 1) Fail 2) See able Timers Fail Timer 1, and deference upporting able 15 for ail Timer 2	5	
			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	
						TUT Enable temperature		5625 °C				
						Input Speed Sensor fault	= FA	LSE Boolean	1			

Component/	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Tin Reau		Mil Illum.
System	P2715	Monitor Strategy Description  Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1  Case: Steady State 1st Attained Gear slip  If the Above is True for Time  Intrusive test: (CBR1 clutch exhausted) Gear Ratio	Value  Disable Conditions:  >= 400 RPM Table Based Time Please Refer to Table Enable Time 4 in (Sec) supporting documents	Malfunction  Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled  MIL not Illuminated for DTC's:	FALSE   Boolean		Requ	ired	
							>=	1.1	Fail Timer (Sec) Fail Count in 1st	
							>=	5	Gear or	
							>=	5	Total Fail Counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Fail Case 2 Case: Steady State 3rd Gear	Value	mananotion	Conditions	Required	u.iii
			- an ease 2	Table Based				
				valuo Ploaco				
			Max Delta Output Speed	Refer to Table ,				
			Hysteresis	>= rpm/sec				
			·	supporting				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed Hysteresis	>= Refer to Table rpm/sec				
				supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Sec				
			ii the Above is true for time	I / In				
				supporting				
				documents				
			Intrusive test:					
			(C35R clutch exhausted)	0.045004044				
				<= 3.015991211				
			Gear Ratio  If the above parameters are true	>= 2.728027344				
			ii tile above parameters are tide					
							>= 1.1 Fail Time	
							>= 3 Fail Cou	
							3rd G	
							or	
							>= 5 Total	
			Fail Case 3 Case: Steady State 4rd Gear				Cour	115
			Tail Case 3 Case. Steady Sidle 410 Geal	Table Based				
				l Di				
			Max Delta Output Speed					
			Hysteresis	>= Refer to Table rpm/sec				
			Hysteresis	supporting				
				documents				

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria	Table Based	Manunction	Conditions	Required	mum.
				value Disease				
				Pofor to Tablo				
			Min Delta Output Speed Hysteresis	>= Refer to Table rpm/sec				
				supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	Defer to Table				
			II the Above is true for time	>= 17 in Sec				
				supporting				
				documents				
			Intrusive test:					
			(C1234 clutch exhausted)					
				<= 0.779052734				
				>= 0.704956055				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)	)
							Fail Count in 4th	
							>= 3   Tail Count in 411	1
							Or	
							>= 5 Total Fail	
							>= 5 Counts	
			Fail Case 4 Case: Steady State 5th Gear					
				Table Based				
				value Please				
			Max Delta Output Speed	>= Refer to Table rpm/sec 22 in				
			Hysteresis					
				supporting				
				documents				
				Table Based value Please				
				value Please Pofor to Tablo				
			Min Delta Output Speed Hysteresis	>= Refer to Table >= 23 in rpm/sec				
				supporting				
				documents				

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction		Enable Conditions				ime	Mi Illur
System	Code	Description	Criteria		Waitunction		Conditions			Kec	quired	ınuı
				Table Based Time Please								
				Defer to Table	1							
			If the Above is True for Time	>= 17 in Sec								
				supporting								
				documents								
			Intrusive test:	documents								
			(C35R clutch exhausted)									
				<= 0.779052734								
				>= 0.704956055								
			If the above parameters are true									
			'								F 11 T (C )	
									>=	1.1	Fail Timer (Sec)	
					1					3	Fail Count in 5th	
					1				>=	3	Gear	
											or	1
									>=	5	Total Fail	
									/-	J	Counts	ı
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				ı
					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							
							36	Nm				
					(A) Output speed enable (B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>= >=	8.5996094	Volts				
					Ignition Voltage Ed	>= <=	31.990234	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		F 00000=-					
					Accelerator Pedal enable	>=	5.0003052	Pct				
					if Attained Gear=1st FW		20	N				
					Engine Torque Enable	>=	20	Nm				
					if Attained Gear=1st FW		0101 075	Nimo				l
					Engine Torque Enable	<=	8191.875	Nm				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Gystem		Doscription		Disable Conditions	Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	. / / [/] [ 00		
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 0.375 Sample Time (Sec)	One Trip
				Disable Conditions	P2770 Status is not  Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for  MIL not Illuminated for DTC's:	Active  >= 8.5996094 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec	(360)	

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
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 2.375 Sample Time	One Trip
							of 0.375 Sample Time (Sec)	
					P2721 Status is not	Test Failed This Key On or Fault Active		
					Ignition Voltage Ignition Voltage	<= 31.990234 Volts		
					Engine Speed Engine Speed	>= 400 RPM <= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
				Disable Conditions		TCM: None		
Variable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1 Case: Steady State 1st Gear				Di G	One Trip
			Gear slip	>= 400 RPM			Please See Table 5 For Neutral Timer >= Neutral Time (Sec) Cal	
			Intrusive test: commanded 2nd gear	Please refer to				
			If attained Gear ≠ 2nd for Time	>= 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 C1234 Clutch >= 14 Fail Count	
	I		Fail Case 2 Case: Steady State 2nd Gear					I

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction	Enable Conditions	Time	Mil Illum.
System	Code	Description	Criteria	value	Manunction	Conditions	Required Please See	illum.
							Table 5 For Neutral Timer	
			Gear slip	>= 400 RPM			>= Neutral Time (Sec)	
							Cal	
			Intrusive test:					
			commanded 3rd gear					
				Please refer to				
			If attained Gear ≠ 3rd for Time	>= Table 3 in Supporting Shift Time (Sec)				
				Supporting Supporting Documents				
			If Above Conditions have been	Documents				
			met, Increment 2nd gear fail				>= 3 2nd Gear Fail	
			counter				>= S Count	
							or	1
			and C1234 fail counter				>= 14 C1234 Clutch	
							Fail Count	4
			Fail Case 3 Case: Steady State 3rd Gear				DI C	
							Please See Table 5 For Neutral Timer	
			Gear slip	>= 400 RPM			>= Neutral Time (Sec)	
							Cal	
			Intrusive test:					
			commanded 4th gear					
				Please refer to				
			If attained Gear ≠ 4th for time	>= Table 3 in Shift Time (Sec)				
				Supporting				
			If Above Conditions have been	Documents				
			met, Increment 3rd gear fail				>= 3 3rd Gear Fail	
			counter				) Count	
			ocunio.				or	
			and C1234 fail counter				>= 14 C1234 Clutch	
							>= 14 Fail Count	
			Fail Case 4 Case: Steady State 4th Gear					
							Please See	
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Timer Neutral Time (Sec)	
							Cal (Sec)	1
			Intrusive test:				Cai	
			commanded 5th gear					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
5,555	2000	2001,5101	If attained Gear = 5th For Time  If Above Conditions have been	Please refer to Table 3 in Supporting Documents Shift Time (Sec)							4th Gear Fail	
			met, Increment 4th gear fail counter						>=	3	Count	
			and C1234 fail counter						>=	14	or C1234 Clutch Fail Count	
					PRNDL State defaulted inhibit RVT	=	FALSE FALSE	Boolean Boolean				
					IMS fault pending indication TPS validity flag	=	FALSE TRUE	Boolean Boolean				
					Hydraulic System Pressurized Minimum output speed for RVT	= >=	TRUE 0	Boolean RPM				
					A OR B (A) Output speed enable (B) Accelerator Pedal enable Common Enable Criteria	>= >=	36 0.5004883	RPM Pct				
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= <= >= <=	8.5996094 31.990234 400 7500	Volts Volts RPM RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Throttle Position Signal valid HSD Enabled	= =	TRUE TRUE	Boolean Boolean				
					Transmission Fluid Temperature	>=	-6.65625	°C				
					Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not	=	FALSE FALSE	Boolean Boolean				
					present	=	TRUE					

Component/	Fault	Monitor Strategy	Malfunction		Threshold Value	Secondary Malfunction	Enable	Time	Mil Illum.
System	Code	Description	Criteria		Disab		<b>Conditions</b> TCM: P0716, P0717, P0722, P0723,	Required	illum.
					Condition		P182E		
							FCM D0101 D0102 D0102 D0107		
							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		
							1 0300,1 0307,1 0300,1 0401,1 0421		
			Primary Offgoing Clutch is					1	One Trip
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid E	exhausted (See Table 10 in	= TRL	IE Boolean				
		Stuck On (Dynamic)	Supporting Documents for Exhaust Delay Timers)						
			Primary Oncoming Clutch Pressure	Maxim	num				
			Command Status	= pressu					
			Primary Offgoing Clutch Pressure	Clute = exha					
			Command Status	comm					
			Range Shift Status	≠ Initial C					
			Attained Gear Slip	Cont					
			If the above conditions are true	<- 40	KFW				
			increment appropriate Fail 1						
			Timers Below:						
			fail timer 1 (2-6 shifting with throttle)	>= 0.5	sec				
			fail timer 1	>= 0.5	sec				
			(2-6 shifting without throttle)	>= 0.0	sec				
			fail timer 1 (3-5 shifting with throttle)	>= 0.5	sec				
			fail timer 1	0.5					
			(3-5 shifting without throttle)	>= 0.5	sec				
			fail timer 1 (4-5 shifting with throttle)	>= 0.5	sec				
			(4-5 Shiiting with throttle) fail timer 1						
			(4-5 shifting without throttle)	>= 0.5	sec				
			fail timer 1	>= 0.5	sec				
			(4-6 shifting with throttle) fail timer 1						
			(4-6 shifting without throttle)	>= 0.5	sec				

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 Co From 2n	
			3rd gear fail counter				>= 3 Fail Co From 3r	
			4th gear fail counter				>= 3 Fail Co From 4tl	
			total fail counter				>= 5 Total Cour	
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.65625 °C = FALSE Book = FALSE Book = TRUE Book >= 100 RPI >= 200 RPI = FALSE Book = FALSE Book = TRUE Book = TRUE Book	an an an an A A an an an	

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction	Enable		Time	Mil Illum.
System	Code	Description	Criteria	value Disable		Conditions TCM: P0716, P0717, P0722, P0723,		Required	illum.
				Conditions:	DTC's:				
				Conditions.	DIC 3.	FIOZE			
						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	Fail Case 1 Case: 5th Gear						One Trip
,		Stuck On (Steady State)							
				Table Based value Please					
			Max Delta Output Speed	Pofor to Tablo					
			Hysteresis						
			Trystoresis	supporting					
				documents					
				Table Based					
				value Please					
			Min Delta Output Speed Hysteresis	Refer to Table rpm/sec					
			Mini Bona Garpar Opeda Frjetorosio	23 111					
				supporting documents					
				Table Based					
				Timo Dioaco					
				Pofor to Table					
			If the Above is True for Time	>= 17 in Sec					
				supporting					
				documents					
			Intrusive test:						
			(C35R clutch exhausted)						
				<= 1.484985352					
				>= 1.343017578					
			If the above parameters are true						
							>= 1	.1 Fail Timer (Sec	:)
							>=	Fail Count in 5t	h
								Gear	
								OR	
							>=	3 Total Fail	
	<u> </u>	<u> </u>	<u> </u>					Counts	<u> </u>

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable			_ T	ime	Mil
System	Code	Description	Criteria	Value	Maltunction		Conditions			Rec	quired	Illum.
			Fail Case 2 Case: 6th Gear	Table Based								
				value Dieges								
			Max Delta Output Speed	Pofor to Table								
			Hysteresis									
			Trysteresis	supporting								
				documents								
				Table Based								
				value Please								
				Defer to Table								
			Min Delta Output Speed Hysteresis	>= 23 in rpm/sec								
				supporting								
				documents								
				Table Based								
				Time Please								
			If the Above is T f Ti	Pofor to Tablo								
			If the Above is True for Time	>= 17 in Sec								
				supporting								
				documents								
			Intrusive test:									
			(CB26 clutch exhausted)									
				<= 1.484985352								
				>= 1.343017578								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
											F 10 11 (11	
									>=	3	Fail Count in 6th	1
											Gear OR	
											Total Fail	
									>=	3	Counts	
					PRNDL State defaulted	=	FALSE	Boolean			Counts	1
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM	I			
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
							TRUE					
					Hydraulic_System_Pressurized	=	IKUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	36	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tii Req	me uired	Mil Illum.
Oystem	Code	Description	Ontona			Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi		31.990234	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi		7500	RPM				
						Engine Speed is within the	>=	5	Sec				
						allowable limits for		Ü	000				
						if Attained Gear=1st FW	>=	5.0003052	Pct				
						Accelerator Pedal enable if Attained Gear=1st FW							
						Engine Torque Enable	>=	20	Nm				
						if Attained Gear=1st FW							
						Engine Torque Enable	<=	8191.875	Nm				
						Transmission Fluid		, ,,,,,,,					
						Temperature		-6.65625	°C				
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault		FALSE	Boolean				
						Default Gear Option is not	=	TRUE					
						present		moe					
					Dil-I-	MIL or at III. or in at a d face	TOM D071/	D0717 D0700	D0700				
					Disable Conditions:	MIL not Illuminated for DTC's:		, P0/1/, P0/22	!, P0/23,				
					Conditions.	DICS.	P182E						
							FCM: P0101	, P0102, P0103	3. P0106.				
								08, P0171, P017					
							P0175, P020	01, P0202, P020	03, P0204,				
								06, P0207, P020					
								02, P0303, P030					
							P0306, P030	07, P0308, P040	01, P042E				
										_			0 7:
Variable Blood Colonaid A/BCV	חבדבת	Pressure Control (PC) Solenoid E	The HWIO reports a low voltage	TDUE	Dooloop						0.2	Fail Time (C)	One Trip
Variable Bleed Solenoid (VBS)	P2729	Control Circuit Low	(ground short) error flag		Boolean					>=	0.3	Fail Time (Sec)	
		(C1234 VBS)								out		Sample Time	
										of	0.375	(Sec)	
										J.		(300)	1
								Test Failed					
						P2729 Status is not	=	This Key On or Fault					
								Active					
						Ignition Voltage	>=	8.5996094	Volt				

Component/	Fault	Monitor Strategy	Malfunction		eshold	Secondary		Enable				me	Mil
System	Code	Description	Criteria	V	alue	Malfunction Ignition Voltage Engine Speed	<= >=	31.990234 400	Volt RPM		Requ	uired	Illum.
						Engine Speed Engine Speed Engine Speed is within the	<=	7500	RPM				
						allowable limits for	>=	5	Sec				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:	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)	One Trip
		,								out of	0.375	Sample Time (Sec)	
						P2730 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed	<=	8.5996094 31.990234 400	Volt Volt RPM				
						Engine Speed Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:							
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)	Two Trips
										out of	5	Sample Time (Sec)	

# 18 OBDG04 TCM 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Citteria	value	P2763 Status is not	Test Failed	Kedulleu	
					Ignition Voltage Ignition Voltage Engine Speec Engine Speed is within the allowable limits for High Side Driver Enabled	<ul> <li>&lt;= 31.990234 Volt</li> <li>&gt;= 400 RPM</li> <li>&lt;= 7500 RPM</li> <li>&gt;= 5 Sec</li> </ul>		
				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 Fail Time (Sec)  out 5 Sample Time (Sec)	One Trip
					P2764 Status is not	Test Failed This Key On or Fault Active		
					Ignition Voltage Ignition Voltage Engine Speec Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	<pre>&lt;= 31.990234     Volt &gt;= 400</pre>		
				Disable Conditions:	MIL not Illuminated for DTC's:			

# 18 OBDG04 TCM 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		able ditions			me uired	Mil Illum.
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error					>=	62	Fail counts (≈ 10 seconds)	One Trip
			Delay timer	>= 0.1125 sec				Out of	70	Sample Counts (≈ 11 seconds)	
					Stabilization delay Ignition Voltage Ignition Voltage Power Mode	<= 31.9	3 sec 996094 Volt 990234 Volt Run				
				Disable Conditions		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 Ignition Voltage Ignition Voltage Power Mode	>= 8.59 <= 31.9	3 sec 196094 Volt 1990234 Volt Run				
				Disable Conditions		TCM: U0073 ECM: None					
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	absolute value (lateral accleration)	>= 0.529999971 g's	absolute value (lateral accleration) for stablity	>= (	).53 g's	>=	75	Sec	Special No MIL
			absolute value (lateral accleration)	<= 3.849999905 g's	absolute value (lateral accleration) for stablity	<= 3.84	199999 g's				
					stability time Diagnostic shifting override command		30 Sec ALSE Boolean				
					Attained Gear State		hrough 8th				
					Attained Gear Slip		100 RPM				
					Transmission Type	= C Trai	lutch nsmissi on				
					High Side Drivers enabled		RUE Boolean				

# 18 OBDG04 TCM 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					Vehicle Speed	>=	15	kph		
					Lateral acceleration stuck in					
					range diagnostic enable	=	1			
					calibration					
					Battery Voltage		31.999023	Volts		
					Battery Voltage		9	Volts		
					Battery voltage is within the		0.1	Sec		
					allowable limits for	·				
					Ignition Voltage		31.999023	Volts		
					Ignition Voltage		9	Volts		
					Service Fast Learn (SFL) Mode VBS Failsafe		FALSE	Boolean		
					Ignition voltage and SFL conditions met for	>=	0.1	Sec		
				Disable Conditions:	DTC's:		BF, P07C0, P077 5C, U0073			

#### 18 OBDG04

### DIAGNOSTIC SUPPORTING TABLE--TCM 6 Speed T87A

#### Table 1

KaCANG_RxDeviceIndx	Axis	CeCANG_e_RcvMsg_0BE_BusA	CeCANG_e_RcvMsg_0C1_BusA	CeCANG_e_RcvMsg_0C5_BusA	CeCANG_e_RcvMsg_0C9_BusA	frame
KaCANG_RxDeviceIndx	Curve	CeCANR_e_BusA_ECM	CeCANR_e_BusA_ABS	CeCANR_e_BusA_ABS	CeCANR_e_BusA_ECM	enable or invalid
	Axis	CeCANG_e_RcvMsg_0D0_BusA	CeCANG_e_RcvMsg_0F1_BusA	CeCANG_e_RcvMsg_191_BusA	CeCANG_e_RcvMsg_1A1_BusA	frame
	Curve	CeCANR_e_BusA_ABS	CeCANR_e_BusA_BCM	CeCANR_e_BusA_ECM	CeCANR_e_BusA_ECM	enable or invalid
	Axis	CeCANG_e_RcvMsg_1CF_BusA	CeCANG_e_RcvMsg_1E1_BusA	CeCANG_e_RcvMsg_1E9_BusA	CeCANG_e_RcvMsg_1F3_BusA	frame
	Curve	CeCANR_e_InvalidRxDevice	CeCANR_e_BusA_BCM	CeCANR_e_BusA_ABS	CeCANR_e_BusA_BCM	enable or invalid
	Axis	CeCANG_e_RcvMsg_1F9_BusA	CeCANG_e_RcvMsg_1FC_BusA	CeCANG_e_RcvMsg_287_BusA	CeCANG_e_RcvMsg_2C3_BusA	frame
	Curve	CeCANR_e_BusA_PTO	CeCANR_e_InvalidRxDevice	CeCANR_e_BusA_ECM	CeCANR_e_BusA_ECM	enable or invalid
	Axis	CeCANG_e_RcvMsg_2D1_BusA	CeCANG_e_RcvMsg_2F9_BusA	CeCANG_e_RcvMsg_3B9_BusA	CeCANG_e_RcvMsg_3D1_BusA	frame
	Curve	CeCANR_e_InvalidRxDevice	CeCANR_e_BusA_ABS	CeCANR_e_BusA_ECM	CeCANR_e_BusA_ECM	enable or invalid
	Axis	CeCANG_e_RcvMsg_3E9_BusA	CeCANG_e_RcvMsg_3F1_BusA	CeCANG_e_RcvMsg_3F9_BusA	CeCANG_e_RcvMsg_4C1_BusA	frame
	Curve	CeCANR_e_BusA_ECM	CeCANR_e_BusA_BCM	CeCANR_e_BusA_ECM	CeCANR_e_BusA_ECM	enable or invalid
	Axis	CeCANG_e_RcvMsg_4F1_BusA	frame			-
	Curve	CeCANR_e_BusA_ECM	enable or invalid			

### Initial Supporting table - 10 speed transmission clutch definition and gear state to clutch map

Description: indicates clutch definition and gear state verses applied and released clutches for 10 speed transmission

Value Units: applied or released

X Unit: clutch

Y Units: gear index Y axis, actual gear column 1

y/x	1	2	3	4	5	6	7	8
1		C1 = C123456R	C2 = C1289-10R	C3 = C234579-10	C4 = C234678-10R	C5 = C1356789	C6 = C456789-10R	C7 = OWC12
2	1st gear braking	applied	applied	released	released	applied	released	applied
3	1st gear free wheel	applied	applied	released	released	applied	released	released
4	2nd gear braking	applied	applied	applied	applied	released	released	applied
5	2nd gear free wheel	applied	applied	applied	applied	released	released	released
6	3rd gear	applied	released	applied	applied	applied	released	released
7	4th gear	applied	released	applied	applied	released	applied	released
8	5th gear	applied	released	applied	released	applied	applied	released
9	6th gear	applied	released	released	released	applied	applied	released
10	7th gear	released	released	applied	applied	applied	applied	released
11	8th gear	released	applied	released	applied	applied	applied	released
12	9th gear	released	applied	applied	released	applied	applied	released
13	10th gear	released	applied	applied	applied	released	applied	released
14	reverse gear	applied	applied	released	applied	released	released	released

# Initial Supporting table - 9 speed transmission clutch definition and gear state to clutch map

Description: indicates clutch definition and gear state verses applied and released clutches for 9 speed transmission

Value Units: applied or released

X Unit: clutch

Y Units: gear index Y axis, actual gear column 1

y/x	1	2	3	4	5	6	7	8
1		C1 = CB123456	C2 = C6789	C3 = CB1R	C4 = CB29	C5 = CB38	C6 = C4	C7 = C57R
2	1st gear braking	applied	released	applied	released	released	released	released
3	1st gear free wheel	applied	released	released	released	released	released	released
4	2nd gear	applied	released	released	applied	released	released	released
5	3rd gear	applied	released	released	released	applied	released	released
5	4th gear	applied	released	released	released	released	applied	released
7	5th gear	applied	released	released	released	released	released	applied
3	6th gear	applied	applied	released	released	released	released	released
)	7th gear	released	applied	released	released	released	released	applied
10	8th gear	released	applied	released	released	applied	released	released
11	9th gear	released	applied	released	applied	released	released	released
12	reverse gear	released	released	applied	released	released	released	applied

# Initial Supporting table - engine speed time for transmission hydraulic pressure available

Description: time needed for engine speed to trigger "transmission hydraulic pressure available"

Value Units: seconds

X Unit: °C

y/x	-40.00	-30.00	-20.00	0.00	40.00
1		0.300	0.275	0.200	0.100

# Initial Supporting table - engine speed time for transmission hydraulic pressure available

Description: time needed for engine speed to trigger "transmission hydraulic pressure available"

Value Units: seconds

X Unit: °C

y/x	-40.00	-30.00	-20.00	0.00	40.00
1	0.300	0.300	0.275	0.200	0.100

# Initial Supporting table - engine speed time for transmission hydraulic pressure available

Description: time needed for engine speed to trigger "transmission hydraulic pressure available"

Value Units: seconds

X Unit: transmission fluid temperature °C

١	y/x	-40.00	-30.00	-20.00	0.00	40.00
١	1	0.300	0.300	0.275	0.200	0.100

# Initial Supporting table - engine speed time for transmission hydraulic pressure available

Description: time needed for engine speed to trigger "transmission hydraulic pressure available"

Value Units: seconds

X Unit: °C

y/x	-40.00	-30.00	-20.00	0.00	40.00
1	0.300	0.300	0.275	0.200	0.100

# Initial Supporting table - KtPSDR\_t\_ModeVIvA\_EngOff\_Lim

Description: used for both engine off mode valve A stability delay time required to enable fail time update and fail time threshold

Value Units: seconds

X Unit: transmission fluid temperature, degrees Celsius

y/x	-40	-20		20	130
1	0.650	0.650	0.650	0.650	0.650

# Initial Supporting table - KtPSDR\_t\_ModeVIvA\_TurbDlyLim

**Description:** mode valve A transtion delay

Value Units: seconds

**X Unit:** transmission fluid temperature, degrees Celsius

y/x	-40	-20	0	20	130
1	1.500	1.000	0.750	0.500	0.300

# Initial Supporting table - KtPSDR\_t\_ModeVIvB\_EngOff\_Lim

Description: used for both engine off mode valve B stability delay time required to enable fail time update and fail time threshold

Value Units: seconds

X Unit: transmission fluid temperature, degrees Celsius

y/x	-40	-20	0	20	130
1	0.250	0.250	0.250	0.250	0.250

# Initial Supporting table - KtPSDR\_t\_ParkServo\_EngOff\_Lim

Description: P187E time engine must be not running to enable fail time update

Value Units: seconds

X Unit: transmission fluid temperature, degrees Celsius

y/x	-40.00	-20.00	0.00	20.00	130.00
1	0.250	0.250	0.250	0.250	0.250

# Initial Supporting table - KtPSDR\_t\_ParkStatDlyLim

**Description:** fail delay time

Value Units: seconds

X Unit: transmission fluid temperature, degrees Celsius

y/x	-40.00	-20.00	0.00	20.00	130.00
1	0.500	0.500	0.500	0.500	0.500

# Initial Supporting table - KtPSDR\_t\_ParkVIvStkOff\_DlyLim

Description: P187E Transmission Park Valve Stuck Off fail enable delay time

Value Units: seconds

X Unit: transmission fluid temperature, degrees Celsius

y/x	-40.00	-20.00	0.00	20.00	130.00
1	1.250	1.250	1.250	1.250	1.250

# Initial Supporting table - KtPSDR\_t\_ParkVlvStkOn\_DlyLim

Description: P187D Transmission Park Valve Stuck On fail enable delay time

Value Units: seconds

X Unit: transmission fluid temperature, degrees Celsius

y/x	-40.00	-20.00	0.00	20.00	130.00
1.00	1.250	1.250	1.250	1.250	1.250

# Initial Supporting table - KtPSDR\_t\_PISA\_EngOff\_Lim

**Description:** P18A8 fail time, engine not running

Value Units: seconds

**X Unit:** transmission fluid temperature, degrees Celsius

y/x	-40.00	-20.00	0.00	20.00	130.00
1	0.800	0.600	0.400	0.200	0.150

# Initial Supporting table - KtTMDC\_t\_EngOnHydPresThrsh

Description: hydraulic system pressure is available when engine speed is above engine speed threshold for this amount of time

Value Units: seconds

X Unit: transmission fluid temperature, degrees Celsius

y/x	-40.00	-30.00	-20.00	0.00	40.00
1	0.300	0.300	0.275	0.200	0.100

Initial Supporting table - MaxSpdGr1			
Description: MaxSpdGr1			
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph			
y/x	1		
1	71		

Initial Supporting table - MaxSpdGr1			
Description: MaxSpdGr1			
Value Units: KPH X Unit: command gear Y Units: unitless			
y/x	1		
1	71		

Initial Supporting table - MaxSpdGr10			
Description: MaxSpdGr10			
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph			
y/x	1		
1	540		

Initial Supporting table - MaxSpdGr10			
Description: MaxSpdGr10			
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph			
y/x	1		
1	540		

Initial Supporting table - MaxSpdGr2			
Description: MaxSpdGr2			
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph			
y/x	1		
1	101		

Initial Supporting table - MaxSpdGr2		
Description: MaxSpdGr2		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
y/x	1	
1	101	

Initial Supporting table - MaxSpdGr3		
Description: MaxSpdGr3		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
y/x	1	
1	111	

Initial Supporting table - MaxSpdGr3		
Description: MaxSpdGr3		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
y/x	1	
1	111	

Initial Supporting table - MaxSpdGr4		
Description: MaxSpdGr4		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
y/x	1	
1	136	

Initial Supporting table - MaxSpdGr4		
Description: MaxSpdGr4		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
y/x	1	
1	136	

Initial Supporting table - MaxSpdGr5		
Description: MaxSpdGr5		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
y/x	1	
1	173	

Initial Supporting table - MaxSpdGr5		
Description: MaxSpdGr5		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
y/x	1	
1	173	

Initial Supporting table - MaxSpdGr6		
Description: MaxSpdGr6		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
y/x	1	
1	230	

Initial Supporting table - MaxSpdGr6		
Description: MaxSpdGr6		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
y/x	1	
1	230	

Initial Supporting table - MaxSpdGr7		
Description: MaxSpdGr7		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
y/x	1	
1	333	

Initial Supporting table - MaxSpdGr7		
Description: MaxSpdGr7		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
y/x	1	
1	333	

Initial Supporting table - MaxSpdGr8		
Description: MaxSpdGr8		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
y/x	1	
1	446	

Initial Supporting table - MaxSpdGr8		
Description: MaxSpdGr8		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
y/x 1		
1	446	

Initial Supporting table - MaxSpdGr9		
Description: MaxSpdGr9		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
//x		
1	540	

Initial Supporting table - MaxSpdGr9		
Description: MaxSpdGr9		
Value Units: Kph X Unit: Cmnd Gear Y Units: Kph		
//x1		
1	540	

# Initial Supporting table - MinGearAllowed

Description:		
Value Units: Gear X Unit: Vehicle Speed Y Units: Accel Pedal Pct		
MinGearAllowed - Part 1		
y/x	0	
0	CeCGSR_e_SecondLckd	
1	CeCGSR_e_SecondLckd	
2	CeCGSR_e_SecondLckd	
3	CeCGSR_e_SecondLckd	
4	CeCGSR_e_SecondLckd	
5	CeCGSR_e_SecondLckd	
6	CeCGSR_e_SecondLckd	
7	CeCGSR_e_SecondLckd	
8	CeCGSR_e_SecondLckd	
9	CeCGSR_e_SecondLckd	
10	CeCGSR_e_SecondLckd	
11	CeCGSR_e_SecondLckd	
12	CeCGSR_e_SecondLckd	
13	CeCGSR_e_SecondLckd	
14	CeCGSR_e_SecondLckd	
15	CeCGSR_e_SecondLckd	
16	CeCGSR_e_SecondLckd	
MinGearAllowed - Part 2		
y/x	1	
0	CeCGSR_e_Third	
1	CeCGSR_e_Third	
2	CeCGSR_e_Third	
3	CeCGSR_e_Third	
4	CeCGSR_e_Third	
5	CeCGSR_e_SecondLckd	
6	CeCGSR_e_SecondLckd	
7	CeCGSR_e_SecondLckd	
8	CeCGSR_e_SecondLckd	
8 9 10	CeCGSR_e_SecondLckd	
10	CeCGSR_e_SecondLckd	

Initial Supporting table - MinGearAllowed		
11	CeCGSR_e_SecondLckd	
12	CeCGSR_e_SecondLckd	
13	CeCGSR_e_SecondLckd	
14	CeCGSR_e_SecondLckd	
15	CeCGSR_e_SecondLckd	
16	CeCGSR_e_SecondLckd	
MinGearAllowed - Part 3		
y/x	2	
0	CeCGSR_e_Fourth	
1	CeCGSR_e_Fourth	
2	CeCGSR_e_Fourth	
3	CeCGSR_e_Fourth	
4	CeCGSR_e_Fourth	
5	CeCGSR_e_Fourth	
6	CeCGSR_e_SecondLckd	
7	CeCGSR_e_SecondLckd	
8	CeCGSR_e_SecondLckd	
9	CeCGSR_e_SecondLckd	
10	CeCGSR_e_SecondLckd	
11	CeCGSR_e_SecondLckd	
12	CeCGSR_e_SecondLckd	
13	CeCGSR_e_SecondLckd	
14	CeCGSR_e_SecondLckd	
15	CeCGSR_e_SecondLckd	
16	CeCGSR_e_SecondLckd	
MinGearAllowed - Part 4		
y/x	3	
0	CeCGSR_e_Fifth	
1	CeCGSR_e_Fifth	
2	CeCGSR_e_Fifth	
3	CeCGSR_e_Fifth	
4	CeCGSR_e_Fifth	
5	CeCGSR_e_Fifth	
6	CeCGSR_e_Fourth	
7	CeCGSR_e_Fourth	
8	CeCGSR_e_SecondLckd	
9	CeCGSR_e_SecondLckd	

Initial Supporting table - MinGearAllowed		
10	CeCGSR_e_SecondLckd	
11	CeCGSR_e_SecondLckd	
12	CeCGSR_e_SecondLckd	
13	CeCGSR_e_SecondLckd	
14	CeCGSR_e_SecondLckd	
15	CeCGSR_e_SecondLckd	
16	CeCGSR_e_SecondLckd	
MinGearAllowed - Part 5		
y/x	4	
0	CeCGSR_e_Sixth	
1	CeCGSR_e_Sixth	
2	CeCGSR_e_Sixth	
3	CeCGSR_e_Sixth	
4	CeCGSR_e_Sixth	
5	CeCGSR_e_Sixth	
6	CeCGSR_e_Fifth	
7	CeCGSR_e_Fourth	
8	CeCGSR_e_Fourth	
9	CeCGSR_e_Fourth	
10	CeCGSR_e_SecondLckd	
11	CeCGSR_e_SecondLckd	
12	CeCGSR_e_SecondLckd	
13	CeCGSR_e_SecondLckd	
14	CeCGSR_e_SecondLckd	
15	CeCGSR_e_SecondLckd	
16	CeCGSR_e_SecondLckd	
MinGearAllowed - Part 6		
y/x	5	
0	CeCGSR_e_Seventh	
1	CeCGSR_e_Seventh	
2	CeCGSR_e_Seventh	
3	CeCGSR_e_Seventh	
4	CeCGSR_e_Seventh	
5	CeCGSR_e_Sixth	
6	CeCGSR_e_Sixth	
7	CeCGSR_e_Fifth	
8	CeCGSR_e_Fifth	

Initial Supporting table - MinGearAllowed	
9	CeCGSR_e_Fourth
10	CeCGSR_e_Fourth
11	CeCGSR_e_Fourth
12	CeCGSR_e_SecondLckd
13	CeCGSR_e_SecondLckd
14	CeCGSR_e_SecondLckd
15	CeCGSR_e_SecondLckd
16	CeCGSR_e_SecondLckd
MinGearAllowed - Part 7	
y/x	6
0	CeCGSR_e_Seventh
1	CeCGSR_e_Seventh
2	CeCGSR_e_Seventh
3	CeCGSR_e_Seventh
4	CeCGSR_e_Seventh
5	CeCGSR_e_Seventh
6	CeCGSR_e_Sixth
7	CeCGSR_e_Sixth
8	CeCGSR_e_Fifth
9	CeCGSR_e_Fifth
10	CeCGSR_e_Fourth
11	CeCGSR_e_Fourth
12	CeCGSR_e_Fourth
13	CeCGSR_e_Fourth
14	CeCGSR_e_SecondLckd
15	CeCGSR_e_SecondLckd
16	CeCGSR_e_SecondLckd
MinGearAllowed - Part 8	
y/x	7
0	CeCGSR_e_Eighth
1	CeCGSR_e_Eighth
2	CeCGSR_e_Eighth
3	CeCGSR_e_Eighth
4	CeCGSR_e_Eighth
5	CeCGSR_e_Seventh
6	CeCGSR_e_Seventh
7	CeCGSR_e_Sixth

Initial Supporting table - MinGearAllowed		
8	CeCGSR_e_Fifth	
9	CeCGSR_e_Fifth	
10	CeCGSR_e_Fifth	
11	CeCGSR_e_Fourth	
12	CeCGSR_e_Fourth	
13	CeCGSR_e_Fourth	
14	CeCGSR_e_Fourth	
15	CeCGSR_e_Fourth	
16	CeCGSR_e_SecondLckd	
MinGearAllowed - Part 9		
y/x	8	
0	CeCGSR_e_Eighth	
1	CeCGSR_e_Eighth	
2	CeCGSR_e_Eighth	
3	CeCGSR_e_Eighth	
4	CeCGSR_e_Eighth	
5	CeCGSR_e_Eighth	
6	CeCGSR_e_Seventh	
7	CeCGSR_e_Seventh	
8	CeCGSR_e_Sixth	
9	CeCGSR_e_Sixth	
10	CeCGSR_e_Fifth	
11	CeCGSR_e_Fifth	
12	CeCGSR_e_Fifth	
13	CeCGSR_e_Fourth	
14	CeCGSR_e_Fourth	
15	CeCGSR_e_Fourth	
16	CeCGSR_e_Fourth	
MinGearAllowed - Part 10		
y/x	9	
0	CeCGSR_e_Ninth	
1	CeCGSR_e_Ninth	
2	CeCGSR_e_Ninth	
3	CeCGSR_e_Ninth	
4	CeCGSR_e_Ninth	
5	CeCGSR_e_Ninth	
6	CeCGSR_e_Eighth	

Initial Supporting table - MinGearAllowed			
7	CeCGSR_e_Seventh		
8	CeCGSR_e_Sixth		
9	CeCGSR_e_Sixth		
10	CeCGSR_e_Sixth		
11	CeCGSR_e_Fifth		
12	CeCGSR_e_Fifth		
13	CeCGSR_e_Fifth		
14	CeCGSR_e_Fifth		
15	CeCGSR_e_Fifth		
16	CeCGSR_e_Fourth		
MinGearAllowed - Part 11			
y/x	10		
0	CeCGSR_e_Ninth		
1	CeCGSR_e_Ninth		
2	CeCGSR_e_Ninth		
3	CeCGSR_e_Ninth		
4	CeCGSR_e_Ninth		
5	CeCGSR_e_Ninth		
6	CeCGSR_e_Eighth		
7	CeCGSR_e_Seventh		
8	CeCGSR_e_Seventh		
9	CeCGSR_e_Sixth		
10	CeCGSR_e_Sixth		
11	CeCGSR_e_Sixth		
12	CeCGSR_e_Fifth		
13	CeCGSR_e_Fifth		
14	CeCGSR_e_Fifth		
15	CeCGSR_e_Fifth		
16	CeCGSR_e_Fourth		
MinGearAllowed - Part 12	·		
y/x	11		
0	CeCGSR_e_Ninth		
1	CeCGSR_e_Ninth		
2	CeCGSR_e_Ninth		
3	CeCGSR_e_Ninth		
4	CeCGSR_e_Ninth		
5	CeCGSR_e_Ninth		

Initial Supporting table - MinGearAllowed		
and a supplier and grant and a supplier and a suppl		
6	CeCGSR_e_Eighth	
7	CeCGSR_e_Eighth	
8	CeCGSR_e_Seventh	
9	CeCGSR_e_Seventh	
10	CeCGSR_e_Sixth	
11	CeCGSR_e_Sixth	
12	CeCGSR_e_Sixth	
13	CeCGSR_e_Fifth	
14	CeCGSR_e_Fifth	
15	CeCGSR_e_Fifth	
16	CeCGSR_e_Fifth	
MinGearAllowed - Part 13		
y/x	12	
0	CeCGSR_e_Ninth	
1	CeCGSR_e_Ninth	
2	CeCGSR_e_Ninth	
3	CeCGSR_e_Ninth	
4	CeCGSR_e_Ninth	
5	CeCGSR_e_Ninth	
6	CeCGSR_e_Ninth	
7	CeCGSR_e_Eighth	
8	CeCGSR_e_Seventh	
9	CeCGSR_e_Seventh	
10	CeCGSR_e_Seventh	
11	CeCGSR_e_Sixth	
12	CeCGSR_e_Sixth	
13	CeCGSR_e_Sixth	
14	CeCGSR_e_Sixth	
15	CeCGSR_e_Sixth	
16	CeCGSR_e_Fifth	
MinGearAllowed - Part 14		
y/x	13	
0	CeCGSR_e_Ninth	
1	CeCGSR_e_Ninth	
2	CeCGSR_e_Ninth	
3	CeCGSR_e_Ninth	
4	CeCGSR_e_Ninth	

		Initial Supporting table - MinGearAllowed	
	CeCGSR_e_Ninth		
	CeCGSR_e_Ninth		
	CeCGSR_e_Eighth		
	CeCGSR_e_Eighth		
	CeCGSR_e_Seventh		
0	CeCGSR_e_Seventh		
1	CeCGSR_e_Sixth		
2	CeCGSR_e_Sixth		
3	CeCGSR_e_Sixth		
4	CeCGSR_e_Sixth		
5	CeCGSR_e_Sixth		
6	CeCGSR_e_Fifth		
MinGearAllowed - Part 15			
/x	14		
	CeCGSR_e_Ninth		
	CeCGSR_e_Ninth		
	CeCGSR_e_Ninth		
	CeCGSR_e_Ninth		
	CeCGSR_e_Ninth		
	CeCGSR_e_Ninth		
	CeCGSR_e_Ninth		
	CeCGSR_e_Eighth		
	CeCGSR_e_Eighth		
	CeCGSR_e_Eighth		
0	CeCGSR_e_Seventh		
1	CeCGSR_e_Seventh		
2	CeCGSR_e_Sixth		
3	CeCGSR_e_Sixth		
4	CeCGSR_e_Sixth		
5	CeCGSR_e_Sixth		
6	CeCGSR_e_Sixth		
MinGearAllowed - Part 16			
/x	15		
	CeCGSR_e_Ninth		
	CeCGSR_e_Ninth		
	CeCGSR_e_Ninth		
	CeCGSR_e_Ninth		

Initial Supporting table - MinGearAllowed		
mittal Supporting table - Millocal Allowed		
4	CeCGSR_e_Ninth	
5	CeCGSR_e_Ninth	
6	CeCGSR_e_Ninth	
7	CeCGSR_e_Ninth	
8	CeCGSR_e_Eighth	
9	CeCGSR_e_Eighth	
10	CeCGSR_e_Seventh	
11	CeCGSR_e_Seventh	
12	CeCGSR_e_Seventh	
13	CeCGSR_e_Sixth	
14	CeCGSR_e_Sixth	
15	CeCGSR_e_Sixth	
16	CeCGSR_e_Sixth	
MinGearAllowed - Part 17		
y/x	16	
0	CeCGSR_e_Ninth	
1	CeCGSR_e_Ninth	
2	CeCGSR_e_Ninth	
3	CeCGSR_e_Ninth	
4	CeCGSR_e_Ninth	
5	CeCGSR_e_Ninth	
6	CeCGSR_e_Ninth	
7	CeCGSR_e_Ninth	
8	CeCGSR_e_Eighth	
9	CeCGSR_e_Eighth	
10	CeCGSR_e_Eighth	
11	CeCGSR_e_Seventh	
12	CeCGSR_e_Seventh	
13	CeCGSR_e_Sixth	
14	CeCGSR_e_Sixth	
15	CeCGSR_e_Sixth	
16	CeCGSR_e_Sixth	
MinGearAllowed - Part 18		
y/x		
0		
1		
2		

Initial Supporting table - MinGearAllowed							
	initial Supporting table - Millocal Allowed						
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
MinGear Allowed - Part 19							
y/x							
0							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14 15							
16							
MinGearAllowed - Part 20							
y/x							
0							
1							

10 CDDG04 Tolin 9 Speed Tolin 9 Supporting Tables						
Initial Supporting table - MinGearAllowed						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						

# Initial Supporting table - NumClchTieUp

Description: No	umClchTieUp						
Value Units: # o X Unit: Cmnd G Y Units: # of clu	ir						
NumClchTieUp	- Part 1						
y/x		CeCGSR_e_NeutralN oClutch	CeCGSR_e_NeutralC 1	CeCGSR_e_NeutralC 2	CeCGSR_e_NeutralC 3	CeCGSR_e_NeutralC 4	CeCGSR_e_NeutralC 5
1	2	3	2	2	2	2	2
NumClchTieUp	- Part 2						
y/x	CeCGSR_e_NeutralC 6	CeCGSR_e_NeutralC 7	CeCGSR_e_NeutralC 1C2	CeCGSR_e_NeutralC 1C3	CeCGSR_e_NeutralC 1C4	CeCGSR_e_NeutralC 1C5	CeCGSR_e_NeutralC 2C3
1	2	2	1	1	1	1	1
NumClchTieUp - Part 3							
y/x		CeCGSR_e_NeutralC 2C5	CeCGSR_e_NeutralC 2C6	CeCGSR_e_NeutralC 3C4	CeCGSR_e_NeutralC 3C5	CeCGSR_e_NeutralC 3C6	CeCGSR_e_NeutralC 4C5
1	1	1	1	1	1	1	1
NumClchTieUp - Part 4							
y/x		CeCGSR_e_NeutralC 2C3C4C5	CeCGSR_e_Park_wN C	CeCGSR_e_Park_wN C1	CeCGSR_e_Park_wN C2	CeCGSR_e_Park_wN C3	CeCGSR_e_Park_wN C4
1	1	1	3	2	2	2	2
NumClchTieUp	- Part 5						
y/x	CeCGSR_e_Park_wN C5	CeCGSR_e_Park_wN C6	CeCGSR_e_Park_wN C7	CeCGSR_e_Park_wN C1C2	CeCGSR_e_Park_wN C2C3	CeCGSR_e_Park_wN C2C4	CeCGSR_e_Park_wN C2C5
1	2	2	2	1	1	1	1
NumClchTieUp	- Part 6						
y/x	CeCGSR_e_Park_wN C2C6	CeCGSR_e_Park_wN C3C4	CeCGSR_e_Park_wN C3C5	CeCGSR_e_Park_wN C3C6	CeCGSR_e_Park_wN C4C5	CeCGSR_e_Park_wN C4C6	CeCGSR_e_Park_wN C2C3C4C5
1	1	1	1	1	1	1	1
NumClchTieUp	- Part 7						
y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondL ckd	CeCGSR_e_SecondF W	CeCGSR_e_Third	CeCGSR_e_Fourth
1	1	1	2	1	1	1	1
NumClchTieUp	- Part 8						
y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	

Initial Supporting table - NumClchTieUp							
1	1	1	1	1	1	1	

# Initial Supporting table - NumClchTieUp

Description: NumCl	chTieUp						
Value Units: minimu X Unit: command ge Y Units: not applicab		able f(gear)					
NumClchTieUp - Pa	rt 1						
y/x	CeCGSR_e_NullForS ched	CeCGSR_e_NeutralN oClutch	CeCGSR_e_NeutralC 1	CeCGSR_e_NeutralC 2	CeCGSR_e_NeutralC 3	CeCGSR_e_NeutralC 4	CeCGSR_e_NeutralC 5
1	2	3	2	2	2	2	2
NumClchTieUp - Pa	rt 2						
y/x	CeCGSR_e_NeutralC 6	CeCGSR_e_NeutralC 7	CeCGSR_e_NeutralC 1C2	CeCGSR_e_NeutralC 1C3	CeCGSR_e_NeutralC 1C4	CeCGSR_e_NeutralC 1C5	CeCGSR_e_NeutralC 2C3
1	2	2	1	1	1	1	1
NumClchTieUp - Part 3							
y/x	CeCGSR_e_NeutralC 2C4	CeCGSR_e_NeutralC 2C5	CeCGSR_e_NeutralC 2C6	CeCGSR_e_NeutralC 3C4	CeCGSR_e_NeutralC 3C5	CeCGSR_e_NeutralC 3C6	CeCGSR_e_NeutralC 4C5
1	1	1	1	1	1	1	1
NumClchTieUp - Part 4							
y/x	CeCGSR_e_NeutralC 4C6	CeCGSR_e_NeutralC 2C3C4C5	CeCGSR_e_Park_wN C	CeCGSR_e_Park_wN C1	CeCGSR_e_Park_wN C2	CeCGSR_e_Park_wN C3	CeCGSR_e_Park_wN C4
1	1	1	3	2	2	2	2
NumClchTieUp - Pa	rt 5						
y/x	CeCGSR_e_Park_wN C5	CeCGSR_e_Park_wN C6	CeCGSR_e_Park_wN C7	CeCGSR_e_Park_wN C1C2	CeCGSR_e_Park_wN C2C3	CeCGSR_e_Park_wN C2C4	CeCGSR_e_Park_wN C2C5
1	2	2	2	1	1	1	1
NumClchTieUp - Pa	rt 6						
y/x	CeCGSR_e_Park_wN C2C6	CeCGSR_e_Park_wN C3C4	CeCGSR_e_Park_wN C3C5	CeCGSR_e_Park_wN C3C6	CeCGSR_e_Park_wN C4C5	CeCGSR_e_Park_wN C4C6	CeCGSR_e_Park_wN C2C3C4C5
1	1	1	1	1	1	1	1
NumClchTieUp - Pa	rt 7						
y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondL ckd	CeCGSR_e_SecondF W	CeCGSR_e_Third	CeCGSR_e_Fourth
1	1	1	2	1	1	1	1
NumClchTieUp - Pa	rt 8						
y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	
		•				•	-

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Initial Supporting table - NumClchTieUp							
1	1	1	1	1	1	1	

### Initial Supporting table - P0606\_Last Seed Timeout f(Loop Time)

**Description:** The max time for the Last Seed Timeout as a function of operating loop time sequence.

Value Units: Max Time for Last Seed Timeout (ms)

X Unit: Operating Loop Sequence (enum)

y/x	CePISR_e_5msSeq	CePISR_e_6p25msSe	CePISR_e_10msSeq	CePISR_e_12p5msSe	CePISR_e_20msSeq	CePISR_e_25msSeq	CePISR_e_40msSeq
		q		q			
1	200.000	200.000	200.000	200.000	200.000	200.000	200.000

#### P0606\_Last Seed Timeout f(Loop Time) - Part 2

y/x	CePISR_e_50msSeq	CePISR_e_80msSeq	CePISR_e_100msSeq	CePISR_e_EventA_S	CePISR_e_EventB_S	CePISR_e_EventC_S	
				eq	eq	eq	
1	200.000	200.000	200.000	8,191.875	8,191.875	8,191.875	

### Initial Supporting table - P0606\_Program Sequence Watch Enable f(Core, Loop Time)

**Description:** The enabling flags for the program sequence watch as a function of processor core and operating loop time sequence.

Value Units: PSW enable flag (boolean)

X Unit: Processor Core (enum)

Y Units: Operating Loop Time Sequence (enum)

y/x	CeTSKR_e_CPU	CeTSKR_e_CPU2	CeTSKR_e_CPU3	CeTSKR_e_CPU4
CePISR_e_5msSeq	0	0	0	0
CePISR_e_6p25msSeq	1	0	0	0
CePISR_e_10msSeq	0	0	0	0
CePISR_e_12p5msSeq	1	0	0	0
CePISR_e_20msSeq	0	0	0	0
CePISR_e_25msSeq	1	0	0	0
CePISR_e_40msSeq	0	0	0	0
CePISR_e_50msSeq	0	0	0	0
CePISR_e_80msSeq	0	0	0	0
CePISR_e_100msSeq	0	0	0	0
CePISR_e_EventA_Seq	0	0	0	0
CePISR_e_EventB_Seq	0	0	0	0
CePISR_e_EventC_Seq	0	0	0	0

# Initial Supporting table - P0606\_PSW Sequence Fail f(Loop Time)

**Description:** Fail threshold for PSW per operating loop.

Value Units: Fail threshold for PSW (count)

X Unit: Operating Loop (enum)

P0606 PSW Sequence	Fail f(Looi	o Time)	- Part 1
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y/x	CePISR_e_5msSeq	CePISR_e_6p25msSe q	CePISR_e_10msSeq	CePISR_e_12p5msSe q	CePISR_e_20msSeq	CePISR_e_25msSeq	CePISR_e_40msSeq
1	3	3	3	3	3	3	3

#### P0606\_PSW Sequence Fail f(Loop Time) - Part 2

	· · · · · ·			V			u.
y/x	CePISR_e_50msSeq	CePISR_e_80msSeq	CePISR_e_100msSeq	CePISR_e_EventA_S	CePISR_e_EventB_S	CePISR_e_EventC_S	
				eq	eq	eq	
1	3	3	3	3	3	3	

### Initial Supporting table - P0606\_PSW Sequence Sample f(Loop Time)

**Description:** Sample threshold for PSW per operating loop.

Value Units: Sample threshold for PSW (count)

X Unit: Operating Loop (enum)

P0606_PSW Sec	quence Sample f(	(Loop Time)	) - Part 1
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y/x	CePISR_e_5msSeq	CePISR_e_6p25msSe	CePISR_e_10msSeq	CePISR_e_12p5msSe	CePISR_e_20msSeq	CePISR_e_25msSeq	CePISR_e_40msSeq
		q		q			
1	4	4	4	4	4	4	4

#### P0606\_PSW Sequence Sample f(Loop Time) - Part 2

y/x	CePISR_e_50msSeq	CePISR_e_80msSeq	CePISR_e_100msSeq	CePISR_e_EventA_S	CePISR_e_EventB_S	CePISR_e_EventC_S	
				eq	eq	eq	
1	4	4	4	4	4	4	

# Initial Supporting table - P0723 transmission engaged state time threshold

Description: time necessary after transmission engaged state indicates transmission engaged to allow P0723 enable

Value Units: seconds

y/x	-40.000	0.000	40.000
1	5.000	3.000	1.000

#### Initial Supporting table - P0741 stuck on test time

**Description:** Value to initialize the TCC Stuck On test time to after transition of clutch select valve allowing TCC hydraulic circuit connectivity. Window is a time down window from the calibration value to zero (0.0) seconds.

Value Units: seconds

y/x	-7.00	10.00	40.00
1	1.500	1.250	1.000

# Initial Supporting table - P0747 C1 clutch exhaust delay time closed throttle down shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

# Initial Supporting table - P0747 C1 clutch exhaust delay time closed throttle lift foot up shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

# Initial Supporting table - P0747 C1 clutch exhaust delay time garage shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950	0.850	0.850

# Initial Supporting table - P0747 C1 clutch exhaust delay time negative torque up shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

ľ	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	0.500	0.500	0.500		0.500

# Initial Supporting table - P0747 C1 clutch exhaust delay time open throttle power down shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100		0.850	0.850

# Initial Supporting table - P0747 C1 clutch exhaust delay time open throttle power on up shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	2.000	1.100	0.813	0.500	0.269

# Initial Supporting table - P0777 C2 clutch exhaust delay time closed throttle down shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
ſ	1	1.600	1.100	0.950	0.350	0.200

# Initial Supporting table - P0777 C2 clutch exhaust delay time closed throttle lift foot up shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

ľ	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950	0.850	0.850

# Initial Supporting table - P0777 C2 clutch exhaust delay time garage shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

ľ	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950	0.850	0.850

# Initial Supporting table - P0777 C2 clutch exhaust delay time negative torque up shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

ľ	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	0.500	0.500	0.500	0.500	0.500

# Initial Supporting table - P0777 C2 clutch exhaust delay time open throttle power down shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950	0.212	0.212

# Initial Supporting table - P0777 C2 clutch exhaust delay time open throttle power on up shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	3.100	0.900	0.800	0.700	0.262

## Initial Supporting table - P0797 C3 clutch exhaust delay time closed throttle down shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.300	1.000	0.950	0.469	0.200

# Initial Supporting table - P0797 C3 clutch exhaust delay time closed throttle lift foot up shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950	0.850	0.850

## Initial Supporting table - P0797 C3 clutch exhaust delay time negative torque up shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

ľ	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	0.500	0.500	0.500	0.500	0.500

## Initial Supporting table - P0797 C3 clutch exhaust delay time open throttle power down shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.387	0.144

## Initial Supporting table - P0797 C3 clutch exhaust delay time open throttle power on up shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.900	0.800	0.750	0.650	0.256

## Initial Supporting table - P0797 C3clutch exhaust delay time garage shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

у.	/x	-40.00	-20.00	0.00	30.00	110.00
1		1.600	1.100	0.950	0.850	0.850

## Initial Supporting table - P171D hydraulic pressure delay

**Description:** Time to delay the initial x of y counter due to hydraulic transients. Thresholds are a function of transmission fluid temperature. Horizontal axis is transmission fluid temperature (DegC) and table output is delay time (seconds).

Value Units: delay time seconds

ı	y/x	-40	0	20	30	40	50	60
١	1	0.090	0.090	0.080	0.075	0.075	0.075	0.075

#### Initial Supporting table - P171D predicted turbine speed error

**Description:** Predicted turbine speed vs actual turbine speed error. Thresholds are a function of engine speed and transmission fliud temperature. Diagnostic is considered failing above these values. Table vertical axis is engine speed (RPM), horizontal axis is transmission fluid temperature (DegC) and table output is predicted turbine speed error (RPM).

Value Units: turbine speed RPM error X Unit: transmission fluid temperature DegC

Y Units: engine speed RPM

y/x	-40	0	10	20	40
0	350	350	350	350	350
500	350	350	350	350	350
1,100	350	350	350	350	350
1,500	350	350	350	350	350
2,500	350	350	350	350	350

Initial Supporting table - P176B delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation

Description: delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation

Value Units: seconds

X Unit: intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2		
1	1.000	1.000		

#### Initial Supporting table - P176B holding clutch states

**Description:** inditaces when the clutch states allow transmission intermediate speed sensor evaluation, when rotating components can trigger speed sesnor, holding clutches will not allow evaluation while clutches not holding will allow evaluation

Value Units: TRUE or FALSE

**X Unit:** intermediate speed sensor select

Y Units: commanded gear

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
CeCGSR_e_CR_NullForSched	1	1
CeCGSR_e_CR_Neutral	1	1
CeCGSR_e_CR_Park	1	1
CeCGSR_e_CR_Reverse	0	1
CeCGSR_e_CR_First	0	1
CeCGSR_e_CR_Second	0	1
CeCGSR_e_CR_Third	1	1
CeCGSR_e_CR_Fourth	0	1
CeCGSR_e_CR_Fifth	0	1
CeCGSR_e_CR_Sixth	0	1
CeCGSR_e_CR_Seventh	0	1
CeCGSR_e_CR_Eighth	1	1
CeCGSR_e_CR_Ninth	0	1
CeCGSR_e_CR_Tenth	1	1

## Initial Supporting table - P176B intermediate speed sensor fail count threshold

**Description:** P176B intermediate speed sensor fail count threshold

Value Units: fail counts

**X Unit:** intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	4	4

## Initial Supporting table - P176B intermediate speed sensor fail RPM threshold

#### Description:

Value Units: RPM

X Unit: command gear Y Units: intermediate speed sensor select

y/x	CeTGRR_e_Ge	CeTGRR_e_Ge	CeTGRR_e_Ge	CeTGRR_e_Ge	CeTGRR_e_Ge	CeTGRR_e_Ge	CeTGRR_e_Ge	CeTGRR_e_Ge	CeTGRR_e_Ge	
	ar1	ar2	ar3	ar4	ar5	ar6	ar7	ar8	ar9	ar10
CeTSRR_e_C2 C_ClchSpdSnsr 1		382	10,000	248	50	133	50	10,000	121	10,000
CeTSRR_e_C2 C_ClchSpdSnsr 2		0	0	0	0	0	0	0	0	0

## Initial Supporting table - P176B intermediate speed sensor fail time threshold

**Description:** P176B intermediate speed sensor fail time threshold

Value Units: seconds

X Unit: intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	2.000	2.000

#### Initial Supporting table - P176B minimum estimated transmission intermediate speed to enable fail evaluation

**Description:** minimum estimated transmission intermediate speed to enable fail evaluation, where estimate is based on transmission input speed / ratio calibration, where ratio calibration is either P176B ratio calibration when REVERSE or P176B ratio calibration when not REVERSE

Value Units: estimated transmission intermediate speed RPM

X Unit: intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	172.0	172.0

## Initial Supporting table - P176B minimum transmission input speed to enable fail evaluation

**Description:** minimum transmission input speed to enable fail evaluation

Value Units: transmission input speed RPM X Unit: intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	172.0	172.0

## Initial Supporting table - P176B ratio calibration when not REVERSE

Description: used to estimate transmission input speed based on transmission intermediate speed when range is not REVERSE

Value Units: ratio

X Unit: commanded gear Y Units: intermediate speed sensor select

y/x			4	_	CeTGRR_e_Ge ar6	_		CeTGRR_e_Ge ar9	CeTGRR_e_Ge ar10
CeTSRR_e_C2 C_ClchSpdSnsr 1	6.3694	1.0000	2.4450	1.0000	0.5227	1.0000	1.0000	1.1905	1.0000
CeTSRR_e_C2 C_ClchSpdSnsr 2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

## Initial Supporting table - P176B ratio calibration when REVERSE

Description: used to estimate transmission input speed based on transmission intermediate speed when range is REVERSE

Value Units: ratio

X Unit: intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	1.0000	1.0000

Initial Supporting table - P17C5 P17D3 intermediate speed sensor RPM						
Description: P17C5 P17D3 intermediate speed sensor RPM at signal period transtion to enable fail time update						
Value Units: intermediate speed sensor RPM  X Unit: intermediate speed sensor 1 or 2						
y/x	/x 0					
1	25	25				

## Initial Supporting table - P2715 C4 clutch exhaust delay time closed throttle down shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.400	0.750	0.700		0.225

## Initial Supporting table - P2715 C4 clutch exhaust delay time closed throttle lift foot up shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

ĺ	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950	0.850	0.850

## Initial Supporting table - P2715 C4 clutch exhaust delay time garage shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950	0.850	0.850

## Initial Supporting table - P2715 C4 clutch exhaust delay time negative torque up shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	0.500	0.500	0.500	0.500	0.500

## Initial Supporting table - P2715 C4 clutch exhaust delay time open throttle power down shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

ı	y/x	-40.00	-20.00	0.00	30.00	110.00
١	1	1.600	1.100	0.950	0.119	0.119

## Initial Supporting table - P2715 C4 clutch exhaust delay time open throttle power on up shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.900	0.650	0.600		0.300

## Initial Supporting table - P2724 C5 clutch exhaust delay time closed throttle down shift

Description: P2724 C5 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

<u> </u>	y/x	-40.00	-20.00	0.00	30.00	110.00
,	1	1.700	1.369	1.100	0.650	0.337

## Initial Supporting table - P2724 C5 clutch exhaust delay time closed throttle lift foot up shift

Description: P2724 C5 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950		0.850

## Initial Supporting table - P2724 C5 clutch exhaust delay time garage shift

Description: P2724 C5 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

١	y/x	-40	-20	0	30	110
١	1	2	1	1	1	1

## Initial Supporting table - P2724 C5 clutch exhaust delay time negative torque up shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

ľ	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	0.500	0.500	0.500		0.500

## Initial Supporting table - P2724 C5 clutch exhaust delay time open throttle power down shift

Description: P2724 C5 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

ľ	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	0.900	0.613	0.450	0.300	0.163

## Initial Supporting table - P2724 C5 clutch exhaust delay time open throttle power on up shift

Description: P2724 C5 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

ľ	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	2.900	1.350	1.100	0.850	0.406

## Initial Supporting table - P2733 C6 clutch exhaust delay time closed throttle down shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

ì	y/x	-40.00	-20.00	0.00	30.00	110.00
ľ	1	1.400	1.100	0.719	0.400	0.350

## Initial Supporting table - P2733 C6 clutch exhaust delay time closed throttle lift foot up shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

у.	/x	-40.00	-20.00	0.00	30.00	110.00
1		1.600	1.100	0.950	0.850	0.850

## Initial Supporting table - P2733 C6 clutch exhaust delay time garage shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950	0.850	0.850

## Initial Supporting table - P2733 C6 clutch exhaust delay time negative torque up shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	0.500	0.500	0.500	0.500	0.500

## Initial Supporting table - P2733 C6 clutch exhaust delay time open throttle power down shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
ľ	1	0.850	0.350	0.300	0.238	0.131

## Initial Supporting table - P2733 C6 clutch exhaust delay time open throttle power on up shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950	10 600	0.600

# Initial Supporting table - P2817 TCC stuck off fail TCC slip speed

**Description:** TCC stuck off slip speed fail threshold when TCC is in ON mode (controlled slip mode)

Value Units: RPM

X Unit: engine torque Nm

ľ	y/x	0.00	64.00	128.00	192.00		320.00	384.00	448.00	512.00
	1	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0

### Initial Supporting table - P2818 stuck on test time

**Description:** Value to initialize the TCC Stuck On test time to after transition of clutch select valve allowing TCC hydraulic circuit connectivity. Window is a time down window from the calibration value to zero (0.0) seconds.

Value Units: seconds

X Unit: transmission fluid temperature °C

y/x	-7.00	10.00	40.00
1	1.500	1.250	1.000

# Initial Supporting table - P2818 torque convert derivative slip speed fail threshold

**Description:** The fail threshold, rate of change of torque converter slip speed, at which the torque convert clutch is considered stuck on.

Value Units: RPM/second

X Unit: transmission fluid temperature °C

y/x	-7.00	10.00	40.00
0	-600.0	-600.0	-600.0
15	-600.0	-600.0	-600.0
25	-900.0	-900.0	-900.0
50	-1,200.0	-1,200.0	-1,200.0
75	-1,500.0	-1,500.0	-1,500.0

# Initial Supporting table - P2D2 Cltch Slip Sum

Description:

Value Units: dn output rpm
X Unit: <brake gain> \* brake pedal %
Y Units: dn output speed threshold

y/x	0	15	20	30	35	50	75	88	100
1	-8,192	-8,192	-8,192	-8,192	-8,192	-8,192	-8,192	-8,192	-8,192

# Initial Supporting table - P2D2 Cltch Slip Sum

Description:

Value Units: rate of change of output rpm (dn) per 25 milliseconds X Unit: % brake pedal position Y Units: not applicable, no units, single row table f(brake pedal position)

y/x	0	15	20	30	35	50	75	88	100
1	-8,192	-8,192	-8,192	-8,192	-8,192	-8,192	-8,192	-8,192	-8,192

# Initial Supporting table - P2D2 Decel Pressure - C1

Description:							
Value Units: Kpa X Unit: Cmnd Gear Y Units: Kpa							
P2D2 Decel Pressure - C1	Part 1						
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3		
1	251	251	9,999	251	251		
P2D2 Decel Pressure - C1	Part 2						
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2		
1	251	251	251	251	9,999		
P2D2 Decel Pressure - C1	Part 3						
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4		
1	9,999	9,999	9,999	251	251		
P2D2 Decel Pressure - C1	Part 4						
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6		
1	251	251	251	251	251		
P2D2 Decel Pressure - C1	Part 5						
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC2C3C4C 5	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1		
1	251	251	251	251	9,999		
P2D2 Decel Pressure - C1	Part 6						
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6		
1	251	251	251	251	251		
P2D2 Decel Pressure - C1	Part 7						
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5		
1	251	9,999	251	251	251		
P2D2 Decel Pressure - C1	Part 8						
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5		
1	251	251	251	251	251		
P2D2 Decel Pressure - C1	Part 9						
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC2C3C 4C5	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW		
1	251	251	216	9,999	9,999		

	Initial Supporting table - P2D2 Decel Pressure - C1								
P2D2 Decel Pressure - C1 - Part 10									
y/x	y/x CeCGSR_e_SecondLckd CeCGSR_e_SecondFW CeCGSR_e_Third CeCGSR_e_Fourth CeCGSR_e_Fifth								
1	9,999	9,999	9,999	9,999	9,999				
P2D2 Decel Pres	ssure - C1 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	9,999	1,056	671	564	251				
P2D2 Decel Pres	P2D2 Decel Pressure - C1 - Part 12								
y/x	x								
1					i				

#### Initial Supporting table - P2D2 Decel Pressure - C1

**Description:** clutch 1 command pressure threshold below which clutch 1 is considered released, such that, clutch 1 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressure	e - C1 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	250.9	250.9	9,999.0	250.9	250.9
P2D2 Decel Pressure	e - C1 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	250.9	250.9	250.9	250.9	9,999.0
P2D2 Decel Pressure	e - C1 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	9,999.0	9,999.0	9,999.0	250.9	250.9
P2D2 Decel Pressure	e - C1 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	250.9	250.9	250.9	250.9	250.9
P2D2 Decel Pressure	e - C1 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC2C3C4C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	250.9	250.9	250.9	250.9	9,999.0
P2D2 Decel Pressure	e - C1 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	250.9	250.9	250.9	250.9	250.9
P2D2 Decel Pressure	e - C1 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	250.9	9,999.0	250.9	250.9	250.9
P2D2 Decel Pressure	e - C1 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	250.9	250.9	250.9	250.9	250.9
P2D2 Decel Pressure	e - C1 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC2C3C 4C5	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C1							
1	250.9	250.9	215.8	9,999.0	9,999.0		
P2D2 Decel Pressure - C1 - Part 10							
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth		
1	9,999.0	9,999.0	9,999.0	9,999.0	9,999.0		
P2D2 Decel Pres	sure - C1 - Part 11						
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth		
1	9,999.0	1,055.9	671.3	564.3	250.9		
P2D2 Decel Pres	P2D2 Decel Pressure - C1 - Part 12						
y/x							
1							

# Initial Supporting table - P2D2 Decel Pressure - C2

Description:					
Value Units: Kpa X Unit: Cmnd Gear Y Units: Kpa					
P2D2 Decel Pressi	ure - C2 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	403	403	403	9,999	403
P2D2 Decel Pressi	ure - C2 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	403	403	403	403	9,999
P2D2 Decel Pressi	ure - C2 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	403	403	403	9,999	9,999
P2D2 Decel Pressi	ure - C2 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR e NeutralC3C6
1	9,999	9,999	403	403	403
P2D2 Decel Pressi	ure - C2 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC2C3C4C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	403	403	9,999	403	403
P2D2 Decel Pressi	ure - C2 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	9,999	403	403	403	403
P2D2 Decel Pressi	ure - C2 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	403	9,999	9,999	9,999	9,999
P2D2 Decel Pressi	ure - C2 - Part 8	<u> </u>			
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	9,999	403	403	403	403
P2D2 Decel Pressi	ure - C2 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC2C3C 4C5	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW
1	403	9,999	216	251	251

	Initial Supporting table - P2D2 Decel Pressure - C2							
P2D2 Decel Pressure - C2 - Part 10								
y/x	/x CeCGSR_e_SecondLckd CeCGSR_e_SecondFW CeCGSR_e_Third CeCGSR_e_Fourth CeCGSR_e_Fifth							
1	9,999	9,999	471	721	1,648			
P2D2 Decel Pressure -	C2 - Part 11							
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth			
1	719	1,056	671	9,999	403			
P2D2 Decel Pressure -	P2D2 Decel Pressure - C2 - Part 12							
y/x	/x							
1								

#### Initial Supporting table - P2D2 Decel Pressure - C2

**Description:** clutch 2 command pressure threshold below which clutch 2 is considered released, such that, clutch 2 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressi	ure - C2 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	403	403	403	9,999	403
P2D2 Decel Pressi	ure - C2 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	403	403	403	403	9,999
P2D2 Decel Pressi	ure - C2 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	403	403	403	9,999	9,999
P2D2 Decel Pressi	ure - C2 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	9,999	9,999	403	403	403
P2D2 Decel Pressi	ure - C2 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC2C3C4C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	403	403	9,999	403	403
P2D2 Decel Pressi	ure - C2 - Part 6		•		
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	9,999	403	403	403	403
P2D2 Decel Pressi	ure - C2 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	403	9,999	9,999	9,999	9,999
P2D2 Decel Pressi	ure - C2 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	9,999	403	403	403	403
P2D2 Decel Pressi	ure - C2 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC2C3C 4C5	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C2									
1	403	9,999	216	251	251				
P2D2 Decel Pressure	P2D2 Decel Pressure - C2 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	9,999	9,999	471	721	1,648				
P2D2 Decel Pressure	e - C2 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	719	1,056	671	9,999	403				
P2D2 Decel Pressure - C2 - Part 12									
y/x									
1									

# Initial Supporting table - P2D2 Decel Pressure - C3

Description:					
Value Units: Kpa X Unit: Cmnd Gear Y Units: Kpa					
P2D2 Decel Pressi	ure - C3 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	471	471	471	471	9,999
P2D2 Decel Pressi	ure - C3 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	471	471	471	2,500	471
P2D2 Decel Pressi	ure - C3 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	9,999	471	471	9,999	471
P2D2 Decel Pressi	ure - C3 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	471	471	9,999	9,999	9,999
P2D2 Decel Pressi	ure - C3 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC2C3C4C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	471	471	9,999	471	471
P2D2 Decel Pressi	ure - C3 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	471	9,999	471	471	471
P2D2 Decel Pressi	ure - C3 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	471	471	9,999	471	471
P2D2 Decel Pressi	ure - C3 - Part 8	,			<u> </u>
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	471	9,999	9,999	9,999	471
P2D2 Decel Pressi	ure - C3 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC2C3C 4C5	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW
1	471	9,999	216	251	251

Initial Supporting table - P2D2 Decel Pressure - C3										
P2D2 Decel Pressure - C3 -	P2D2 Decel Pressure - C3 - Part 10									
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth					
1	403	403	9,999	721	1,648					
P2D2 Decel Pressure - C3 -	Part 11									
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth					
1	719	1,056	9,999	564	1,082					
P2D2 Decel Pressure - C3 - Part 12										
y/x	y/x									
1										

## Initial Supporting table - P2D2 Decel Pressure - C3

**Description:** clutch 3 command pressure threshold below which clutch 3 is considered released, such that, clutch 3 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressu	re - C3 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	471	471	471	471	9,999
P2D2 Decel Pressu	re - C3 - Part 2				
//x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
	471	471	471	2,500	471
P2D2 Decel Pressu	re - C3 - Part 3				
//x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
	9,999	471	471	9,999	471
P2D2 Decel Pressu	re - C3 - Part 4			-	
//x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
	471	471	9,999	9,999	9,999
P2D2 Decel Pressu	re - C3 - Part 5		•		
//x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC2C3C4C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	471	471	9,999	471	471
P2D2 Decel Pressu	re - C3 - Part 6				
//x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
	471	9,999	471	471	471
P2D2 Decel Pressu	re - C3 - Part 7				
//x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
	471	471	9,999	471	471
P2D2 Decel Pressu	re - C3 - Part 8				
//x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
	471	9,999	9,999	9,999	471
P2D2 Decel Pressu	re - C3 - Part 9				
//x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC2C3C 4C5	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C3									
1	471	9,999	216	251	251				
P2D2 Decel Pressure	P2D2 Decel Pressure - C3 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	403	403	9,999	721	1,648				
P2D2 Decel Pressure	- C3 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	719	1,056	9,999	564	1,082				
P2D2 Decel Pressure - C3 - Part 12									
y/x									
1									

# Initial Supporting table - P2D2 Decel Pressure - C4

Description:					
Value Units: Kpa X Unit: Cmnd Gea Y Units: Kpa	ar				
P2D2 Decel Press	sure - C4 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	721	721	721	721	721
P2D2 Decel Press	sure - C4 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	9,999	721	721	721	721
P2D2 Decel Press	sure - C4 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR e NeutralC1C5	CeCGSR e NeutralC2C3	CeCGSR e NeutralC2C4
1	721	9,999	721	721	9,999
P2D2 Decel Press	sure - C4 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	721	721	9,999	721	721
P2D2 Decel Press	sure - C4 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC2C3C4C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	9,999	9,999	9,999	721	721
P2D2 Decel Press	sure - C4 - Part 6				
y/x	CeCGSR e Park wNC2	CeCGSR e Park wNC3	CeCGSR_e_Park_wNC4	CeCGSR e Park wNC5	CeCGSR e Park wNC6
1	721	721	9,999	721	721
P2D2 Decel Press	sure - C4 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	721	721	721	9,999	721
P2D2 Decel Press	sure - C4 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	721	9,999	721	721	9,999
P2D2 Decel Press	sure - C4 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC2C3C 4C5	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW
1	9,999	9,999	216	251	251

Initial Supporting table - P2D2 Decel Pressure - C4									
P2D2 Decel Pressure - C4 - Part 10									
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	403	403	471	9,999	1,648				
P2D2 Decel Pressure - C4 -	Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	719	1,056	671	564	721				
P2D2 Decel Pressure - C4 - Part 12									
y/x	y/x								
1									

#### Initial Supporting table - P2D2 Decel Pressure - C4

**Description:** clutch 4 command pressure threshold below which clutch 4 is considered released, such that, clutch 4 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressu	ure - C4 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	721	721	721	721	721
P2D2 Decel Pressu	ure - C4 - Part 2				
//x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
	9,999	721	721	721	721
P2D2 Decel Pressu	ure - C4 - Part 3				
//x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
	721	9,999	721	721	9,999
P2D2 Decel Pressu	ıre - C4 - Part 4				
//x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	721	721	9,999	721	721
P2D2 Decel Pressu	ure - C4 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC2C3C4C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	9,999	9,999	9,999	721	721
P2D2 Decel Pressu	ure - C4 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	721	721	9,999	721	721
P2D2 Decel Pressu	ure - C4 - Part 7				
//x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	721	721	721	9,999	721
P2D2 Decel Pressu	ure - C4 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	721	9,999	721	721	9,999
P2D2 Decel Pressu	ure - C4 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC2C3C 4C5	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C4									
1	9,999	9,999	216	251	251				
P2D2 Decel Pressure	P2D2 Decel Pressure - C4 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	403	403	471	9,999	1,648				
P2D2 Decel Pressure	e - C4 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	719	1,056	671	564	721				
P2D2 Decel Pressure - C4 - Part 12									
y/x									
1									

# Initial Supporting table - P2D2 Decel Pressure - C5

Description:					
Value Units: Kpa X Unit: Cmnd Gea Y Units: Kpa	ar				
P2D2 Decel Press	sure - C5 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	719	719	719	719	719
P2D2 Decel Press	sure - C5 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	719	9,999	719	719	719
P2D2 Decel Press	sure - C5 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	719	719	9,999	719	719
P2D2 Decel Press	sure - C5 - Part 4				
y/x	CeCGSR e NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR e NeutralC3C6
1	9,999	719	719	9,999	719
P2D2 Decel Press	sure - C5 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC2C3C4C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	9,999	719	9,999	719	719
P2D2 Decel Press	sure - C5 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	719	719	719	9,999	719
P2D2 Decel Press	sure - C5 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	719	719	719	719	9,999
P2D2 Decel Press	sure - C5 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	719	719	9,999	719	9,999
P2D2 Decel Press	sure - C5 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC2C3C 4C5	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW
1	719	9,999	9,999	251	251

Initial Supporting table - P2D2 Decel Pressure - C5										
P2D2 Decel Pressure - C5 -	P2D2 Decel Pressure - C5 - Part 10									
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth					
1	403	403	471	721	9,999					
P2D2 Decel Pressure - C5 -	Part 11									
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth					
1	719	9,999	671	564	719					
P2D2 Decel Pressure - C5 - Part 12										
y/x	y/x									
1										

### Initial Supporting table - P2D2 Decel Pressure - C5

**Description:** clutch 5 command pressure threshold below which clutch 5 is considered released, such that, clutch 5 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Press	ure - C5 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	719	719	719	719	719
P2D2 Decel Press	ure - C5 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	719	9,999	719	719	719
P2D2 Decel Press	ure - C5 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	719	719	9,999	719	719
P2D2 Decel Press	ure - C5 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	9,999	719	719	9,999	719
P2D2 Decel Press	ure - C5 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC2C3C4C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	9,999	719	9,999	719	719
P2D2 Decel Press	ure - C5 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	719	719	719	9,999	719
P2D2 Decel Press	ure - C5 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	719	719	719	719	9,999
P2D2 Decel Press	ure - C5 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	719	719	9,999	719	9,999
P2D2 Decel Press	ure - C5 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC2C3C 4C5	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C5										
1	719	9,999	9,999	251	251					
P2D2 Decel Pressure - C5 - Part 10										
y/x	//x CeCGSR_e_SecondLckd CeCGSR_e_SecondFW CeCGSR_e_Third CeCGSR_e_Fourth CeCGSR_e_Fifth									
1	403	403	471	721	9,999					
P2D2 Decel Pressure	- C5 - Part 11									
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth					
1	719	9,999	671	564	719					
P2D2 Decel Pressure	P2D2 Decel Pressure - C5 - Part 12									
y/x										
1										

# Initial Supporting table - P2D2 Decel Pressure - C6

Description:					
Value Units: Kpa X Unit: Cmnd Gea Y Units: Kpa	ar				
P2D2 Decel Press	sure - C6 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	494	494	494	494	494
P2D2 Decel Press	sure - C6 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	494	494	9,999	9,999	494
P2D2 Decel Press	sure - C6 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	494	494	494	494	494
P2D2 Decel Press	sure - C6 - Part 4				
y/x	CeCGSR e NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR e NeutralC3C6
1	494	9,999	494	494	9,999
P2D2 Decel Press	sure - C6 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC2C3C4C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	494	9,999	494	494	494
P2D2 Decel Press	sure - C6 - Part 6		•		
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	494	494	494	494	9,999
P2D2 Decel Press	sure - C6 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	494	494	494	494	494
P2D2 Decel Press	sure - C6 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	9,999	494	494	9,999	494
P2D2 Decel Press	sure - C6 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC2C3C 4C5	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW
1	9,999	494	9,999	251	251

	Initial Supporting table - P2D2 Decel Pressure - C6										
P2D2 Decel Pressure -	P2D2 Decel Pressure - C6 - Part 10										
y/x	/x CeCGSR_e_SecondLckd CeCGSR_e_SecondFW CeCGSR_e_Third CeCGSR_e_Fourth CeCGSR_e_Fifth										
1	403	403	471	721	1,648						
P2D2 Decel Pressure -	C6 - Part 11										
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth						
1	9,999	9,999	9,999	9,999	494						
P2D2 Decel Pressure -	P2D2 Decel Pressure - C6 - Part 12										
y/x											
1											

#### Initial Supporting table - P2D2 Decel Pressure - C6

**Description:** clutch 6 command pressure threshold below which clutch 6 is considered released, such that, clutch 6 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pres	sure - C6 - Part 1				
//x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
	494	494	494	494	494
P2D2 Decel Pres	sure - C6 - Part 2				
//x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	494	494	9,999	9,999	494
P2D2 Decel Pres	sure - C6 - Part 3				
//x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	494	494	494	494	494
P2D2 Decel Pres	sure - C6 - Part 4				
//x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	494	9,999	494	494	9,999
P2D2 Decel Pres	sure - C6 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC2C3C4C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	494	9,999	494	494	494
P2D2 Decel Pres	sure - C6 - Part 6				
//x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	494	494	494	494	9,999
P2D2 Decel Pres	sure - C6 - Part 7				
//x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C
1	494	494	494	494	494
P2D2 Decel Pres	sure - C6 - Part 8				
//x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C
	9,999	494	494	9,999	494
P2D2 Decel Pres	sure - C6 - Part 9				
//x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC2C3C 4C5	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

	Initial Supporting table - P2D2 Decel Pressure - C6									
1	9,999	494	9,999	251	251					
P2D2 Decel Pressure - C6 - Part 10										
y/x	/x CeCGSR_e_SecondLckd CeCGSR_e_SecondFW CeCGSR_e_Third CeCGSR_e_Fourth CeCGSR_e_fifth									
1	403	403	471	721	1,648					
P2D2 Decel Press	sure - C6 - Part 11									
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth					
1	9,999	9,999	9,999	9,999	494					
P2D2 Decel Press	P2D2 Decel Pressure - C6 - Part 12									
y/x										
1										

# Initial Supporting table - P2D2 Decel Pressure - C7

Description:					
Value Units: Kpa X Unit: Cmnd Gea Y Units: Kpa	ır				
P2D2 Decel Press	sure - C7 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	50	9,999	50	50	50
P2D2 Decel Press	sure - C7 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	50	50	50	9,999	50
P2D2 Decel Press	sure - C7 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR e NeutralC1C5	CeCGSR e NeutralC2C3	CeCGSR e NeutralC2C4
1	50	50	50	50	50
P2D2 Decel Press	sure - C7 - Part 4		•		
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	50	50	50	50	50
P2D2 Decel Press	sure - C7 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC2C3C4C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	50	50	50	9,999	9,999
P2D2 Decel Press	sure - C7 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	9,999	9,999	9,999	9,999	9,999
P2D2 Decel Press	sure - C7 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	9,999	9,999	9,999	9,999	9,999
P2D2 Decel Press	sure - C7 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	9,999	9,999	9,999	9,999	9,999
P2D2 Decel Press	sure - C7 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC2C3C 4C5	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW
1	9,999	9,999	9,999	9,999	50

Initial Supporting table - P2D2 Decel Pressure - C7									
P2D2 Decel Pressure - C7 - Part 10									
y/x CeCGSR_e_SecondLckd CeCGSR_e_SecondFW CeCGSR_e_Third CeCGSR_e_Fourth CeCGSR_e_Fifth									
1	50	50	50	50	50				
P2D2 Decel Pressure - C7 -	Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	50	50	50	50	50				
P2D2 Decel Pressure - C7 -	P2D2 Decel Pressure - C7 - Part 12								
y/x									
1									

### Initial Supporting table - P2D2 Decel Pressure - C7

**Description:** clutch 7 command pressure threshold below which clutch 7 is considered released, such that, clutch 7 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Press	sure - C7 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	50	9,999	50	50	50
P2D2 Decel Press	sure - C7 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	50	50	50	9,999	50
P2D2 Decel Press	sure - C7 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	50	50	50	50	50
P2D2 Decel Press	sure - C7 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	50	50	50	50	50
P2D2 Decel Press	sure - C7 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC2C3C4C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	50	50	50	9,999	9,999
P2D2 Decel Press	sure - C7 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	9,999	9,999	9,999	9,999	9,999
P2D2 Decel Press	sure - C7 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	9,999	9,999	9,999	9,999	9,999
P2D2 Decel Press	sure - C7 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	9,999	9,999	9,999	9,999	9,999
P2D2 Decel Press	sure - C7 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC2C3C 4C5	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C7										
1	9,999	9,999	9,999	9,999	50					
P2D2 Decel Pressure - C7 - Part 10										
y/x	/x CeCGSR_e_SecondLckd CeCGSR_e_SecondFW CeCGSR_e_Third CeCGSR_e_Fourth CeCGSR_e_Fifth									
1	50	50	50	50	50					
P2D2 Decel Pressure - C7 -	Part 11									
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth					
1	50	50	50	50	50					
P2D2 Decel Pressure - C7 -	P2D2 Decel Pressure - C7 - Part 12									
y/x										
1										

## Initial Supporting table - transmission fluid temperature warm up time

#### Description:

**Value Units:** transmission fluid temperature normal warn up time, seconds **X Unit:** transmission fluid temperature at controller power up, °C

y/x	-40.00	-30.00	-20.00	0.00	20.00
1	1,800.0	1,500.0	1,200.0	600.0	60.0

# Initial Supporting table - engine speed time for transmission hydraulic pressure available

Description: ime needed for engine speed to trigger "transmission hydraulic pressure available"

Value Units: seconds

X Unit: transmission fluid temperature °C

Ì	y/x	-40.00	-30.00	-20.00	0.00	40.00
	1	0.300	0.300	0.275		0.100

# Initial Supporting table - KtPSDR\_t\_ModeVIvA\_EngOff\_Lim

Description: used for both engine off mode valve A stability delay time required to enable fail time update and fail time threshold

Value Units: seconds

X Unit: transmission fluid temperature, degrees Celsius

Y Units: unitless

y/x	-40	-20		20	130
1	0.650	0.650	0.650	0.650	0.650

# Initial Supporting table - KtPSDR\_t\_ModeVlvA\_TurbDlyLim

**Description:** mode valve A transtion delay

Value Units: seconds

**X Unit:** transmission fluid temperature, degrees Celsius

y/x	-40	-20	0	20	130
1	1.500	1.000	0.750	0.500	0.300

# Initial Supporting table - KtPSDR\_t\_ModeVIvB\_EngOff\_Lim

Description: used for both engine off mode valve B stability delay time required to enable fail time update and fail time threshold

Value Units: seconds

X Unit: transmission fluid temperature, degrees Celsius

U						
	y/x	-40	-20		20	130
	1	0.250	0.250	0.250	0.250	0.250

# Initial Supporting table - KtPSDR\_t\_ParkServo\_EngOff\_Lim

**Description:** P187E time engine must be not running to enable fail time update

Value Units: seconds

**X Unit:** transmission fluid temperature, degrees Celsius

y/x	-40.00	-20.00	0.00	20.00	130.00
1	0.250	0.250	0.250	0.250	0.250

# Initial Supporting table - KtPSDR\_t\_ParkStatDlyLim

**Description:** fail delay time

Value Units: seconds

X Unit: transmission fluid temperature, degrees Celsius Y Units: unitless

y/x	-40.00	-20.00	0.00	20.00	130.00
1	0.500	0.500	0.500	0.500	0.500

# Initial Supporting table - KtPSDR\_t\_ParkVIvStkOff\_DlyLim

Description: P187E Transmission Park Valve Stuck Off fail enable delay time

Value Units: seconds

X Unit: transmission fluid temperature, degrees Celsius

y/x	-40.00	-20.00	0.00	20.00	130.00
1	1.250	1.250	1.250	1.250	1.250

# Initial Supporting table - KtPSDR\_t\_ParkVlvStkOn\_DlyLim

Description: P187D Transmission Park Valve Stuck On fail enable delay time

Value Units: seconds

X Unit: transmission fluid temperature, degrees Celsius

y/x	-40.00	-20.00	0.00	20.00	130.00
1.00	1.250	1.250	1.250	1.250	1.250

# Initial Supporting table - KtPSDR\_t\_PISA\_EngOff\_Lim

**Description:** P18A8 fail time, engine not running

Value Units: seconds

**X Unit:** transmission fluid temperature, degrees Celsius

y/x	-40.00	-20.00	0.00	20.00	130.00
1	0.800	0.600	0.400	0.200	0.150

# Initial Supporting table - KtTMDC\_t\_EngOnHydPresThrsh

Description: hydraulic system pressure is available when engine speed is above engine speed threshold for this amount of time

Value Units: seconds

X Unit: transmission fluid temperature, degrees Celsius

y/x	-40.00	-30.00		0.00	40.00
1	0.300	0.300	0.275	0.200	0.100

# Initial Supporting table - P0723 transmission engaged state time threshold

Description: time necessary after transmission engaged state indicates transmission engaged to allow P0723 enable

Value Units: seconds

X Unit: transmission fluid temperature °C

y/x	-40.000	0.000	40.000
1	5.000	3.000	1.000

# Initial Supporting table - P0741 (GF9 specific) TCC slip speed crash RPM

Description: RPM limit used to establish slip crashed when TCC oil became available

Value Units: RPM

X Unit: % accelerator position

y/x	0.00	15.00	25.00	50.00	75.00
1	100	100	160		300

# Initial Supporting table - P0741 (GF9 specific) torque convert derivative slip speed fail threshold

Description: he fail threshold, rate of change of torque converter slip speed, at which the torque convert clutch is considered stuck on.

Value Units: RPM/second

X Unit: transmission fluid temperature °C

y/x	-7.00	10.00	40.00
0	-600	-600	-600
15	-600	-600	-600
25	-900	-900	-900
50	-1,200	-1,200	-1,200
75	-1,500	-1,500	-1,500

Initial Supporting table - P176B delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation

Description: delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation

Value Units: seconds

X Unit: intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	1.000	1.000

## Initial Supporting table - P176B holding clutch states

**Description:** inditaces when the clutch states allow transmission intermediate speed sensor evaluation, when rotating components can trigger speed sesnor, holding clutches will not allow evaluation while clutches not holding will allow evaluation

Value Units: TRUE or FALSE

**X Unit:** intermediate speed sensor select

Y Units: commanded gear

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
CeCGSR_e_CR_NullForSched	1	1
CeCGSR_e_CR_Neutral	1	1
CeCGSR_e_CR_Park	1	1
CeCGSR_e_CR_Reverse	0	1
CeCGSR_e_CR_First	0	1
CeCGSR_e_CR_Second	0	1
CeCGSR_e_CR_Third	1	1
CeCGSR_e_CR_Fourth	0	1
CeCGSR_e_CR_Fifth	0	1
CeCGSR_e_CR_Sixth	0	1
CeCGSR_e_CR_Seventh	0	1
CeCGSR_e_CR_Eighth	1	1
CeCGSR_e_CR_Ninth	0	1
CeCGSR_e_CR_Tenth	1	1

# Initial Supporting table - P176B intermediate speed sensor fail count threshold

**Description:** P176B intermediate speed sensor fail count threshold

Value Units: fail counts

X Unit: intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	4	4

# Initial Supporting table - P176B intermediate speed sensor fail RPM threshold

#### Description:

Value Units: RPM

X Unit: command gear Y Units: intermediate speed sensor select

y/x		_	CeTGRR_e_Ge		_		_			
	ar1	ar2	ar3	ar4	arb	ar6	ar/	ar8	ar9	ar10
CeTSRR_e_C2 C_ClchSpdSnsr 1		382	10,000	248	50	133	50	10,000	121	10,000
CeTSRR_e_C2 C_ClchSpdSnsr 2		0	0	0	0	0	0	0	0	0

# Initial Supporting table - P176B intermediate speed sensor fail time threshold

**Description:** P176B intermediate speed sensor fail time threshold

Value Units: seconds

X Unit: intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	2.000	2.000

## Initial Supporting table - P176B minimum estimated transmission intermediate speed to enable fail evaluation

**Description:** minimum estimated transmission intermediate speed to enable fail evaluation, where estimate is based on transmission input speed / ratio calibration, where ratio calibration is either P176B ratio calibration when REVERSE or P176B ratio calibration when not REVERSE

Value Units: estimated transmission intermediate speed RPM

X Unit: intermediate speed sensor select

ľ	y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
	1	172.0	172.0

# Initial Supporting table - P176B minimum transmission input speed to enable fail evaluation

**Description:** minimum transmission input speed to enable fail evaluation

**Value Units:** transmission input speed RPM **X Unit:** intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	172.0	172.0

# Initial Supporting table - P176B ratio calibration when not REVERSE

Description: used to estimate transmission input speed based on transmission intermediate speed when range is not REVERSE

Value Units: ratio

X Unit: commanded gear Y Units: intermediate speed sensor select

y/x			4	_	CeTGRR_e_Ge ar6	_		CeTGRR_e_Ge ar9	CeTGRR_e_Ge ar10
CeTSRR_e_C2 C_ClchSpdSnsr 1	6.3694	1.0000	2.4450	1.0000	0.5227	1.0000	1.0000	1.1905	1.0000
CeTSRR_e_C2 C_ClchSpdSnsr 2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

# Initial Supporting table - P176B ratio calibration when REVERSE

Description: used to estimate transmission input speed based on transmission intermediate speed when range is REVERSE

Value Units: ratio

X Unit: intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	1.0000	1.0000

Initial Supporting table - P17C5 P17D3 intermediate speed sensor RPM						
Description: P17C5 P17D3 intermediate speed sensor RPM at signal period transtion to enable fail time update						
Value Units: intermediate speed sensor RPM X Unit: intermediate speed sensor 1 or 2						
y/x	0	1				
1	25	25				

# Initial Supporting table - P2818 (GF9 specific) control valve test time

**Description:** Value to initialize the torque converter clutch control valve test time to after clutch select valve solenoid is turned on, window of time in which the torque converter clutch slip speed and derivative slip speed must be evaluated for failure. Window is a time down window from the calibration value to zero (0.0) seconds.

Value Units: seconds

X Unit: transmission fluid temperature °C

y/x	-7.00	10.00	40.00
1	0.600	0.300	0.100

## 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	٥С
Curve	409.59	2.00	2.00	Sec

## Table 3

Axis	-6.67	-6.66	40.00	٥С
Curve	409.59	4.00	4.00	Sec

## Table 4

Axis	-6.67	-6.66	40.00	٥С
Curve	409.59	2.00	2.00	Sed

## Table 5

Axis	-6.67	-6.66	40.00	٥С
Curve	409.59	3.00	3.00	Sec

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	٥С
Curve	409.00	3.40	1.40	1.30	1.20	Sec

## Table 8

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
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	٥С
Curve	409.00	3.30	1.30	1.20	1.10	Sec

#### Table 10

Axis	-6.67	-6.66	40.00	80.00	120.00 °C
Curve	3.10	1.90	1.10	0.80	0.60 Sec

#### Table 11

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	1.80	1.20	0.60	0.40	0.30	Sec

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	2.20	1.40	0.90	0.70	0.40	Sec

## Table 13

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	2.60	1.00	0.50	0.30	0.20	Sec

## Table 14

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	3.00	0.90	0.50	0.30	0.20	Sec

## Table 15

Axis	-40.00	-30.00	-20.00	-10.00	0.00	10.00	20.00	30.00	40.00	٥С
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	٥С
Curve	409.59	2.50	2.50	Sec

#### Table 17

Axis	-6.67	-6.66	40.00	٥С
Curve	0.40	0.35	0.30	Sec

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	٥С
Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00	٥С

## Table 20

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10	٥С
Curve	256.00	10.00	8.00	8.00	8.00	8.00	8.00	8.00	256.00	٥С

## Table 21

Axis	-40.00	-20.00	40.00	٥С
Curve	5.00	3.00	1.00	Sec

## **Table 22**

Axis	-6.67	-6.66	40.00	°C
Curve	8191.75	8191.75	8191.75	RPM/Sec

Axis	-6.67	-6.66	40.00	°C
Curve	8191.75	8191.75	8191.75	RPM/Sec