17 OBDG03 TCM Common 8 Speed T87 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	C124F	The lateral accleration sensor signal failed at a low voltge	hardware configuration	=	CeLATR_e_V oltageDirectPr op		transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			Lateral accleration sensor raw signal	<=	-3.849999905	g's					out of	120	Sec	
			hardware configuration	=	CeLATR_e_V oltageDirectPr op									
			Lateral accleration magnitude	>=	-3.849999905	g's								
							Lateral acceleration low voltage diagnostic enable calibration	=	1					
							Battery Voltage	<=	31.999023	Volts				
							Battery Voltage	>=	9	Volts				
							Battery voltage is within the allowable limits for	>=	0.1	Sec				
							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:		MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						
Transmission Control Module (TCM)	C1250	The lateral accleration sensor signal failed at a high voltge	hardware configuration	=	CeLATR_e_V oltageDirectPr op		transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			Lateral accleration sensor raw signal	>=	3.849999905	g's					out of	120	Sec	
			hardware configuration	=	CeLATR_e_V oltageDirectPr op									
			Lateral accleration magnitude	<=	3.849999905	g's								
							Lateral acceleration high voltage diagnostic enable calibration	=	1					
							Battery Voltage	<=	31.999023	Volts				
							Battery Voltage	>=	9	Volts				
							Battery voltage is within the allowable limits for	>=	0.1	Sec				
							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:		MIL not Illuminated for DTC's:	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	>=	0.53	g's	>=	75	Sec	Special No MIL

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			absolute value (lateral accleration)	<= 3.849999905 g's	absolute value (lateral accleration) for stablity	<=	3.8499999	g's				
					stability time	>=	30	Sec				
					Diagnostic shifting override command	=	FALSE	Boolean				
					Attained Gear State	=	1st through 8th					
					Attained Gear Slip	<=	100	RPM				
					Transmission Type	=	Clutch to Clutch Transmission					
					High Side Drivers enabled	=	TRUE	Boolean				
					Vehicle Speed	>=	15	kph				
					Lateral acceleration stuck in range diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					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:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073 ECM: None						
Transmission Control Module (TCM)	C1252	The longitudinal accleration sensor signal failed at a low voltge	hardware configuration	= CeLATR_e_VoltageDirectProp	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			longitudinal accleration sensor raw signal	<= -3.849999905 g's					out of	120	Sec	
			hardware configuration	= CeLATR_e_VoltageDirectProp								
			longitudinal accleration sensor raw signal	>= -3.849999905 g's								
					longitudinal acceleration low voltage diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					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				

17 OBDG03 TCM Common 8 Speed T87 Summary Tables

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: U0073 ECM: None					
Transmission Control Module (TCM)	C1253	The longitudinal accleration sensor signal failed at a high voltge	hardware configuration	= CeLATR_e_V oltageDirectPr op	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			longitudinal accleration sensor raw signal	>= 3.849999905 g's					out of	120	Sec	
			hardware configuration	= CeLATR_e_V oltageDirectPr op								
			longitudinal accleration sensor raw signal	<= 3.849999905 g's								
					longitudinal acceleration high voltage diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					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:	**MIL not Illuminated for DTC's:**	TCM: U0073 ECM: None					
Transmission Control Module (TCM)	C1254	The longitudinal accleration signal is stuck at a high magnitude in range	absolute value (longitudinal accleration)	>= 0.529999971 g's	absolute value (longitudinal accleration) for stablity	>=	0.53	g's	>=	75	Sec	Special No MIL
			absolute value (longitudinal accleration)	<= 3.849999905 g's	absolute value (longitudinal accleration) for stablity	<=	3.8499999	g's	out of	120	Sec	
					stability time	>=	30	Sec				
					Diagnostic shifting override command	=	FALSE	Boolean				
					Attained Gear State	=	1st through 8th					
					Attained Gear Slip	<=	100	RPM				
					Transmission Type	=	Clutch to Clutch Transmissi on					
					High Side Drivers enabled	=	TRUE	Boolean				
					transmssion output speed acceleration	>=	0.53	meter/second /second				
					Vehicle Speed	>=	15	kph				
					longitudinal acceleration stuck in range diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				

17 OBDG03 TCM Common 8 Speed T87 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
					Battery voltage is within the allowable limits for	>=	0.1	Sec			
					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:	**MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073 ECM: None					
Transmission Control Module (TCM)	P0561	Battery to ignition voltage performance error at the TCM for an extended period of time.	delta = ABS(TCM battery voltage - TCM ignition voltage)	>= 3 Volts					= 40 Fail counts (100ms loop) Out of 50 Sample Counts (100ms loop)		One Trip
					battery to ignition voltage performance diagnostic enable calibration	=	1				
					TCM has battery voltage circuit	=	1	Boolean			
					Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean			
					Ignition Voltage Hyst Hi (enabled above this value)	>	5	Volts			
					Ignition Voltage Hyst Lo disabled below this value)	<=	2	Volts			
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None					
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	= TRUE Boolean					>= 5 Fail Counts (background task continuous)		One Trip
					NVM write error diagnotic enable	=	1	Boolean			
				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 controller initialization	= TRUE Boolean					Runs Continously		One Trip
					not programmed diagnotic enable	=	1	Boolean			

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: P0603 ECM: None					
Transmission Control Module (TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access Memory	secondary micro processor RAM error	=	TRUE Boolean					1000 ms cont.	One Trip
			OR								
			dual store RAM write time out error	=	TRUE Boolean				> 175	seconds (interrupt driven based on calling functions)	
			OR								
			system RAM fault	=	TRUE Boolean				>= 3	counts (controller initialization and background task continuous)	
			OR								
			cashe RAM fault	=	TRUE Boolean				>= 3	counts (controller initialization and background task continuous)	
			OR								
			secondary micro processor micro code error	=	TRUE Boolean				>= 3	counts (controller initialization and background task continuous)	
			OR			Service mode $04 active or end of trip processing active	= FALSE Boolean				
			write attempt occurred during RAM lock	=	TRUE Boolean				> 65534	counts (background task continuous)	
				Disable Conditions:		**MIL not Illuminated for DTC's:** TCM: None ECM: None					
Internal TCM Processor Integrity Fault	P0606	Transmission Electro-Hydraulic Control Module Processor Integrity	Loss or invalid message of SPI communication from the secondary rrocessor at initialization detected by the rrimary 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							One Trip
			OR								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			main processor RAM circuit hardware failure	=	TRUE		Boolean		RAM diagnotic test enable	=	1	Boolean	>=	5	counts (controller initialization)	
									hardware reset source is controller power up reset	=	TRUE	Boolean				
			OR													
			main processor flash EPROM circuit hardware failure	=	TRUE		Boolean		flash EPROM diagnotic test enable	=	1	Boolean	>=	5	counts (controller initialization)	
									hardware reset source is controller power up reset	=	TRUE	Boolean				
			OR													
			main processor memory stack failure	=	TRUE		Boolean		Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean	>=	5	counts (100 msec continuous)	
									main processor memory stack test enable	=	1	Boolean				
			OR													
			secondary processor memory stack failure	=	TRUE		Boolean		secondary processor memory stack test enable	=	1	Boolean	>=	5	counts (12.5 msec continuous)	
			OR													
			secondary micro processor remedial action active on request	=	FALSE		Boolean						>=	1	counts (controller power up, 12.5 ms continuous)	
			OR													
			main processor ROM first test complete	=	FALSE		Boolean						>=	35	counts (12.5 msec continuous)	
			OR													
			secondary processor to main processor seed sequence fault	=	TRUE		Boolean						>=	0.5	seconds	
			OR													
			seed sequence error	≠	FALSE		Boolean		program sequence watch communication fault	=	FALSE	Boolean	>=	3	counts (12.5 msec continuous)	
									main processor to secondary processor serial peripheral interface error	=	FALSE	Boolean	>=	17	counts (12.5 msec continuous)	
									seed sequence test enable	=	see table 50 in supporting documents	Boolean				
									battery voltage	>	11	Volts				
									ignition voltage	>=	11	volts				
			OR													
			seed key fault current loop	=	TRUE		Boolean		seed key test enable	=	see table 50 in supporting documents	Boolean				
									seed key fault previous loop	=	TRUE	Boolean				
									Service mode $04 active and end of trip processing active	=	FALSE	Boolean				
			OR													

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			normalize 0-5 volt (absolute value (analog to digital test voltage commanded - actual analog to digital voltage feedback))			>	3.298950195	percent	analog to digital voltage test enabled	=	1	Boolean	>=	3	counts (50 msec continuous)	
									ignition voltage	>=	7	Volts	>=	8	counts (50 msec continuous)	
									analog to digital voltage channel enabled	=	see Table 46 in supporting documents	Boolean				
									analog to digital test voltage command	=	see Table 47 in supporting documents	Volts	>=	0.2	seconds	
									Service mode $04 active and end of trip processing active	=	FALSE	Boolean				
			OR													
			arithmatic logic unit 1 test pass	=	FALSE	Boolean			arithmatic logic unit test enable	=	1	Boolean		at controller initialization, then 12.5 ms cont.		
									arithmatic logic unit 1 test pass previous loop	=	FALSE	Boolean				
									Service mode $04 active and end of trip processing active	=	FALSE	Boolean				
									A and B and C must occur A: starter motor engaged	=	TRUE	Boolean				
									B: ignition voltage	<=	11	Volts				
									C: starter motor engaged time	<	0.025	sec				
									A and B must occur A: ignition voltage	<=	6.4091797	Volts				
									B: ignition low voltage time	>=	2.50E-02	sec				
			arithmatic logic unit 2 test pass	=	FALSE	Boolean			arithmatic logic unit test enable	=	1	Boolean		at controller initialization, then 12.5 ms cont.		
									arithmatic logic unit 1 test pass previous loop	=	FALSE	Boolean				
									Service mode $04 active and end of trip processing active	=	FALSE	Boolean				
									A and B and C must occur A: starter motor engaged	=	TRUE	Boolean				
									B: ignition voltage	<=	11	Volts				
									C: starter motor engaged time	<	0.025	sec				
			OR secondary processor arithmatic logic unit fault	=	TRUE	Boolean										
			OR													
			clock test fail current loop	=	TRUE	Boolean			clock test enable	=	1	Boolean		at controller initialization, then 12.5 ms cont.		
									clock test fail previous loop	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
						Service mode $04 active and end of trip processing active	=	FALSE	Boolean		
						A and B and C must occur					
						A: starter motor engaged	=	TRUE	Boolean		
						B: ignition voltage	<=	11	Volts		
						C: starter motor engaged time	<	0.025	sec		
						A and B must occur					
						A: ignition voltage	<=	6.4091797	Volts		
						B: ignition low voltage time	>=	2.50E-02	sec		
			OR configuration register test fail current loop	= TRUE	Boolean	configuration register test enable	=	1	Boolean	at controller initialization, then 12.5 ms cont.	
						configuration register test fail previous loop	=	TRUE	Boolean		
						Service mode $04 active and end of trip processing active	=	FALSE	Boolean		
						A and B and C must occur					
						A: starter motor engaged	=	TRUE	Boolean		
						B: ignition voltage	<=	11	Volts		
						C: starter motor engaged time	<	0.025	sec		
						A and B must occur					
						A: ignition voltage	<=	6.4091797	Volts		
						B: ignition low voltage time	>=	2.50E-02	sec		
			OR secondary processor configuration register fault	= TRUE	Boolean						
			OR								
			A or B occur								
			A: direct memeory access (DMA) read/write test result	≠ FALSE	Boolean	flash data transfer test enable	=	1	Boolean	normal controller initialization	
			B: direct memeory access (DMA) read/write value	≠ $5AA5A55A	hexadecimal value	flash data transfer test enable	=	1	Boolean	normal controller initialization	
			software uses DMA peripheral function to write and read $5AA5A55A to flash memory locations to verify each flash memory location			running reset	=	FALSE	Boolean		
						normal power up reset	=	TRUE	Boolean		
			OR secondary micro processor detects main micor processor SPI fault	= TRUE	Boolean						
			OR								
			A or B or C or D occur			seed and key store fault test enable	=	0	Boolean		
			A: last 6.25 msec seed and key time	>	see Table 48 in supporting documents sec						
			B: last 12.5 msec seed and key time	>	see Table 48 in supporting documents sec						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions		Time Required		Mil Illum.
			C: last 50 msec seed and key time	>	see Table 48 in supporting documents sec						
			D: last lores engine interrupt seed and key time	>	see Table 48 in supporting documents sec						
			OR								
			A or B or C or D occur			prgram sequence watch test enable	=	see 3D_Table 1 in supporting documents Boolean			
			A: 6.25 msec program sequence fault fail count	>=	see Table 49 in supporting documents	counts (50 msec continuous on 6.25 msec time interrupt)						
			B: 12.5 msec program sequence fault fail count	>=	see Table 49 in supporting documents	counts (50 msec continuous on 12.5 msec time interrupt)						
			C: 50 msec program sequence fault fail count	>=	see Table 49 in supporting documents	counts (50 msec continuous)						
			D: engine lores interrupt program sequence fault fail count	>=	see Table 49 in supporting documents	counts (on execution of engine lores interrupts ECM only)						
			OR								
			secondary processor reports SPI communication fault	=	TRUE Boolean	Service mode $04 active and end of trip processing active	=	FALSE Boolean			
						secondary processor reports SPI communication fault previous loop	=	TRUE Boolean			
			OR								
			SPI valid messsage received by main micro processor	=	FALSE Boolean				=	previous SPI message type	
									>=	10 counts (12.5 msec continuous)	
									>=	100 counts (12.5 msec continuous)	
						out of sample count	>=	16 counts (12.5 msec continuous)	>=	8 counts (12.5 msec continuous)	
						A and B and C must occur					
						A: starter motor engaged	=	TRUE Boolean			
						B: ignition voltage	<=	11 Volts			
						C: starter motor engaged time	<	0.025 sec			
						SPI message checksum fault	≠	FASLE Boolean			

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						
Indicates that the TCM has detected an internal processor integrity fault	P062F	Transmission Electro-Hydraulic Control Module Long Term Memory Performance	TCM Non-Volatile Memory read or write error		=	TRUE	Boolean						every controller initialization		One Trip
								NVM write error diagnostic enable	=	1	Boolean				
				Disable Conditions:				MIL not Illuminated for DTC's:	TCM: P062F ECM: None						
High Side Driver 1	P0658	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (ground short) error flag		=	TRUE	Boolean					>=	6	Fail Counts (6.25 msec continuous)	One Trip
												out of	2395	Sample Counts (6.25 msec continuous)	
								actuator supply voltage circuit low enable calibration	=	1					
								Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean				
								P0658 Status is not	=	Test Failed This Key On or Fault Active					
								P0658 Status is not	=	Test Failed This Key On or Fault Active					
								Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
								High Side Driver 1 On	=	True	Boolean				
				Disable Conditions:				MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Fluid Temperature Sensor (TFT)	P0711	transmission fluid temperature sensor rationality	Fail Case 1 transmission fluid temperature warm up test transmission fluid temperature raw		<=	15	°C					>=	see Table 26 in supporting documents	seconds	Two Trips
								transmission fluid temperature sensor performance diagnsotic enable calibration	=	1	Boolean				
								P0712 and P0713	≠	Fault Active					
								Battery Voltage	<=	31.999023	Volts				
								Battery Voltage	>=	9	Volts				
								Battery voltage is within the allowable limits for	>=	0.1	Sec				
								Ignition Voltage	<=	31.999023	Volts				
								Ignition Voltage	>=	9	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
							Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
							Ignition voltage and SFL conditions met for	>=	0.1	Sec				
							transmission fluid temperature warm up test calibration enable	=	1	Boolean				
							driver accelerator pedal position valid	=	TRUE	Boolean				
							driver accelerator pedal position	>=	5	%				
							engine torque valid	=	TRUE	Boolean				
							engine torque steady state raw	>=	50	N*m				
							engine speed valid	=	TRUE	Boolean				
							engine speed	>=	500	RPM				
							P0722, P0723, P077C, P077D	≠	Fault Active					
							Vehicle Speed	>=	10	KPH				
							P2809 TCC stuck on fault fault status	≠	Test Failed This Key On or Fault Active					
							transmission fluid temperature	>=	-40	ºC				
							transmission fluid temperature	<=	150	ºC				
							engine coolant temperature valid	=	TRUE	Boolean				
							engine coolant temperature	>=	-40	ºC				
							engine coolant temperature	<=	150	ºC				
			Fail Case 2 transmission fluid temperature intermittent delta temperature test transmission fluid temperature delta (100 ms loop to loop)	>=	10	ºC					>=	8	seconds (100 ms cont.)	
											>=	12	seconds (100 ms cont.)	
							transmission fluid temperature sensor performance diagnsotic enable calibration	=	1	Boolean				
							P0712 and P0713	≠	Fault Active					
							Battery Voltage	<=	31.999023	Volts				
							Battery Voltage	>=	9	Volts				
							Battery voltage is within the allowable limits for	>=	0.1	Sec				
							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				
							transmission fluid temperature intermittent delta temperature test calibration enable	=	1	Boolean				
							propulsion system active	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			<u>Fail Case 3</u> transmission fluid temperature stuck in range test transmission fluid temperature delta (100 ms loop to loop)	<= 0 ºC			>= 300 seconds (100 ms cont.)	
					transmission fluid temperature sensor performance diagnsotic enable calibration	= 1 Boolean		
					P0712 and P0713	≠ Fault Active		
					Battery Voltage	<= 31.999023 Volts		
					Battery Voltage	>= 9 Volts		
					Battery voltage is within the allowable limits for	>= 0.1 Sec		
					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		
					transmission fluid temperature stuck in range test calibration enable	= 1 Boolean		
					propulsion system active	= TRUE Boolean		
					transmission fluid temperature	<= 150 ºC		
					transmission fluid temperature	>= -40 ºC		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0712, P0713, P0717, P0722, P0723, P077C, P077D, P02809		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Fluid Temperature Sensor (TFT)	P0712	Transmission fluid temperature sensor failed at a low voltage	If Transmission Fluid Temperature Sensor Raw Resistance	<= 47.45000076 Ohms			>= 10 Fail Time (Sec) out of 12 Sample Time (Sec)	Two Trips
					trans fluid temp sensor low voltage diagnostic enable	= 1 Boolean		
					Battery Voltage	<= 31.999023 Volts		
					Battery Voltage	>= 9 Volts		
					Battery voltage is within the allowable limits for	>= 0.1 Sec		
					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		

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					
Transmission Fluid Temperature Sensor (TFT)	P0713	Transmission fluid temperature sensor failed at a high voltage	If Transmission Fluid Temperature Sensor Raw Resistance	>=	105445	Ohms					>=	10	Fail Time (Sec)	Two Trips
											out of	12	Sample Time (Sec)	
							trans fluid temp sensor high voltage diagnostic enable	=	1	Boolean				
							Battery Voltage	<=	31.999023	Volts				
							Battery Voltage	>=	9	Volts				
							Battery voltage is within the allowable limits for	>=	0.1	Sec				
							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:	**MIL not Illuminated for DTC's:**	TCM: None ECM: None						
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Absolute Value Of Transmission Input Speed Sensor Delta (loop to loop)	>=	850	RPM					>=	1.5	seconds	One Trip
											>=	5	fail events	
							speed sensor processing	=	time based					
							Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean				
							transmission input speed sensor performance diagnostic enable	=	1	Boolean				
							Ignition Voltage Hyst Hi (enabled above this value)	>	5	Volts				
							Ignition Voltage Hyst Lo disabled below this value)	<=	2	Volts				
							Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
							Ignition Voltage Max (disabled above this value)	<=	31.999023	Volts				
							Ignition Voltage Min (enabled above this value)	>=	9	Volts				
							P0717 Status is not	=	Test Failed This Key On					
							P07BF Status is not	=	Test Failed This Key On					
							P07C0 Status is not	=	Test Failed This Key On					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
								last valid transmission input speed	>	148	RPM				
								OR							
								transmission input speed raw	>=	148	RPM				
								transmssion input speed last valid or raw timer	>=	2	Seconds				
								transmission input speed sensor performance test complete (initialized to FALSE set to TRUE when P0716 fails)	=	FALSE	Boolean				
								transmission hydraulic system pressurized	=	TRUE	Boolean				
								driver accelerator pedal position available	=	TRUE	Boolean				
								engine torque inaccurate	=	FALSE	Boolean				
								Transmission Output Speed Sensor Raw Speed	>=	230	RPM				
								driver accelerator pedal position	>=	5.0003052	Pct				
								engine actual torque steady state raw	<=	8191.875	N*m				
								engine actual torque steady state raw	>=	30	N*m				
								P0716 Status is not	=	Test Failed This Key On or Fault Active					
						Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P07BF, P07C0						
									ECM: P0101, P0102, P0103, P0121, P0122, P0123						
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is OR		<	100	RPM					>=	4	Fail Time (Sec)	One Trip
			Fail Case 2 P0722 DTC Status is Test Failed This Key On and and controller uses single power feed Transmission Input Speed is		<	175	RPM								
								Controller uses a single power supply for the speed sensors	=	0	Boolean				
								speed sensor processing	=	time based					
								Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean				
								transmission input speed sensor low diagnostic enable	=	1	Boolean				
								transmission hydraulic system pressurized	=	TRUE	Boolean				
								Ignition Voltage Hyst Hi (enabled above this value)	>	5	Volts				
								Ignition Voltage Hyst Lo disabled below this value)	<=	2	Volts				
								speed sensor connected to controller	=	1	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					P0722 Status is not	=	fault active					
					P0723 Status is not	=	fault active					
					P077C Status is not	=	fault active					
					P077D Status is not	=	fault active					
					brake pedal position is not	>=	69.999695	Pct				
					engine torque inaccurate	=	FALSE	Boolean				
					P0716 Status is not	=	Test Failed This Key On					
					P07BF Status is not	=	Test Failed This Key On					
					P07C0 Status is not	=	Test Failed This Key On					
					driver accelerator pedal position	>=	5	Pct				
					engine actual torque steady state raw	<=	8191.875	N*m				
					engine actual torque steady state raw	>=	30	N*m				
					attained gear low	<	CeCGSR_ e_CR_Sixth					
					Transmission Output Speed Sensor Raw Speed when attained gear low	>=	72	RPM				
					attained gear high	>=	CeCGSR_ e_CR_Sixth					
					Transmission Output Speed Sensor Raw Speed when attained gear high	>=	230	RPM				
					P0717 Status is not	=	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0722, P0723, P077C, P077D, P07BF, P07C0 ECM: P0101, P0102, P0103						
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<= 30 RPM	attained gear high	>	CeCGSR_ e_CR_Fou rth	ENUM	>=	5	Fail Time (Sec)	One Trip
					attained gear low	<=	CeCGSR_ e_CR_Fou rth	ENUM	>=	3.5	Fail Time (Sec)	
					P0722 Status is not	=	Test Failed This Key On or Fault Active					
					Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					--------------------- transmission output speed sensor low diagnostic enable	=	1	Boolean		
					power flow not active (garage shift not complete, PRNDL = P or PRNDL = N, transmission range control in progress)	=	TRUE	Boolean		
					engine actual torque steady state raw power flow not active	>=	8192	N*m		
					driver accelerator position	>=	99.998474	Pct		
					--------------------- power flow not active (garage shift not complete, PRNDL = P or PRNDL = N, transmission range control in progress)	=	FALSE	Boolean		
					attained gear high	>	CeCGSR_ e_CR_Fou rth	ENUM		
					high gear engine actual torque steady state raw power flow active hysteresis high	>=	50	N*m		
					high gear engine actual torque steady state raw power flow active hysteresis low not	<=	30	N*m		
					high gear accelerator pedal position power flow active hysteresis high	>=	4.9987793	Pct		
					high gear accelerator pedal position power flow active hysteresis low not	<=	2.9998779	Pct		
					attained gear low	<=	CeCGSR_ e_CR_Fou rth	ENUM		
					low gear engine actual torque steady state raw power flow active hysteresis high	>=	80	N*m		
					low gear engine actual torque steady state raw power flow active hysteresis low not	<=	50	N*m		
					low gear accelerator pedal position power flow active hysteresis high	>=	7.9986572	Pct		
					low gear accelerator pedal position power flow active hysteresis low not	<=	4.9987793	Pct		
					--------------------- use transmission input speed sensor	=	TRUE	Boolean		
					speed sensors have single power feed	=	0	Boolean		
					transmission input speed sensor signal raw	<=	8191.875	RPM		
					transmission input speed sensor signal raw ---------------------	>=	175	RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required		Mil Illum.
					use transmission input speed sensor	=	FALSE	Boolean			
					speed sensors have single power feed	=	0	Boolean			
					engine speed sensor signal	<=	8191.875	RPM			
					engine speed sensor signal	>=	3500	RPM			

					P0716 Status is not	=	Fault Active				
					P0717 Status is not	=	Fault Active				
					P07BF Status is not	=	Fault Active				
					P07C0 Status is not	=	Fault Active				
					PTO disable	=	1	Boolean			
					PTO engaged	=	FALSE	Boolean			
					driver accelerator pedal position available	=	TRUE	Boolean			
					engine torque inaccurate	=	FALSE	Boolean			
					transmission hydraulic system pressurized	=	TRUE	Boolean			
					Ignition Voltage Hyst Hi (enabled above this value)	>	5	Volts			
					Ignition Voltage Hyst Lo disabled below this value)	<=	2	Volts			
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean			
					Ignition Voltage Max (disabled above this value)	<=	31.999023	Volts			
					Ignition Voltage Min (enabled above this value)	>=	9	Volts			
					transmssion fluid temperature sensor	>=	-40	ºC			
					P0723 Status is not	=	Test Failed This Key On				
					P077C Status is not	=	Test Failed This Key On				
					P077D Status is not	=	Test Failed This Key On				
				Disable Conditions:	MIL not Illuminated for DTC's:		TCM: P0716, P0717, P0723				
							ECM: P0101, P0102, P0103, P0121, P0122, P0123				
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	transmission output speed delta >=	see "set fail RPM RPM threshold"					>=	1.5 Fail Time (Sec)	One Trip
									>=	5 fail events	
					transmission output speed OR	>=	36	RPM			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					transmission output speed last valid output speed before drop	>=	36 RPM		
					for TOSS output speed raw, TOSS last valid output speed, time set fail RPM threshold	>=	2 seconds		
					4WD low state valid	=	TRUE Boolean		
					4WD low state	=	TRUE Boolean		
					2WD delta transmission output speed fail threshold	=	500 RPM		
					4WD gear ratio	=	2.71		
					final delta transmission output speed fail threshold OR	=	1355 RPM		
					4WD low state valid	=	TRUE Boolean		
					4WD low state OR	=	FALSE Boolean		
					4WD low state valid	=	FALSE Boolean		
					2WD delta transmission output speed fail threshold	=	500 RPM		
					final delta transmission output speed fail threshold	=	500 RPM		
					--------------------- Range_Disable OR	=	FALSE See Below		
					--------------------- Neutral_Range_Enable And	=	TRUE See Below		
					Neutral_Speed_Enable are TRUE concurrently ---------------------	=	TRUE See Below		
					Transmission_Range_Enable	=	TRUE See Below		
					Transmission_Input_Speed_Enable	=	TRUE See Below		
					transmission output speed sensor performance diagnostic enable	=	1 Boolean		
					Service mode $04 active and end of trip pocessing active	=	FALSE Boolean		
					No Change in Transfer Case Range (High <-> Low) for	>=	5 Seconds		
					P0723 Status is not	=	Test Failed This Key On or Fault Active		
					Disable this DTC if the PTO is active	=	1 Boolean		
					Ignition Voltage Hyst Hi (enabled above this value)	>	5 Volts		
					Ignition Voltage Hyst Lo disabled below this value)	<=	2 Volts		
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE Boolean		
					Ignition Voltage Max (disabled above this value)	<=	31.999023 Volts		
					Ignition Voltage Min (enabled above this value)	>=	9 Volts		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					P077C Status is not	=	Test Failed This Key On			
					P077D Status is not	=	Test Failed This Key On			
					Enable_Flags Defined Below					
					Transmission_Input_Speed_Enable is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:					
					TIS Condition 1 is TRUE when both of the following conditions are satsified for	>=	2	Enable Time (Sec)		
					Input Speed Delta	<=	4095.875	RPM		
					Raw Input Speed	>=	148	RPM		
					TIS Condition 2 is TRUE when ALL of the next two conditions are satisfied					
					Input Speed	=	0	RPM		
					A Single Power Supply is used for all speed sensors --------------------	=	TRUE	Boolean		
					Neutral_Range_Enable is TRUE when any of the next 3 conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
					Transmission Range is	=	Reverse/Neutral	ENUM		
					Transmission Range is	=	Transitonal Neutral/Drive Transitional	ENUM		
					KeTOSI_n_OutSpdInNeutNoiseMaxLim	<	50	RPM		
					and when Loop to Loop Drop of Transmission Output Speed is --------------------	>	500	RPM		
					Range_Disable is TRUE when any of the next three conditions are TRUE					
					Transmission Range is	=	Park	ENUM		
					Transmission Range is	=	Park/Reverse	ENUM		
					Input Clutch is not --------------------	=	Transitonal ON (Fully Applied)	ENUM		
					Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified for	>	2	Seconds		
					Transmission Output Speed	>=	50	RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					The loop to loop change of the Transmission Output Speed is	<	20	RPM				
					The loop to loop change of the Transmission Output Speed is	>	-140	RPM				
					--------------------- Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE Transmission Range is	=	Neutral	ENUM				
					Transmission Range is	=	Reverse/N eutral Transitiona l	ENUM				
					Transmission Range is	=	Neutral/Dri ve Transitiona l	ENUM				
					Time since a driven range (R,D) has been selected	>=	see Table 21 in supporting documents	Sec				
					Transmission Output Speed Sensor Raw Speed	>=	250	RPM				
					Output Speed when a fault was detected	>=	250	RPM				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P077C, P077D ECM: P2771, P279A, P279B, P279C						
Variable Force Solenoid (VFS)	P0746	Pressure Control Solenoid A Stuck Off (clutch1/CB1278R)	absolute value (attained gear slip)	>= 400 RPM					>=	3	seconds	One Trip
											when fail time reaches fail limit increment fail event count	
									>=	3	event counts	
					clutch solenoid stuck on performance diagnostic monitor test deceleration limit not	=	TRUE	boolean				
					clutch solenoid stuck on performance diagnostic monitor test return to previous range not	=	TRUE	boolean				
					PRNDL State not	=	park	enumeration				
					PRNDL State not	=	neutral	enumeration				
					while conditinos A and B and C are met, time down delay from clibration to 0.0 seconds delay time calibration	=	0.5	seconds				
					A) neutral condition fault pending	=	FALSE	boolean				
					B) intrusive shift active	=	FALSE	boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					C) range shift state	=	shift complete	enumeration		
					intrusive shift allowed	=	TRUE	boolean		
					intrusive shift active	=	FALSE	boolean		
					steady state pressure adapt in progress	=	FALSE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position	>=	0.5004883	%		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid	=	TRUE	Boolean		
					D or E					
					D) select battery voltage to enable diagnsotic monitor	=	0	Boolean		
					E) battery voltage	<=	31.999023	volts		
					E) battery voltage	>=	9	volts		
					E) battery voltage time	>=	0.1	sec		
					F or G					
					F) select ignition voltage to enable diagnsotic monitor	=	0	Boolean		
					G) Ignition Voltage	<=	31.999023	Volts		
					G) Ignition Voltage	>=	9	Volts		
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean		
					Ignition voltage and SFL conditions met for	>=	0.1	Sec		
					Hydraulic System Pressurized	=	TRUE	Boolean		
					high side driver 1 enabled	=	TRUE	Boolean		
					high side driver 2 enabled	=	TRUE	Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915, P2534 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 Force Solenoid (VFS)	P0747	Pressure Control Solenoid A Stuck On (clutch1/CB1278R)	automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count deceleration limited	>=	see Table 32 in supporting documents	fail event counts				One Trip
			automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count no deceleration	>=	see Table 33 in supporting documents	fail event counts				
			A) absolute value (attained gear slip), fail during post torque phase of transmission automatic shift, before engine speed change, pull up or pull down occurs	<=	40	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
			increment fail time when slip criteria met, fail time for power down shift								see Table 29 >= in supporting documents	seconds	
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited								see Table 30 >= in supporting documents	seconds	
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift no deceleration								see Table 31 >= in supporting documents	seconds	
											when fail time reaches fail limit increment fail event count above		
			B) absolute value (command gear slip), fail during inertia phase of transmission automatic shift, engine speed change begins, pull up or pull down	>=	70	RPM							
			increment fail time when slip criteria met, fail time during shift deceleration limited								see Table 35 >= in supporting documents	seconds	
			increment fail time when slip criteria met, fail time during shift no deceleration								see Table 36 >= in supporting documents	seconds	
											when fail time reaches fail limit increment fail event count above		
							inertia phase test measured gear ratio	>=	0.558				
							inertia phase test measured gear ratio	<=	4.7150002				
							inertia phase test measured gear ratio time	>=	0.15	seconds			
							clutch test enabled	=	see Table 10 in supporting documents	boolean			
							post torque phase test engine torque hysteresis high enable for upshift or power on down shift	>=	see Table 11 in supporting documents	N*m			
							post torque phase test engine torque hysteresis low disable for upshift or power on down shift	>	see Table 12 in supporting documents	N*m			
							post torque phase test engine torque hysteresis high enable for closed throttle down shift	>=	see Table 13 in supporting documents	N*m			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					post torque phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 14 in supporting documents N*m		
					inertia phase test engine torque hysteresis high enable for upshift or power on down shift	>=	see Table 15 in supporting documents N*m		
					inertia phase test engine torque hysteresis low disable for upshift or power on down shift	>	see Table 16 in supporting documents N*m		
					inertia phase test engine torque hysteresis high enable for closed throttle down shift	>=	see Table 17 in supporting documents N*m		
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 18 in supporting documents N*m		
					off going clutch pressure	<=	see Table 37 in supporting documents kPa		
					off going clutch pressure closed throttle down shift delay time	>=	see Table 2 in supporting documents seconds		
					off going clutch pressure closed power down shift delay time	>=	see Table 38 in supporting documents seconds		
					off going clutch pressure up shift delay time	>=	see Table 59 in supporting documents seconds		
					on coming clutch pressure for up shift	>=	see Table 8 in supporting documents kPa		
					on coming clutch pressure for down shift	>=	see Table 7 in supporting documents kPa		
					brake pedal position hysteresis high disable	>=	27.000427 %		
					brake pedal position hysteresis low enable	<=	25 %		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
							absolute value (attained gear slip)	<=	40	RPM				
							shift type enable	=	see Table 45 in supporting documents	boolean				
							clucth solenoid stuck off	=	TRUE	boolean				
							intrusive shift request not	=	TRUE	boolean				
							traction control event test suspend not							
							transmission output speed	>=	100	RPM				
							accelerator pedal position valid	=	TRUE	Boolean				
							engine speed valid	=	TRUE	Boolean				
							D or E							
							D) select battery voltage to enable diagnsotic monitor	=	0	Boolean				
							E) battery voltage	<=	31.999023	volts				
							E) battery voltage	>=	9	volts				
							E) battery voltage time	>=	0.1	sec				
							F or G							
							F) select ignition voltage to enable diagnsotic monitor	=	0	Boolean				
							G) Ignition Voltage	<=	31.999023	Volts				
							G) Ignition Voltage	>=	9	Volts				
							Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
							Ignition voltage and SFL conditions met for	>=	0.1	Sec				
							Hydraulic System Pressurized	=	TRUE	Boolean				
							high side driver 1 enabled	=	TRUE	Boolean				
							high side driver 2 enabled	=	TRUE	Boolean				
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915, P2534 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 Force Solenoid (VFS)	P0776	Pressure Control Solenoid B Stuck Off (clutch2/CB12345R)	absolute value (attained gear slip)	>=	400	RPM					>=	3	seconds	One Trip
													when fail time reaches fail limit increment fail event count	
											>=	3	event counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					clutch solenoid stuck on performance diagnostic monitor test deceleration limit not	=	TRUE	boolean		
					clutch solenoid stuck on performance diagnostic monitor test return to previous range not	=	TRUE	boolean		
					PRNDL State not	=	park	enumeration		
					PRNDL State not	=	neutral	enumeration		
					while conditinos A and B and C are met, time down delay from clibration to 0.0 seconds					
					delay time calibration	=	0.5	seconds		
					A) neutral condition fault pending	=	FALSE	boolean		
					B) intrusive shift active	=	FALSE	boolean		
					C) range shift state	=	shift complete	enumeration		
					intrusive shift allowed	=	TRUE	boolean		
					intrusive shift active	=	FALSE	boolean		
					steady state pressure adapt in progress	=	FALSE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position	>=	0.5004883	%		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid	=	TRUE	Boolean		
					D or E					
					D) select battery voltage to enable diagnsotic monitor	=	0	Boolean		
					E) battery voltage	<=	31.999023	volts		
					E) battery voltage	>=	9	volts		
					E) battery voltage time	>=	0.1	sec		
					F or G					
					F) select ignition voltage to enable diagnsotic monitor	=	0	Boolean		
					G) Ignition Voltage	<=	31.999023	Volts		
					G) Ignition Voltage	>=	9	Volts		
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean		
					Ignition voltage and SFL conditions met for	>=	0.1	Sec		
					Hydraulic System Pressurized	=	TRUE	Boolean		
					high side driver 1 enabled	=	TRUE	Boolean		
					high side driver 2 enabled	=	TRUE	Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915, P2534 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 Force Solenoid (VFS)	P0777	Pressure Control Solenoid B Stuck On (clutch2/CB12345R)	automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count deceleration limited	>=	see Table 32 in supporting documents fail event counts						One Trip
			automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count no deceleration	>=	see Table 33 in supporting documents fail event counts						
			A) absolute value (attained gear slip), fail during post torque phase of transmission automatic shift, before engine speed change, pull up or pull down occurs	<=	40	RPM					
			increment fail time when slip criteria met, fail time for power down shift					>=	see Table 29 in supporting documents seconds		
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited					>=	see Table 30 in supporting documents seconds		
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift no deceleration					>=	see Table 31 in supporting documents seconds		
									when fail time reaches fail limit increment fail event count above		
			B) absolute value (command gear slip), fail during inertia phase of transmission automatic shift, engine speed change begins, pull up or pull down	>=	70	RPM					
			increment fail time when slip criteria met, fail time during shift deceleration limited					>=	see Table 35 in supporting documents seconds		
			increment fail time when slip criteria met, fail time during shift no deceleration					>=	see Table 36 in supporting documents seconds		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
								when fail time reaches fail limit increment fail event count above	
					inertia phase test measured gear ratio	>=	0.558		
					inertia phase test measured gear ratio	<=	4.7150002		
					inertia phase test measured gear ratio time	>=	0.15 seconds		
					clutch test enabled	=	see Table 10 in supporting documents boolean		
					post torque phase test engine torque hysteresis high enable for upshift or power on down shift	>=	see Table 11 in supporting documents N*m		
					post torque phase test engine torque hysteresis low disable for upshift or power on down shift	>	see Table 12 in supporting documents N*m		
					post torque phase test engine torque hysteresis high enable for closed throttle down shift	>=	see Table 13 in supporting documents N*m		
					post torque phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 14 in supporting documents N*m		
					inertia phase test engine torque hysteresis high enable for upshift or power on down shift	>=	see Table 15 in supporting documents N*m		
					inertia phase test engine torque hysteresis low disable for upshift or power on down shift	>	see Table 16 in supporting documents N*m		
					inertia phase test engine torque hysteresis high enable for closed throttle down shift	>=	see Table 17 in supporting documents N*m		
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 18 in supporting documents N*m		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					off going clutch pressure	<=	see Table 37 in supporting documents	kPa		
					off going clutch pressure closed throttle down shift delay time	>=	see Table 3 in supporting documents	seconds		
					off going clutch pressure closed power down shift delay time	>=	see Table 39 in supporting documents	seconds		
					off going clutch pressure up shift delay time	>=	see Table 60 in supporting documents	seconds		
					on coming clutch pressure for up shift	>=	see Table 8 in supporting documents	kPa		
					on coming clutch pressure for down shift	>=	see Table 7 in supporting documents	kPa		
					brake pedal position hysteresis high disable	>=	27.000427	%		
					brake pedal position hysteresis low enable	<=	25	%		
					absolute value (attained gear slip)	<=	40	RPM		
					shift type enable	=	see Table 45 in supporting documents	boolean		
					clucth solenoid stuck off intrusive shift request not	=	TRUE	boolean		
					traction control event test suspend not	=	TRUE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid	=	TRUE	Boolean		
					D or E					
					D) select battery voltage to enable diagnsotic monitor	=	0	Boolean		
					E) battery voltage	<=	31.999023	volts		
					E) battery voltage	>=	9	volts		
					E) battery voltage time	>=	0.1	sec		
					F or G					
					F) select ignition voltage to enable diagnsotic monitor	=	0	Boolean		
					G) Ignition Voltage	<=	31.999023	Volts		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
							G) Ignition Voltage	>=	9	Volts				
							Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
							Ignition voltage and SFL conditions met for	>=	0.1	Sec				
							Hydraulic System Pressurized	=	TRUE	Boolean				
							high side driver 1 enabled	=	TRUE	Boolean				
							high side driver 2 enabled	=	TRUE	Boolean				
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915, P2534 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 Output Speed Sensor (TOSS)	P077C	Output Speed Sensor Circuit Low	TOSS Analog Signal Voltage	<=	0.25	Volts					>=	5.00E-02	sec	One Trip
			P077C Status is not	=	Test Failed This Key On or Fault Active									
			If the above conditons have been met, increment the P077C Fail Counter											
			DTC P077C Sets when the Fail Counter	>=	16	Counts (6.25 msec continuous)								
							P077C Enable Calibration	=	1					
							Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean				
							Ignition Voltage Hyst Hi (enabled above this value)	>	5	Volts				
							Ignition Voltage Hyst Lo disabled below this value)	<=	2	Volts				
							Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
							Battery Voltage Max (disabled above this value)	<=	31.999023	Volts				
							Battery Voltage Min (disabled below this value)	<=	10	Volts				
							Ignition Voltage Min (disabled below this value)	>=	10	Volts				
							for voltage stablity time	>=	5	seconds				
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: P077D						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Output Speed Sensor (TOSS)	P077D	Output Speed Sensor Circuit High	TOSS Analog Signal Voltage	>=	4.75	Volts					>=	5.00E-02	sec	One Trip
			P077D Status is not	=	Test Failed This Key On or Fault Active									
			If the above conditons have been met, increment the P077D Fail Counter											
			DTC P077D Sets when the Fail Counter	>=	16	Counts (12.5 msec continuous)								
							P077D Enable Calibration	=	1					
							Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean				
							Ignition Voltage Hyst Hi (enabled above this value)	>	5	Volts				
							Ignition Voltage Hyst Lo disabled below this value)	<=	2	Volts				
							Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
							Battery Voltage Max (disabled above this value)	<=	31.999023	Volts				
							Battery Voltage Min (disabled below this value)	<=	10	Volts				
							Ignition Voltage Min (disabled below this value)	>=	10	Volts				
							for voltage stablity time	>=	5	seconds				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P077C						
Variable Force Solenoid (VFS)	P0796	Pressure Control Solenoid C Stuck Off (clutch3/C13567)	absolute value (attained gear slip)	>=	400	RPM					>=	3	seconds	One Trip
													when fail time reaches fail limit increment fail event count	
											>=	3	event counts	
							clutch solenoid stuck on performance diagnostic monitor test deceleration limit not	=	TRUE	boolean				
							clutch solenoid stuck on performance diagnostic monitor test return to previous range not	=	TRUE	boolean				
							PRNDL State not	=	park	enumeration				
							PRNDL State not	=	neutral	enumeration				
							while conditinos A and B and C are met, time down delay from clibration to 0.0 seconds							
							delay time calibration	=	0.5	seconds				
							A) neutral condition fault pending	=	FALSE	boolean				
							B) intrusive shift active	=	FALSE	boolean				
							C) range shift state	=	shift complete	enumeration				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					intrusive shift allowed	=	TRUE	boolean		
					intrusive shift active	=	FALSE	boolean		
					steady state pressure adapt in progress	=	FALSE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position	>=	0.5004883	%		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid	=	TRUE	Boolean		
					D or E					
					D) select battery voltage to enable diagnsotic monitor	=	0	Boolean		
					E) battery voltage	<=	31.999023	volts		
					E) battery voltage	>=	9	volts		
					E) battery voltage time	>=	0.1	sec		
					F or G					
					F) select ignition voltage to enable diagnsotic monitor	=	0	Boolean		
					G) Ignition Voltage	<=	31.999023	Volts		
					G) Ignition Voltage	>=	9	Volts		
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean		
					Ignition voltage and SFL conditions met for	>=	0.1	Sec		
					Hydraulic System Pressurized	=	TRUE	Boolean		
					high side driver 1 enabled	=	TRUE	Boolean		
					high side driver 2 enabled	=	TRUE	Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915, P2534 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 Force Solenoid (VFS)	P0797	Pressure Control Solenoid C Stuck On (clutch3/C13567)	automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count deceleration limited	>=	see Table 32 in supporting documents	fail event counts				One Trip
			automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count no deceleration	>=	see Table 33 in supporting documents	fail event counts				
			A) absolute value (attained gear slip), fail during post torque phase of transmission automatic shift, before engine speed change, pull up or pull down occurs	<=	40	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			increment fail time when slip criteria met, fail time for power down shift				see Table 29 >= in supporting documents seconds	
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited				see Table 30 >= in supporting documents seconds	
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift no deceleration				see Table 31 >= in supporting documents seconds	
							when fail time reaches fail limit increment fail event count above	
			B) absolute value (command gear slip), fail during inertia phase of transmission automatic shift, engine speed change begins, pull up or pull down	>= 70 RPM				
			increment fail time when slip criteria met, fail time during shift deceleration limited				see Table 35 >= in supporting documents seconds	
			increment fail time when slip criteria met, fail time during shift no deceleration				see Table 36 >= in supporting documents seconds	
							when fail time reaches fail limit increment fail event count above	
					inertia phase test measured gear ratio	>= 0.558		
					inertia phase test measured gear ratio	<= 4.7150002		
					inertia phase test measured gear ratio time	>= 0.15 seconds		
					clutch test enabled	= see Table 10 in supporting documents boolean		
					post torque phase test engine torque hysteresis high enable for upshift or power on down shift	>= see Table 11 in supporting documents N*m		
					post torque phase test engine torque hysteresis low disable for upshift or power on down shift	> see Table 12 in supporting documents N*m		
					post torque phase test engine torque hysteresis high enable for closed throttle down shift	>= see Table 13 in supporting documents N*m		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					post torque phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 14 in supporting documents N*m		
					inertia phase test engine torque hysteresis high enable for upshift or power on down shift	>=	see Table 15 in supporting documents N*m		
					inertia phase test engine torque hysteresis low disable for upshift or power on down shift	>	see Table 16 in supporting documents N*m		
					inertia phase test engine torque hysteresis high enable for closed throttle down shift	>=	see Table 17 in supporting documents N*m		
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 18 in supporting documents N*m		
					off going clutch pressure	<=	see Table 37 in supporting documents kPa		
					off going clutch pressure closed throttle down shift delay time	>=	see Table 4 in supporting documents seconds		
					off going clutch pressure closed power down shift delay time	>=	see Table 40 in supporting documents seconds		
					off going clutch pressure up shift delay time	>=	see Table 61 in supporting documents seconds		
					on coming clutch pressure for up shift	>=	see Table 8 in supporting documents kPa		
					on coming clutch pressure for down shift	>=	see Table 7 in supporting documents kPa		
					brake pedal position hysteresis high disable	>=	27.000427 %		
					brake pedal position hysteresis low enable	<=	25 %		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
						absolute value (attained gear slip)	<=	40	RPM			
						shift type enable	=	see Table 45 in supporting documents	boolean			
						clucth solenoid stuck off intrusive shift request not	=	TRUE	boolean			
						traction control event test suspend not	=	TRUE	boolean			
						transmission output speed	>=	100	RPM			
						accelerator pedal position valid	=	TRUE	Boolean			
						engine speed valid	=	TRUE	Boolean			
						D or E						
						D) select battery voltage to enable diagnsotic monitor	=	0	Boolean			
						E) battery voltage	<=	31.999023	volts			
						E) battery voltage	>=	9	volts			
						E) battery voltage time	>=	0.1	sec			
						F or G						
						F) select ignition voltage to enable diagnsotic monitor	=	0	Boolean			
						G) Ignition Voltage	<=	31.999023	Volts			
						G) Ignition Voltage	>=	9	Volts			
						Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean			
						Ignition voltage and SFL conditions met for	>=	0.1	Sec			
						Hydraulic System Pressurized	=	TRUE	Boolean			
						high side driver 1 enabled	=	TRUE	Boolean			
						high side driver 2 enabled	=	TRUE	Boolean			
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915, P2534					
							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 Input Speed Sensor (TISS)	P07BF	Input/Turbine Speed Sensor A Circuit Low	TISS Analog Signal Voltage	<=	0.25 Volts					>=	5.00E-02 sec	One Trip
			P07BF Status is not	=	Test Failed This Key On or Fault Active							
			If the above conditons have been met, increment the P07BF Fail Counter									

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions		Time Required		Mil Illum.
			DTC P07BF Sets when the Fail Counter	>=	16	Counts (12.5 msec continuous)					
						speed sensor processing	=	time based			
						P07BF Enable Calibration	=	1			
						Service mode $04 active and end of trip pocessing active	=	FALSE Boolean			
						Ignition Voltage Hyst Hi (enabled above this value)	>	5 Volts			
						Ignition Voltage Hyst Lo disabled below this value)	<=	2 Volts			
						Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE Boolean			
						Battery Voltage Max (disabled above this value)	<=	31.999023 Volts			
						Battery Voltage Min (disabled below this value)	<=	10 Volts			
						Ignition Voltage Min (disabled below this value)	>=	10 Volts			
						for voltage stablity time	>=	5 seconds			
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P07C0				
Transmission Input Speed Sensor (TISS)	P07C0	Input/Turbine Speed Sensor A Circuit High	TISS Analog Signal Voltage	>=	4.75 Volts				>=	5.00E-02 sec	One Trip
			P07C0 Status is not	=	Test Failed This Key On or Fault Active						
			If the above conditons have been met, increment the P07C0 Fail Counter								
			DTC P07C0 Sets when the Fail Counter	>=	16	Counts (12.5 msec continuous)					
						speed sensor processing	=	time based			
						P07C0 Enable Calibration	=	1			
						Service mode $04 active and end of trip pocessing active	=	FALSE Boolean			
						Ignition Voltage Hyst Hi (enabled above this value)	>	5 Volts			
						Ignition Voltage Hyst Lo disabled below this value)	<=	2 Volts			
						Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE Boolean			
						Battery Voltage Max (disabled above this value)	<=	31.999023 Volts			
						Battery Voltage Min (disabled below this value)	<=	10 Volts			
						Ignition Voltage Min (disabled below this value)	>=	10 Volts			
						for voltage stablity time	>=	5 seconds			

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: P07BF				
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	=	1	Boolean					Special No MIL
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Range 7 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Range 8 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	=	0	Boolean					
				Tap Up Switch Stuck in the Up Position in Park Enabled	=	0	Boolean					
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean					
				Tap Up Switch ON	=	TRUE	Boolean			>=	1	Fail Time (Sec)	
			Fail Case 2	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Range 7 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Range 8 Enabled	=	1	Boolean					
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	=	0	Boolean					
				Tap Up Switch Stuck in the Up Position in Park Enabled	=	0	Boolean					
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean					
				Tap Up Switch ON	=	TRUE	Boolean					
				NOTE: Both Failcase1 and Failcase 2 Must Be Met						>=	120	Fail Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					upshift switch diagnostic monitor enable calibration	= 1		
					Service mode $04 active and end of trip pocessing active	= FALSE Boolean		
					Ignition Voltage Hyst Hi (enabled above this value)	> 5 Volts		
					Ignition Voltage Hyst Lo disabled below this value)	<= 2 Volts		
					Service Fast Learn (SFL) Mode VBS Failsafe	= FALSE Boolean		
					Ignition Voltage Max (disabled above this value)	<= 31.999023 Volts		
					Ignition Voltage Min (enabled above this value)	>= 9 Volts		
					Time Since Last Range Change	>= 1 Enable Time (Sec)		
					P0815 Status is	≠ Test Failed This Key On or Fault Active		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0826, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, 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	= 1 Boolean				Special No MIL
			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 Range 7 Enabled	= 1 Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 8 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	=	0	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	=	0	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	=	0	Boolean						
			Tap Down Switch ON	=	TRUE	Boolean			>=	1	sec	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 7 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 8 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			>=	120	sec	

17 OBDG03 TCM Common 8 Speed T87 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					downshift switch diagnostic monitor enable calibration	=	1		
					Service mode $04 active and end of trip pocessing active	=	FALSE Boolean		
					Ignition Voltage Hyst Hi (enabled above this value)	>	5 Volts		
					Ignition Voltage Hyst Lo disabled below this value)	<=	2 Volts		
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE Boolean		
					Ignition Voltage Max (disabled above this value)	<=	31.999023 Volts		
					Ignition Voltage Min (enabled above this value)	>=	9 Volts		
					Time Since Last Range Change	>=	1 Enable Time (Sec)		
					P0816 Status is	≠	Test Failed This Key On or Fault Active		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0826, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915, P1761 ECM: None			
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	= TRUE Boolean				>= 60 Fail Time (Sec)	Special No MIL
					Service mode $04 active and end of trip pocessing active	=	FALSE Boolean		
					upshift downshift switch circuit diagnostic monitor enable calibration	=	1		
					Ignition Voltage Hyst Hi (enabled above this value)	>	5 Volts		
					Ignition Voltage Hyst Lo disabled below this value)	<=	2 Volts		
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE Boolean		
					Ignition Voltage Max (disabled above this value)	<=	31.999023 Volts		
					Ignition Voltage Min (enabled above this value)	>=	9 Volts		
					P0826 Status is	≠	Test Failed This Key On or Fault Active		

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:**			
Variable Force Solenoid (VFS)	P0960	Pressure Control Solenoid A Control Circuit Open (clutch1/CB1278R VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec)	One Trip
							out of 0.5 Sample Time (Sec)	
					diagnostic monitor enable calibration	= TRUE Boolean		
					VFS source must be high side driver 1 or 2 or 3			
					high side driver VFS source is	= CeTSCR_e_HSD2 enumeration		
					high side driver VFS source enabled	= TRUE Boolean		
					controller power mode state is ignition or accessory	= TRUE Boolean		
					battery voltage in range for stability time			
					battery voltage stability time	>= 1 seconds		
					battery voltage	>= 8 volts		
					battery voltage	<= 32 Volts		
					Disable Conditions:	**MIL not Illuminated for DTC's:** TCM: None ECM: None		
Variable Force Solenoid (VFS)	P0962	Pressure Control Solenoid A Control Circuit Low (clutch1/CB1278R VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec)	One Trip
							out of 0.5 Sample Time (Sec)	
					diagnostic monitor enable calibration	= TRUE Boolean		
					VFS source must be high side driver 1 or 2 or 3			
					high side driver VFS source is	= CeTSCR_e_HSD2 enumeration		
					high side driver VFS source enabled	= TRUE Boolean		
					controller power mode state is ignition or accessory	= TRUE Boolean		
					battery voltage in range for stability time			
					battery voltage stability time	>= 1 seconds		
					battery voltage	>= 8 volts		
					battery voltage	<= 32 Volts		
					Disable Conditions:	**MIL not Illuminated for DTC's:** TCM: None ECM: None		
Variable Force Solenoid (VFS)	P0963	Pressure Control Solenoid A Control Circuit High (clutch1/CB1278R VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
									out of	0.5	Sample Time (Sec)	
					diagnostic monitor enable calibration	=	TRUE	Boolean				
					VFS source must be high side driver 1 or 2 or 3							
					high side driver VFS source is	=	CeTSCR_e_HSD2	enumeration				
					high side driver VFS source enabled	=	TRUE	Boolean				
					controller power mode state is ignition or accessory	=	TRUE	Boolean				
					battery voltage in range for stability time							
					battery voltage stability time	>=	1	seconds				
					battery voltage	>=	8	volts				
					battery voltage	<=	32	Volts				
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Variable Force Solenoid (VFS)	P0964	Pressure Control Solenoid B Control Circuit Open (clutch2/CB12345R VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean					>=	0.3	Fail Time (Sec)	One Trip
									out of	0.5	Sample Time (Sec)	
					diagnostic monitor enable calibration	=	TRUE	Boolean				
					VFS source must be high side driver 1 or 2 or 3							
					high side driver VFS source is	=	CeTSCR_e_HSD2	enumeration				
					high side driver VFS source enabled	=	TRUE	Boolean				
					controller power mode state is ignition or accessory	=	TRUE	Boolean				
					battery voltage in range for stability time							
					battery voltage stability time	>=	1	seconds				
					battery voltage	>=	8	volts				
					battery voltage	<=	32	Volts				
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Variable Force Solenoid (VFS)	P0966	Pressure Control Solenoid B Control Circuit Low (clutch2/CB12345R VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean					>=	0.3	Fail Time (Sec)	One Trip
									out of	0.5	Sample Time (Sec)	
					diagnostic monitor enable calibration	=	TRUE	Boolean				
					VFS source must be high side driver 1 or 2 or 3							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
						high side driver VFS source is	=	CeTSCR_e_HSD2	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is ignition or accessory	=	TRUE	Boolean				
						battery voltage in range for stability time							
						battery voltage stability time	>=	1	seconds				
						battery voltage	>=	8	volts				
						battery voltage	<=	32	Volts				
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P0967	Pressure Control Solenoid B Control Circuit High (clutch2/CB12345R VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>= out of	0.3 0.5	Fail Time (Sec) Sample Time (Sec)	One Trip
						diagnostic monitor enable calibration	=	TRUE	Boolean				
						VFS source must be high side driver 1 or 2 or 3							
						high side driver VFS source is	=	CeTSCR_e_HSD2	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is ignition or accessory	=	TRUE	Boolean				
						battery voltage in range for stability time							
						battery voltage stability time	>=	1	seconds				
						battery voltage	>=	8	volts				
						battery voltage	<=	32	Volts				
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P0968	Pressure Control Solenoid C Control Circuit Open (clutch3/C13567 VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>= out of	0.3 0.5	Fail Time (Sec) Sample Time (Sec)	One Trip
						diagnostic monitor enable calibration	=	TRUE	Boolean				
						VFS source must be high side driver 1 or 2 or 3							
						high side driver VFS source is	=	CeTSCR_e_HSD2	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is ignition or accessory	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					battery voltage in range for stability time			
					battery voltage stability time	>= 1 seconds		
					battery voltage	>= 8 volts		
					battery voltage	<= 32 Volts		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None		
						ECM: None		
Variable Force Solenoid (VFS)	P0970	Pressure Control Solenoid C Control Circuit Low (clutch3/C13567 VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec)	One Trip
							out of 0.5 Sample Time (Sec)	
					diagnostic monitor enable calibration	= TRUE Boolean		
					VFS source must be high side driver 1 or 2 or 3			
					high side driver VFS source is	= CeTSCR_e_HSD2 enumeration		
					high side driver VFS source enabled	= TRUE Boolean		
					controller power mode state is ignition or accessory	= TRUE Boolean		
					battery voltage in range for stability time			
					battery voltage stability time	>= 1 seconds		
					battery voltage	>= 8 volts		
					battery voltage	<= 32 Volts		
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None		
						ECM: None		
Variable Force Solenoid (VFS)	P0971	Pressure Control Solenoid C Control Circuit High (clutch3/C13567 VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec)	One Trip
							out of 0.5 Sample Time (Sec)	
					diagnostic monitor enable calibration	= TRUE Boolean		
					VFS source must be high side driver 1 or 2 or 3			
					high side driver VFS source is	= CeTSCR_e_HSD2 enumeration		
					high side driver VFS source enabled	= TRUE Boolean		
					controller power mode state is ignition or accessory	= TRUE Boolean		
					battery voltage in range for stability time			
					battery voltage stability time	>= 1 seconds		
					battery voltage	>= 8 volts		
					battery voltage	<= 32 Volts		

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						
Transmission Control Module (TCM)	P16F3	Transmission Control Module	diagnostic monitor fails when any of the following conditions occur A or B or C											One Trip
			A) command pressure and its dual store do not equal OR	=	TRUE	Boolean	redundant memory command pressure disable calibration not OR redundant memory command pressure enable calibration	= =	TRUE TRUE	Boolean Boolean				
			B) command shift and its dual store do not equal OR	=	TRUE	Boolean	redundant memory command shift disable calibration not OR redundant memory command shift enable calibration	= =	FALSE TRUE	Boolean Boolean Boolean				
			C) rate limited vehicle speed and its dual store do not equal	=	TRUE	Boolean	rate limited vehicle speed dual store enable calibration	=	TRUE	Boolean	>= >=	10 20	counts (25 msec continuous) counts (25 msec continuous)	
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P16F4	Transmission Control Module	redundant path calculation of driver selected transmission range error	=	TRUE	Boolean					>= >=	6 8	counts (25 msec continuous) counts (25 msec continuous)	One Trip
							secureed controller or emission critical ignition voltage P16F4 status is not	>= =	11 test pass this key on	volts Boolean				
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P16FB	Transmission Control Module	transmission output speed raw (25 ms loop value) - transmission output speed raw (6.25 ms loop value)	>=	60	RPM					>= >=	8 10	seconds seconds	One Trip
							Service Fast Learn (SFL) Mode VBS Failsafe Battery Voltage Max (disabled above this value)	= <=	FALSE 31.999023	Boolean Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
						Battery Voltage Min (disabled below this value)	<=	10	Volts				
						Ignition Voltage Min (disabled below this value)	>=	10	Volts				
						for voltage stablity time	>=	5	seconds				
						transmission output speed raw (6.25 ms loop value)	>=	150	RPM				
						transmission output speed raw (25 ms loop value)	>=	150	RPM				
						Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean				
						diagnostic monitor enable calibration	=	1	Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Lateral acceleration signal	P175F	Lateral acceleration signal circuit (rolling count or checksum)	P175F will fail when A: message alive rolling count erroror or B: message checksum error										Special No MIL
			A: Rolling count value received from EBCM and expected TCM calculated value not	=	TRUE Boolean					>=	9	Fail Counter (50 msec continuous)	
										>	54	Fail Timer (Sec)	
						Lateral acceleration message health (message receive occur)	=	TRUE	Boolean				
						Lateral acceleration signal circuit rolling count diagnostic monitor enable calibration	=	1	Boolean				
						battery voltage	<=	31.999023	volts				
						battery voltage	>=	9	volts				
						battery voltage time	>=	0.1	sec				
						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				
			B: checksum of lateral acceleration message value error	=	TRUE Boolean					>=	54	Fail Timer (Sec)	
						Lateral acceleration message health (message receive occur)	=	TRUE	Boolean				
						Lateral acceleration signal circuit checksum diagnostic monitor enable calibration	=	1	Boolean				
						battery voltage	<=	31.999023	volts				
						battery voltage	>=	9	volts				
						battery voltage time	>=	0.1	sec				
						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				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					normal serial data communication enabled	=	TRUE	Boolean				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM and expected TCM calculated value not	= TRUE Boolean					>=	3	Fail Counter (100 msec continuous)	Special No MIL
									>	10	Fail Timer (Sec)	
					Tap up/down message health (message receive occur)	=	TRUE	Boolean				
					Tap up/downswitch signal circuit (rolling count) diagnostic monitor enable calibration	=	1	Boolean				
					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				
					Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean				
				Disable Conditions:	MIL not Illuminated for DTC's:							
Transmission Intermediate Speed Sensor	P176B	Transmission Intermediate Speed Sensor Performance	attained gear is Reverse or 1st or 2nd		fail time	>=	4	seconds	>=	4	counts (25 msec continuous)	Two Trips
			transmssion intermediate speed	> 60 PRM								
			attained gear is 3rd or 4th or 5th or 6th or 7th or 8th									
			calculated intermediate gear slip = absolute value (transmission input speed - (transmission intermediate speed * command gear intermediate ratio))	> 60 PRM								
					calculated gear slip = absolute value (transmission input speed - (transmission output speed * command gear ratio))	<=	60	RPM				
					calculated gear slip stablity time when all of the conditions below are met	>=	1	seconds				
					diagnostic monitor enable calibration	=	1	Boolean				
					transmission output speed	>=	100	RPM				
					transmission input speed	>=	100	RPM				
					neutral idle mode requesting holding clutch disable	=	FALSE	Boolean				
					range shift state is	=	shift complete					
					Hydraulic System Pressurized	=	TRUE	Boolean				

17 OBDG03 TCM Common 8 Speed T87 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
					battery voltage	<=	31.999023	volts			
					battery voltage	>=	9	volts			
					battery voltage time	>=	0.1	sec			
					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:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P07BF, P07C0, P0722, P0723, P077C, P077D					
Transmission Intermediate Speed Sensor	P176C	Intermediate Speed Sensor Circuit Low	speed sensor1 voltage <=	see Table 51 in supporting documents volts	speed sensor1 fail time	>=	see Table 53 in supporting documents	seconds	>= in supporting documents	see Table 52 counts (12.5 msec continuous)	Two Trips
					speed sensor1 circuit low diagnostic monitor enable calibration	=	see Table 54 in supporting documents	Boolean			
					Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean			
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean			
					Battery Voltage Max (disabled above this value)	<=	31.999023	Volts			
					Battery Voltage Min (disabled below this value)	<=	10	Volts			
					Ignition Voltage Min (disabled below this value)	>=	10	Volts			
					for voltage stablity time	>=	5	seconds			
					P176C Status is not	=	Test Failed This Key On or Fault Active				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P176D					
Transmission Intermediate Speed Sensor	P176D	Intermediate Speed Sensor Circuit High	speed sensor1 voltage >=	see Table 55 in supporting documents volts	speed sensor1 fail time	>=	see Table 57 in supporting documents	seconds	>= in supporting documents	see Table 56 counts (12.5 msec continuous)	Two Trips
					speed sensor1 circuit high diagnostic monitor enable calibration	=	see Table 58 in supporting documents	Boolean			
					Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
					Battery Voltage Max (disabled above this value)	<=	31.999023	Volts				
					Battery Voltage Min (disabled below this value)	<=	10	Volts				
					Ignition Voltage Min (disabled below this value)	>=	10	Volts				
					for voltage stablity time	>=	5	seconds				
					P176D Status is not	=	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P176C						
Internal Mode Switch (IMS)	P1824	Internal Mode Switch P Circuit High Voltage	IMS switch P voltage	> 2.380000114 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P182A	Internal Mode Switch A Circuit Low Voltage	IMS switch A voltage	< 0.699999988 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P182B	Internal Mode Switch B Circuit Low Voltage	IMS switch B voltage	< 0.699999988 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P182C	Internal Mode Switch B Circuit High Voltage	IMS switch B voltage	> 2.380000114 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P182D	Internal Mode Switch P Circuit Low Voltage	IMS switch P voltage	< 0.699999988 volts					>=	70	Fail Counts (25ms loop)	Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
									out of	80	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Internal Mode Switch (IMS)	P182E	Internal Mode Switch Illegal Range	Range =	Illegal (SABCP= 00000 or SABCP= 10000) enumeration					>=	108	Fail Counts (25ms loop)	Two Trips
									out of	125	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Internal Mode Switch (IMS)	P182F	Internal Mode Switch C Circuit High Voltage	IMS switch C voltage >	2.380000114 volts					>=	70	Fail Counts (25ms loop)	Two Trips
									out of	80	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Internal Mode Switch (IMS)	P1838	Internal Mode Switch A Circuit High Voltage	IMS switch A voltage	> 2.380000114 volts					>=	70	Fail Counts (25ms loop)	Two Trips
									out of	80	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Internal Mode Switch (IMS)	P1839	Internal Mode Switch C Circuit Low Voltage	IMS switch C voltage	< 0.699999988 volts					>=	70	Fail Counts (25ms loop)	Two Trips
									out of	80	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				

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)	P1840	Internal Mode Switch S Circuit Low Voltage	IMS switch S voltage	< 0.699999988 volts					>=	70	Fail Counts (25ms loop)	Two Trips
									out of	80	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P1841	Internal Mode Switch S Circuit High Voltage	IMS switch S voltage	> 2.380000114 volts					>=	70	Fail Counts (25ms loop)	Two Trips
									out of	80	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P18B5	Internal Mode Switch A Circuit Shorted	IMS switch A voltage	< 1.679999948 volts					>=	70	Fail Counts (25ms loop)	Two Trips
			IMS switch A voltage	> 0.966000021 volts					out of	80	Sample Counts (25ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Internal Mode Switch (IMS)	P18B6	Internal Mode Switch B Circuit Shorted	IMS switch B voltage < 1.679999948 volts						>=	70	Fail Counts (25ms loop)	Two Trips
			IMS switch B voltage > 0.966000021 volts						out of	80	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Internal Mode Switch (IMS)	P18B7	Internal Mode Switch C Circuit Shorted	IMS switch C voltage < 1.679999948 volts						>=	70	Fail Counts (25ms loop)	Two Trips
			IMS switch C voltage > 0.966000021 volts						out of	80	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
					Ignition Voltage Lo	>=	7	Volts			
					Ignition Voltage Hi	<	9	Volts			
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds			
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None					
						ECM: None					
Internal Mode Switch (IMS)	P18B8	Internal Mode Switch P Circuit Shorted	IMS switch P voltage	< 1.679999948 volts					>= 70	Fail Counts (25ms loop)	Two Trips
			IMS switch P voltage	> 0.966000021 volts					out of 80	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean			
					Ignition Voltage Lo	>=	9	Volts			
					Ignition Voltage Hi	<=	31.999023	Volts			
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event						
					Ignition Voltage Lo	>=	7	Volts			
					Ignition Voltage Hi	<	9	Volts			
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds			
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None					
						ECM: None					
Internal Mode Switch (IMS)	P18B9	Internal Mode Switch S Circuit Shorted	IMS switch S voltage	< 1.679999948 volts					>= 70	Fail Counts (25ms loop)	Two Trips
			IMS switch S voltage	> 0.966000021 volts					out of 80	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean			
					Ignition Voltage Lo	>=	9	Volts			
					Ignition Voltage Hi	<=	31.999023	Volts			
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event						
					Ignition Voltage Lo	>=	7	Volts			
					Ignition Voltage Hi	<	9	Volts			
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds			

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)	P18BA	Internal Mode Switch A Stuck Off	Range =	Transition 30 (SABCP= 00001) enumeration						>=	108	Fail Counts (25ms loop)	Two Trips
			Switch A ≠	True (this key cycle) boolean						out of	125	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean					
					Ignition Voltage Lo	>=	9	Volts					
					Ignition Voltage Hi	<=	31.999023	Volts					
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event								
					Ignition Voltage Lo	>=	7	Volts					
					Ignition Voltage Hi	<	9	Volts					
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds					
			Disable Conditions:		**MIL not Illuminated for DTC's:**	TCM: None ECM: None							
Internal Mode Switch (IMS)	P18BB	Internal Mode Switch B Stuck Off	Range =	Transition 29 (SABCP= 00010) enumeration						>=	108	Fail Counts (25ms loop)	Two Trips
			Prev Range =	Transition 14 (SABCP= 10001)						out of	125	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean					
					Ignition Voltage Lo	>=	9	Volts					
					Ignition Voltage Hi	<=	31.999023	Volts					
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event								
					Ignition Voltage Lo	>=	7	Volts					
					Ignition Voltage Hi	<	9	Volts					
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds					
			Disable Conditions:		**MIL not Illuminated for DTC's:**	TCM: None ECM: None							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Internal Mode Switch (IMS)	P18BC	Internal Mode Switch C Stuck Off	Range =	Transition 27 (SABCP= enumeration 00100)					>=	108	Fail Counts (25ms loop)	Two Trips
									out of	125	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Internal Mode Switch (IMS)	P18BD	Internal Mode Switch P Stuck Off	Range =	Transition 23 (SABCP= enumeration 01000)					>=	108	Fail Counts (25ms loop)	Two Trips
			Prev Range =	Transition 11 (SABCP= 10100)					out of	125	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Internal Mode Switch (IMS)	P18BE	Internal Mode Switch S Stuck Off	Range =	Drive 8 enumeration					>=	108	Fail Counts (25ms loop)	Two Trips
			Prev Range =	Transition 26 (SABCP= 00101)					out of	125	Sample Counts (25ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Switch A	=	True (this key cycle)	boolean								
			Switch S	≠	True (this key cycle)	boolean								
							Diagnostic monitor enable calibration	=	1	Boolean				
							Ignition Voltage Lo	>=	9	Volts				
							Ignition Voltage Hi	<=	31.999023	Volts				
							If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
							Ignition Voltage Lo	>=	7	Volts				
							Ignition Voltage Hi	<	9	Volts				
							Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: None						
								ECM: None						
Internal Mode Switch (IMS)	P18C0	Internal Mode Switch B Stuck On	Range	=	Drive 8	enumeration					>=	108	Fail Counts (25ms loop)	Two Trips
			Prev Range = Park for	>=	80	counts (25ms loop)					out of	125	Sample Counts (25ms loop)	
			Switch B	≠	False (this key cycle)	boolean								
							Diagnostic monitor enable calibration	=	1	Boolean				
							Ignition Voltage Lo	>=	9	Volts				
							Ignition Voltage Hi	<=	31.999023	Volts				
							If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
							Ignition Voltage Lo	>=	7	Volts				
							Ignition Voltage Hi	<	9	Volts				
							Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: None						
								ECM: None						
Internal Mode Switch (IMS)	P18C1	Internal Mode Switch C Stuck On	Range	=	Transition 20 (SABCP= 01011)	enumeration					>=	108	Fail Counts (25ms loop)	Two Trips
			Switch C	≠	False (this key cycle)	boolean					out of	125	Sample Counts (25ms loop)	
							Diagnostic monitor enable calibration	=	1	Boolean				
							Ignition Voltage Lo	>=	9	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required			Mil Illum.
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:		TCM: None					
							ECM: None					
Internal Mode Switch (IMS)	P18C2	Internal Mode Switch P Stuck On	Range =	Transition 24 (SABCP= 00111)	enumeration				>=	108	Fail Counts (25ms loop)	Two Trips
									out of	125	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				
					Ignition Voltage Hi	<	9	Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:		TCM: None					
							ECM: None					
Internal Mode Switch (IMS)	P18C3	Internal Mode Switch S Stuck On	Range =	Drive 7	enumeration				>=	108	Fail Counts (25ms loop)	Two Trips
			Prev Range = Park for >=	80	counts (25ms loop)				out of	125	Sample Counts (25ms loop)	
			Switch S ≠	False (this key cycle)	boolean							
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
						Ignition Voltage Hi	<	9	Volts			
						Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds			
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None					
							ECM: None					
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	Range	≠ Park Neutral Transition 1 (SABCP= 11110) Transition 2 (SABCP= 11101) Transition 4 (SABCP= 11011) Transition 17 (SABCP= 01110) Transition 18 (SABCP= 01101) Transition 21 (SABCP= 01010)	Enumeration							Two Trips
			The following events must occur Sequentially									
			Initial Engine speed	<= 50	RPM					>= 0.475	Enable Time (Sec)	
			Then Engine Speed Between Following Cals									
			Engine Speed Lo Hist	>= 50	RPM							
			Engine Speed Hi Hist	<= 480	RPM					>= 0.06875	Enable Time (Sec)	
			Then Final Engine Speed	>= 550	RPM							
			Final Transmission Input Speed	>= 100	RPM					>= 1.25	Fail Time (Sec)	
						DTC has Ran this Key Cycle	=	FALSE	Boolean			
						Ignition Voltage Lo	>=	6	V			
						Ignition Voltage Hi	<=	31.900391	V			
						Ignition Voltage Hyst High (enables above this value)	>=	5	V			
						Ignition Voltage Hyst Low (disabled below this value)	<=	2	V			
						Transmission Output Speed	<=	90	rpm			
						P1915 Status is	≠	Test Failed This Key On or Fault Active				

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: P0722, P0723 ECM: None						
Transmission Control Module (TCM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below)	=	FALSE	Boolean								One Trip
			Ignition Voltage High Hyst (run crank goes true when above this value)	>	5	Volts					>=	280	one fail count per 25 ms loop	
			Ignition Voltage Low Hyst (run crank goes false when below this value)	<	2	Volts					Out of	280	one sample count per 25 ms loop	
							Ignition Switch Run/Start Position Circuit Low diagnaotic enable calibration	=	1	Boolean				
							ECM run/crank active status available from serial data	=	TRUE	Boolean				
							ECM run/crank active status	=	TRUE	Boolean				
							Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean				
				Disable Conditions:			**MIL not Illuminated for DTC's:**	TCM: None ECM: None						
Transmission Control Module (TCM)	P2535	Ignition Switch Run/Start Position Circuit High	TCM Run crank active (based on voltage thresholds below)	=	TRUE	Boolean								One Trip
			Ignition Voltage High Hyst (run crank goes true when above this value)	>	5	Volts					>=	280	one fail count per 25 ms loop	
			Ignition Voltage Low Hyst (run crank goes false when below this value)	<	2	Volts					Out of	280	one sample count per 25 ms loop	
							Ignition Switch Run/Start Position Circuit High diagnaotic enable calibration	=	1	Boolean				
							ECM run/crank active status available from serial data	=	TRUE	Boolean				
							ECM run/crank active status	=	FALSE	Boolean				
							Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean				
				Disable Conditions:			**MIL not Illuminated for DTC's:**	TCM: None ECM: None						
High Side Driver 2	P2670	Actuator Supply Voltage B Circuit Low	The HWIO reports a low voltage (ground short) error flag	=	TRUE	Boolean					>=	6	Fail Counts (6.25 msec continuous)	One Trip
											out of	2395	Sample Counts (6.25 msec continuous)	
							actuator supply voltage circuit low enable calibration	=	1					
							Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
							P2670 Status is not	=	Test Failed This Key On or Fault Active					
							P2670 Status is not	=	Test Failed This Key On or Fault Active					
							Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
							High Side Driver 2 On	=	True	Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P2714	Pressure Control Solenoid D Stuck Off (clutch4/C23468)	absolute value (attained gear slip)	>=	400	RPM					>=	3	seconds	One Trip
													when fail time reaches fail limit increment fail event count	
											>=	3	event counts	
							clutch solenoid stuck on performance diagnostic monitor test deceleration limit not	=	TRUE	boolean				
							clutch solenoid stuck on performance diagnostic monitor test return to previous range not	=	TRUE	boolean				
							PRNDL State not	=	park	enumeration				
							PRNDL State not	=	neutral	enumeration				
							while conditinos A and B and C are met, time down delay from clibration to 0.0 seconds delay time calibration	=	0.5	seconds				
							A) neutral condition fault pending	=	FALSE	boolean				
							B) intrusive shift active	=	FALSE	boolean				
							C) range shift state	=	shift complete	enumeration				
							intrusive shift allowed	=	TRUE	boolean				
							intrusive shift active	=	FALSE	boolean				
							steady state pressure adapt in progress	=	FALSE	boolean				
							transmission output speed	>=	100	RPM				
							accelerator pedal position	>=	0.5004883	%				
							accelerator pedal position valid	=	TRUE	Boolean				
							engine speed valid	=	TRUE	Boolean				
							D or E							
							D) select battery voltage to enable diagnsotic monitor	=	0	Boolean				
							E) battery voltage	<=	31.999023	volts				
							E) battery voltage	>=	9	volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					E) battery voltage time F or G	>=	0.1	sec		
					F) select ignition voltage to enable diagnsotic monitor	=	0	Boolean		
					G) Ignition Voltage	<=	31.999023	Volts		
					G) Ignition Voltage	>=	9	Volts		
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean		
					Ignition voltage and SFL conditions met for	>=	0.1	Sec		
					Hydraulic System Pressurized	=	TRUE	Boolean		
					high side driver 1 enabled	=	TRUE	Boolean		
					high side driver 2 enabled	=	TRUE	Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915, P2534 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 Force Solenoid (VFS)	P2715	Pressure Control Solenoid D Stuck On (clutch4/C23468)	automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count deceleration limited	see Table 32 in supporting documents	fail event counts	>=				One Trip
			automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count no deceleration	see Table 33 in supporting documents	fail event counts	>=				
			A) absolute value (attained gear slip), fail during post torque phase of transmission automatic shift, before engine speed change, pull up or pull down occurs	40 RPM		<=				
			increment fail time when slip criteria met, fail time for power down shift						see Table 29 in supporting documents >= seconds	
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited						see Table 30 in supporting documents >= seconds	
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift no deceleration						see Table 31 in supporting documents >= seconds	
									when fail time reaches fail limit increment fail event count above	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
			B) absolute value (command gear slip), fail during inertia phase of transmission automatic shift, engine speed change begins, pull up or pull down increment fail time when slip criteria met, fail time during shift deceleration limited increment fail time when slip criteria met, fail time during shift no deceleration	>=	70	RPM					see Table 35 >= in supporting seconds documents see Table 36 >= in supporting seconds documents when fail time reaches fail limit increment fail event count above	
							inertia phase test measured gear ratio	>=	0.558			
							inertia phase test measured gear ratio	<=	4.7150002			
							inertia phase test measured gear ratio time	>=	0.15	seconds		
							clutch test enabled	=	see Table 10 in supporting documents	boolean		
							post torque phase test engine torque hysteresis high enable for upshift or power on down shift	>=	see Table 11 in supporting documents	N*m		
							post torque phase test engine torque hysteresis low disable for upshift or power on down shift	>	see Table 12 in supporting documents	N*m		
							post torque phase test engine torque hysteresis high enable for closed throttle down shift	>=	see Table 13 in supporting documents	N*m		
							post torque phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 14 in supporting documents	N*m		
							inertia phase test engine torque hysteresis high enable for upshift or power on down shift	>=	see Table 15 in supporting documents	N*m		
							inertia phase test engine torque hysteresis low disable for upshift or power on down shift	>	see Table 16 in supporting documents	N*m		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					inertia phase test engine torque hysteresis high enable for closed throttle down shift	>=	see Table 17 in supporting documents N*m		
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 18 in supporting documents N*m		
					off going clutch pressure	<=	see Table 37 in supporting documents kPa		
					off going clutch pressure closed throttle down shift delay time	>=	see Table 5 in supporting documents seconds		
					off going clutch pressure closed power down shift delay time	>=	see Table 41 in supporting documents seconds		
					off going clutch pressure up shift delay time	>=	see Table 62 in supporting documents seconds		
					on coming clutch pressure for up shift	>=	see Table 8 in supporting documents kPa		
					on coming clutch pressure for down shift	>=	see Table 7 in supporting documents kPa		
					brake pedal position hysteresis high disable	>=	27.000427 %		
					brake pedal position hysteresis low enable	<=	25 %		
					absolute value (attained gear slip)	<=	40 RPM		
					shift type enable	=	see Table 45 in supporting documents boolean		
					clucth solenoid stuck off intrusive shift request not	=	TRUE boolean		
					traction control event test suspend not	=	TRUE boolean		
					transmission output speed	>=	100 RPM		
					accelerator pedal position valid	=	TRUE Boolean		
					engine speed valid	=	TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					D or E			
					D) select battery voltage to enable diagnsotic monitor	= 0 Boolean		
					E) battery voltage	<= 31.999023 volts		
					E) battery voltage	>= 9 volts		
					E) battery voltage time	>= 0.1 sec		
					F or G			
					F) select ignition voltage to enable diagnsotic monitor	= 0 Boolean		
					G) Ignition Voltage	<= 31.999023 Volts		
					G) Ignition Voltage	>= 9 Volts		
					Service Fast Learn (SFL) Mode VBS Failsafe	= FALSE Boolean		
					Ignition voltage and SFL conditions met for	>= 0.1 Sec		
					Hydraulic System Pressurized	= TRUE Boolean		
					high side driver 1 enabled	= TRUE Boolean		
					high side driver 2 enabled	= TRUE Boolean		
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915, P2534 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 Force Solenoid (VFS)	P2718	Pressure Control Solenoid D Control Circuit Open (clutch4/C23468 VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.5 Sample Time (Sec)	One Trip
					diagnostic monitor enable calibration	= TRUE Boolean		
					VFS source must be high side driver 1 or 2 or 3			
					high side driver VFS source is	= CeTSCR_e_HSD1 enumeration		
					high side driver VFS source enabled	= TRUE Boolean		
					controller power mode state is ignition or accessory	= TRUE Boolean		
					battery voltage in range for stability time			
					battery voltage stability time	>= 1 seconds		
					battery voltage	>= 8 volts		
					battery voltage	<= 32 Volts		

17 OBDG03 TCM Common 8 Speed T87 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's: TCM: None ECM: None		
Variable Force Solenoid (VFS)	P2720	Pressure Control Solenoid D Control Circuit Low (clutch4/C23468 VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.5 Sample Time (Sec)	One Trip
					diagnostic monitor enable calibration	= TRUE Boolean		
					VFS source must be high side driver 1 or 2 or 3			
					high side driver VFS source is	= CeTSCR_e_HSD1 enumeration		
					high side driver VFS source enabled	= TRUE Boolean		
					controller power mode state is ignition or accessory	= TRUE Boolean		
					battery voltage in range for stability time			
					battery voltage stability time	>= 1 seconds		
					battery voltage	>= 8 volts		
					battery voltage	<= 32 Volts		
					Disable Conditions:	MIL not Illuminated for DTC's: TCM: None ECM: None		
Variable Force Solenoid (VFS)	P2721	Pressure Control Solenoid D Control Circuit High (clutch4/C23468 VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.5 Sample Time (Sec)	One Trip
					diagnostic monitor enable calibration	= TRUE Boolean		
					VFS source must be high side driver 1 or 2 or 3			
					high side driver VFS source is	= CeTSCR_e_HSD1 enumeration		
					high side driver VFS source enabled	= TRUE Boolean		
					controller power mode state is ignition or accessory	= TRUE Boolean		
					battery voltage in range for stability time			
					battery voltage stability time	>= 1 seconds		
					battery voltage	>= 8 volts		
					battery voltage	<= 32 Volts		
					Disable Conditions:	MIL not Illuminated for DTC's: TCM: None ECM: None		
Variable Force Solenoid (VFS)	P2723	Pressure Control Solenoid E Stuck Off (clutch5/C45678R)	absolute value (attained gear slip)	>= 400 RPM			>= 3 seconds	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
									when fail time reaches fail limit increment fail event count		
									>=	3	event counts
					clutch solenoid stuck on performance diagnostic monitor test deceleration limit not	=	TRUE	boolean			
					clutch solenoid stuck on performance diagnostic monitor test return to previous range not	=	TRUE	boolean			
					PRNDL State not	=	park	enumeration			
					PRNDL State not	=	neutral	enumeration			
					while conditinos A and B and C are met, time down delay from clibration to 0.0 seconds delay time calibration	=	0.5	seconds			
					A) neutral condition fault pending	=	FALSE	boolean			
					B) intrusive shift active	=	FALSE	boolean			
					C) range shift state	=	shift complete	enumeration			
					intrusive shift allowed	=	TRUE	boolean			
					intrusive shift active	=	FALSE	boolean			
					steady state pressure adapt in progress	=	FALSE	boolean			
					transmission output speed	>=	100	RPM			
					accelerator pedal position	>=	0.5004883	%			
					accelerator pedal position valid	=	TRUE	Boolean			
					engine speed valid	=	TRUE	Boolean			
					D or E						
					D) select battery voltage to enable diagnsotic monitor	=	0	Boolean			
					E) battery voltage	<=	31.999023	volts			
					E) battery voltage	>=	9	volts			
					E) battery voltage time	>=	0.1	sec			
					F or G						
					F) select ignition voltage to enable diagnsotic monitor	=	0	Boolean			
					G) Ignition Voltage	<=	31.999023	Volts			
					G) Ignition Voltage	>=	9	Volts			
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean			
					Ignition voltage and SFL conditions met for	>=	0.1	Sec			
					Hydraulic System Pressurized	=	TRUE	Boolean			
					high side driver 1 enabled	=	TRUE	Boolean			
					high side driver 2 enabled	=	TRUE	Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions	Time Required		Mil Illum.
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915, P2534			
							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 Force Solenoid (VFS)	P2724	Pressure Control Solenoid E Stuck On (clutch5/C45678R)	automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count deceleration limited	>=	see Table 32 in supporting documents fail event counts					One Trip
			automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count no deceleration	>=	see Table 33 in supporting documents fail event counts					
			A) absolute value (attained gear slip), fail during post torque phase of transmission automatic shift, before engine speed change, pull up or pull down occurs	<=	40	RPM				
			increment fail time when slip criteria met, fail time for power down shift					>=	see Table 29 in supporting documents seconds	
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited					>=	see Table 30 in supporting documents seconds	
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift no deceleration					>=	see Table 31 in supporting documents seconds	
								when fail time reaches fail limit increment fail event count above		
			B) absolute value (command gear slip), fail during inertia phase of transmission automatic shift, engine speed change begins, pull up or pull down	>=	70	RPM				
			increment fail time when slip criteria met, fail time during shift deceleration limited					>=	see Table 35 in supporting documents seconds	
			increment fail time when slip criteria met, fail time during shift no deceleration					>=	see Table 36 in supporting documents seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
								when fail time reaches fail limit increment fail event count above	
					inertia phase test measured gear ratio	>=	0.558		
					inertia phase test measured gear ratio	<=	4.7150002		
					inertia phase test measured gear ratio time	>=	0.15 seconds		
					clutch test enabled	=	see Table 10 in supporting documents boolean		
					post torque phase test engine torque hysteresis high enable for upshift or power on down shift	>=	see Table 11 in supporting documents N*m		
					post torque phase test engine torque hysteresis low disable for upshift or power on down shift	>	see Table 12 in supporting documents N*m		
					post torque phase test engine torque hysteresis high enable for closed throttle down shift	>=	see Table 13 in supporting documents N*m		
					post torque phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 14 in supporting documents N*m		
					inertia phase test engine torque hysteresis high enable for upshift or power on down shift	>=	see Table 15 in supporting documents N*m		
					inertia phase test engine torque hysteresis low disable for upshift or power on down shift	>	see Table 16 in supporting documents N*m		
					inertia phase test engine torque hysteresis high enable for closed throttle down shift	>=	see Table 17 in supporting documents N*m		
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 18 in supporting documents N*m		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					off going clutch pressure	<=	see Table 37 in supporting documents kPa		
					off going clutch pressure closed throttle down shift delay time	>=	see Table 6 in supporting documents seconds		
					off going clutch pressure closed power down shift delay time	>=	see Table 42 in supporting documents seconds		
					off going clutch pressure up shift delay time	>=	see Table 63 in supporting documents seconds		
					on coming clutch pressure for up shift	>=	see Table 8 in supporting documents kPa		
					on coming clutch pressure for down shift	>=	see Table 7 in supporting documents kPa		
					brake pedal position hysteresis high disable	>=	27.000427 %		
					brake pedal position hysteresis low enable	<=	25 %		
					absolute value (attained gear slip)	<=	40 RPM		
					shift type enable	=	see Table 45 in supporting documents boolean		
					clucth solenoid stuck off intrusive shift request not	=	TRUE boolean		
					traction control event test suspend not	=	TRUE boolean		
					transmission output speed	>=	100 RPM		
					accelerator pedal position valid	=	TRUE Boolean		
					engine speed valid	=	TRUE Boolean		
					D or E				
					D) select battery voltage to enable diagnsotic monitor	=	0 Boolean		
					E) battery voltage	<=	31.999023 volts		
					E) battery voltage	>=	9 volts		
					E) battery voltage time	>=	0.1 sec		
					F or G				
					F) select ignition voltage to enable diagnsotic monitor	=	0 Boolean		
					G) Ignition Voltage	<=	31.999023 Volts		

17 OBDG03 TCM Common 8 Speed T87 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					G) Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe	>= 9 Volts / = FALSE Boolean		
					Ignition voltage and SFL conditions met for	>= 0.1 Sec		
					Hydraulic System Pressurized	= TRUE Boolean		
					high side driver 1 enabled	= TRUE Boolean		
					high side driver 2 enabled	= TRUE Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915, P2534 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 Force Solenoid (VFS)	P2727	Pressure Control Solenoid E Control Circuit Open (clutch5/C45678 VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.5 Sample Time (Sec)	One Trip
					diagnostic monitor enable calibration	= TRUE Boolean		
					VFS source must be high side driver 1 or 2 or 3			
					high side driver VFS source is	= CeTSCR_e_HSD1 enumeration		
					high side driver VFS source enabled	= TRUE Boolean		
					controller power mode state is ignition or accessory	= TRUE Boolean		
					battery voltage in range for stability time			
					battery voltage stability time	>= 1 seconds		
					battery voltage	>= 8 volts		
					battery voltage	<= 32 Volts		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
Variable Force Solenoid (VFS)	P2729	Pressure Control Solenoid E Control Circuit Low (clutch5/C45678 VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.5 Sample Time (Sec)	One Trip
					diagnostic monitor enable calibration	= TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					VFS source must be high side driver 1 or 2 or 3							
					high side driver VFS source is	=	CeTSCR_ e_HSD1	enumeration				
					high side driver VFS source enabled	=	TRUE	Boolean				
					controller power mode state is ignition or accessory	=	TRUE	Boolean				
					battery voltage in range for stability time							
					battery voltage stability time	>=	1	seconds				
					battery voltage	>=	8	volts				
					battery voltage	<=	32	Volts				
				Disable Conditions:	**MIL not Illuminated for DTC's:** TCM: None ECM: None							
Variable Force Solenoid (VFS)	P2730	Pressure Control Solenoid E Control Circuit High (clutch5/C45678 VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean					>=	0.3	Fail Time (Sec)	One Trip
									out of	0.5	Sample Time (Sec)	
					diagnostic monitor enable calibration	=	TRUE	Boolean				
					VFS source must be high side driver 1 or 2 or 3							
					high side driver VFS source is	=	CeTSCR_ e_HSD1	enumeration				
					high side driver VFS source enabled	=	TRUE	Boolean				
					controller power mode state is ignition or accessory	=	TRUE	Boolean				
					battery voltage in range for stability time							
					battery voltage stability time	>=	1	seconds				
					battery voltage	>=	8	volts				
					battery voltage	<=	32	Volts				
				Disable Conditions:	**MIL not Illuminated for DTC's:** TCM: None ECM: None							
Variable Force Solenoid (VFS)	P2736	Pressure Control Solenoid F Control Circuit Open (line pressure VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean					>=	0.3	Fail Time (Sec)	One Trip
									out of	0.5	Sample Time (Sec)	
					diagnostic monitor enable calibration	=	TRUE	Boolean				
					VFS source must be high side driver 1 or 2 or 3							
					high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
					high side driver VFS source enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					controller power mode state is ignition or accessory	=	TRUE	Boolean				
					battery voltage in range for stability time							
					battery voltage stability time	>=	1	seconds				
					battery voltage	>=	8	volts				
					battery voltage	<=	32	Volts				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Variable Force Solenoid (VFS)	P2738	Pressure Control Solenoid F Control Circuit Low (line pressure VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean					>=	0.3	Fail Time (Sec)	One Trip
									out of	0.5	Sample Time (Sec)	
					diagnostic monitor enable calibration	=	TRUE	Boolean				
					VFS source must be high side driver 1 or 2 or 3							
					high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
					high side driver VFS source enabled	=	TRUE	Boolean				
					controller power mode state is ignition or accessory	=	TRUE	Boolean				
					battery voltage in range for stability time							
					battery voltage stability time	>=	1	seconds				
					battery voltage	>=	8	volts				
					battery voltage	<=	32	Volts				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Variable Force Solenoid (VFS)	P2739	Pressure Control Solenoid F Control Circuit High (line pressure VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean					>=	0.3	Fail Time (Sec)	One Trip
									out of	0.5	Sample Time (Sec)	
					diagnostic monitor enable calibration	=	TRUE	Boolean				
					VFS source must be high side driver 1 or 2 or 3							
					high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
					high side driver VFS source enabled	=	TRUE	Boolean				
					controller power mode state is ignition or accessory	=	TRUE	Boolean				
					battery voltage in range for stability time							
					battery voltage stability time	>=	1	seconds				
					battery voltage	>=	8	volts				
					battery voltage	<=	32	Volts				

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				
VFS characterization	P27A7	VFS characterization	clutch1/CB1278R pressure control solenoid characterization not programmed	=	TRUE	Boolean						One Trip
							manufacture enable counter memory type updated	= =	0 non- volatile memory	counts		
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: None ECM: None				
VFS characterization	P27A8	VFS characterization	clutch2/CB12345R pressure control solenoid characterization not programmed	=	TRUE	Boolean						One Trip
							manufacture enable counter memory type updated	= =	0 non- volatile memory	counts		
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: None ECM: None				
VFS characterization	P27A9	VFS characterization	clutch3/C13567 pressure control solenoid characterization not programmed	=	TRUE	Boolean						One Trip
							manufacture enable counter memory type updated	= =	0 non- volatile memory	counts		
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: None ECM: None				
VFS characterization	P27AA	VFS characterization	clutch4/C23468 pressure control solenoid characterization not programmed	=	TRUE	Boolean						One Trip
							manufacture enable counter memory type updated	= =	0 non- volatile memory	counts		
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: None ECM: None				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
VFS characterization	P27AB	VFS characterization	clutch5/C45678R pressure control solenoid characterization not programmed	= TRUE	Boolean								One Trip
						manufacture enable counter	=	0	counts				
						memory type updated	=	non-volatile memory					
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None ECM: None						
VFS characterization	P27AC	VFS characterization	line pressure control solenoid characterization not programmed	= TRUE	Boolean								One Trip
						manufacture enable counter	=	0	counts				
						memory type updated	=	non-volatile memory					
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None ECM: None						
VFS characterization	P27AD	VFS characterization	TCC pressure control solenoid characterization not programmed	= TRUE	Boolean								One Trip
						manufacture enable counter	=	0	counts				
						memory type updated	=	non-volatile memory					
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None ECM: None						
Torque Converter Clutch (TCC)	P2808	TCC System Stuck OFF	TCC Pressure	>= 750	Kpa					>=	2	Enable Time (Sec)	Two Trips
			TCC capacity	>= 0	%					>=	0	Enable Time (Sec)	
			Either Condition (A) or (B) Must be Met										
			(A) TCC Slip Error @ TCC On Mode	>= see Table 1 in Supporting Documents	RPM					>=	4	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode	>= 130	RPM					>=	4	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter							>=	3	TCC Stuck Off Fail Counter	
						TCC Mode	=	On or Lock					
						TCC system stuck off diagnostic monitor enable c	=	1					
						default valve state	=	high (active)					
						absolute value of attained gear slip	>=	25	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required		Mil Illum.
					attained gear	>=	CeCGSR_ e_CR_Fourth			
					range shift state	=	shift complete			
					Hydraulic System Pressurized	=	TRUE	Boolean		
					battery voltage	<=	31.999023	volts		
					battery voltage	>=	9	volts		
					battery voltage time	>=	0.1	sec		
					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		
					Engine Torque	>=	50	N*m		
					Engine Torque	<=	8191.75	N*m		
					Throttle Position	>=	8.0001831	Pct		
					Throttle Position	<=	99.998474	Pct		
					Transmission Fluid Temperature	>=	-6.65625	ºC		
					Transmission Fluid Temperature	<=	130	ºC		
					PTO Not Active	=	TRUE	Boolean		
					Engine Torque Signal Valid	=	TRUE	Boolean		
					Accelerator Pedal Position Signal Valid	=	TRUE	Boolean		
					P2808 Status is	≠	Test Failed This Key On			
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P07BF, P07C0, P0722, P0723, P077C, P077D, P2808, P2812, P2814, P2815 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Torque Converter Clutch (TCC)	P2809	TCC System Stuck ON	TCC Slip Speed	>= -50 RPM						One Trip
			TCC Slip Speed	<= 30 RPM						
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter					>= 1.5 Fail Time (Sec)		
								>= 6 Fail Counter		
					TCC Mode	=	Off			
					default valve state	=	high (active)			
					default valve state previous	=	low to high			
					set default valve state timer	=	see Table 24 in Supporting Documents	seconds		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					default valve state timer times down to zero (0.0) when default valve state not	=	high (active)			
					default valve state timer times down to zero (0.0) when default valve state previous not	=	low to high			
					either A or B ro C must be met					
					A) default valve state	=	low to high			
					B) default valve state timer	>	0	seconds		
					C) low TCC slip fail timer	>	0	seconds		
					clutch solenoid stuck off performance (neutral) test active	=	FALSE	Boolean		
					clutch solenoid stuck on performance (tie-up) test active	=	FALSE	Boolean		
					TCC Slip Speed	<=	300	RPM		
					derivative TCC slip speed	<=	see Table 25 in Supporting Documents	RPM/sec		
					TCC system stuck on diagnostic monitor enable c	=	1			
					Engine Speed	<=	5500	RPM		
					Engine Speed	>=	400	RPM		
					Vehicle Speed HI	<=	45	KPH		
					Engine Torque	<=	800	Nm		
					Engine Torque	>=	55	Nm		
					Current Range	≠	Neutral	Range		
					Current Range	≠	Reverse	Range		
					Transmission Fluid Temperature	<=	130	ºC		
					Transmission Fluid Temperature	>=	-6.65625	ºC		
					Throttle Position Hyst High AND	>=	3.9993286	Pct		
					Max Vehicle Speed to Meet Throttle Enable	<=	8	KPH		
					Once Hyst High has been met, the enable will remain while Throttle Position	>=	0.9994507	Pct		
					Disable for Throttle Position	>=	94.999695	Pct		
					Disable if PTO active and value true	=	1			
					enable if tap up/down mode is false or tap up/down TCC calibration value is false	=	0	Boolean		
					enable if manual up/down mode is false or manual up/down TCC calibration value is false	=	0	Boolean		
					enable if misfire disengage TCC is false or value TCC misfire calibration value is false	=	0	Boolean		
					4 Wheel Drive Low Active	=	FALSE	Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					battery voltage	<=	31.999023 volts		
					battery voltage	>=	9 volts		
					battery voltage time	>=	0.1 sec		
					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		
					Engine Torque Signal Valid	=	TRUE Boolean		
					Throttle Position Signal Valid	=	TRUE Boolean		
					P0742 Status is	≠	Test Failed This Key On		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P07BF, P07C0, P0722, P0723, P077C, P077D, P2809, P2812, P2814, P2815			
						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 Force Solenoid (VFS)	P2812	Pressure Control Solenoid G Control Circuit Open (TCC pressure VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean				>= 0.3 Fail Time (Sec) out of 0.5 Sample Time (Sec)	One Trip
					diagnostic monitor enable calibration	=	TRUE Boolean		
					VFS source must be high side driver 1 or 2 or 3 high side driver VFS source is	=	CeTSCR_e_HSD2 enumeration		
					high side driver VFS source enabled	=	TRUE Boolean		
					controller power mode state is ignition or accessory	=	TRUE Boolean		
					battery voltage in range for stability time battery voltage stability time	>=	1 seconds		
					battery voltage	>=	8 volts		
					battery voltage	<=	32 Volts		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None			
						ECM: None			
Variable Force Solenoid (VFS)	P2814	Pressure Control Solenoid G Control Circuit Low (TCC pressure VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean				>= 0.3 Fail Time (Sec) out of 0.5 Sample Time (Sec)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					diagnostic monitor enable calibration	=	TRUE	Boolean				
					VFS source must be high side driver 1 or 2 or 3							
					high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
					high side driver VFS source enabled	=	TRUE	Boolean				
					controller power mode state is ignition or accessory	=	TRUE	Boolean				
					battery voltage in range for stability time							
					battery voltage stability time	>=	1	seconds				
					battery voltage	>=	8	volts				
					battery voltage	<=	32	Volts				
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Variable Force Solenoid (VFS)	P2815	Pressure Control Solenoid G Control Circuit High (TCC pressure VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean					>=	0.3	Fail Time (Sec)	One Trip
									out of	0.5	Sample Time (Sec)	
					diagnostic monitor enable calibration	=	TRUE	Boolean				
					VFS source must be high side driver 1 or 2 or 3							
					high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
					high side driver VFS source enabled	=	TRUE	Boolean				
					controller power mode state is ignition or accessory	=	TRUE	Boolean				
					battery voltage in range for stability time							
					battery voltage stability time	>=	1	seconds				
					battery voltage	>=	8	volts				
					battery voltage	<=	32	Volts				
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
default valve on/off valve solenoid	P2817	Hydraulic on/off Control Solenoid H Stuck Off (default valve on/off solenoid)	absolute value (attained gear slip) 4th gear commanded	>= 400 RPM	6th gear intrusive shift command when fail time reaches fail limit				>=	3	seconds	One Trip
					attained gear when intrusive 6th gear command	=	3rd					
					attained gear slip 3rd gear	<=	75	RPM				
					3rd gear attained time	>=	0.5	seconds				
					intrusive 6th gear commanded event count	>=	2	counts				
									>=	2	counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					clutch solenoid stuck on performance diagnostic monitor test deceleration limit not	=	TRUE	boolean		
					clutch solenoid stuck on performance diagnostic monitor test return to previous range not	=	TRUE	boolean		
					PRNDL State not	=	park	enumeration		
					PRNDL State not	=	neutral	enumeration		
					while conditinos A and B and C are met, time down delay from clibration to 0.0 seconds					
					delay time calibration	=	0.5	seconds		
					A) neutral condition fault pending	=	FALSE	boolean		
					B) intrusive shift active	=	FALSE	boolean		
					C) range shift state	=	shift complete	enumeration		
					intrusive shift allowed	=	TRUE	boolean		
					intrusive shift active	=	FALSE	boolean		
					steady state pressure adapt in progress	=	FALSE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position	>=	0.5004883	%		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid	=	TRUE	Boolean		
					D or E					
					D) select battery voltage to enable diagnsotic monitor	=	0	Boolean		
					E) battery voltage	<=	31.999023	volts		
					E) battery voltage	>=	9	volts		
					E) battery voltage time	>=	0.1	sec		
					F or G					
					F) select ignition voltage to enable diagnsotic monitor	=	0	Boolean		
					G) Ignition Voltage	<=	31.999023	Volts		
					G) Ignition Voltage	>=	9	Volts		
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean		
					Ignition voltage and SFL conditions met for	>=	0.1	Sec		
					Hydraulic System Pressurized	=	TRUE	Boolean		
					high side driver 1 enabled	=	TRUE	Boolean		
					high side driver 2 enabled	=	TRUE	Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions				Time Required			Mil Illum.
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915, P2534 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							
default valve on/off valve solenoid	P2818	Hydraulic on/off Control Solenoid H Stuck On (default valve on/off solenoid)	TCC slip speed	<=	6	RPM						>=	0.5	seconds	Two Trips
												>=	3	counts	
												>=	5	counts	
							delay time after TCC intrusive command pressure reaches intrusive value	>=	see Table 28 in supporting documents	seconds					
							TCC intrusive command pressure	>=	600	kPa					
							test delay timer calibration	=	0.5	seconds					
							test delay timer times down from calibration to zero (0.0) when all of the following conditinos are met								
							engine speed	>=	400	RPM					
							engine speed	<=	900	RPM					
							transmission temperature	>=	0	ºC					
							transmission temperature	<=	40	ºC					
							PRNDL state	=	park	enumeration					
							Hydraulic System Pressurized	=	TRUE	Boolean					
							battery voltage	<=	31.999023	volts					
							battery voltage	>=	9	volts					
							battery voltage time	>=	0.1	sec					
							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:			MIL not Illuminated for DTC's:	TCM: P0716, P0717, P07BF, P07C0, P2812, P2814, P2815 ECM: none						
default valve on/off solenoid	P281D	Pressure Control Solenoid H Control Circuit Low (default valve on/off solenoid)	The HWIO reports open crcuit error flag	=	TRUE	Boolean						>=	0.3	Fail Time (Sec)	One Trip
												out of	0.5	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					diagnostic monitor enable calibration	=	TRUE	Boolean				
					VFS source must be high side driver 1 or 2 or 3							
					high side driver VFS source is	=	CeTSCR_e_HSD1	enumeration				
					high side driver VFS source enabled	=	TRUE	Boolean				
					controller power mode state is ignition or accessory	=	TRUE	Boolean				
					battery voltage in range for stability time							
					battery voltage stability time	>=	1	seconds				
					battery voltage	>=	8	volts				
					battery voltage	<=	32	Volts				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
default valve on/off solenoid	P281E	Pressure Control Solenoid H Control Circuit High (default valve on/off solenoid)	The HWIO reports open crcuit error flag	= TRUE Boolean					>= out of	0.3 0.5	Fail Time (Sec) Sample Time (Sec)	One Trip
					diagnostic monitor enable calibration	=	TRUE	Boolean				
					VFS source must be high side driver 1 or 2 or 3							
					high side driver VFS source is	=	CeTSCR_e_HSD1	enumeration				
					high side driver VFS source enabled	=	TRUE	Boolean				
					controller power mode state is ignition or accessory	=	TRUE	Boolean				
					battery voltage in range for stability time							
					battery voltage stability time	>=	1	seconds				
					battery voltage	>=	8	volts				
					battery voltage	<=	32	Volts				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
clutch2/CB12345R boost valve on/off solenoid	P2826	Pressure Control Solenoid J Control Circuit Low clutch2/CB12345R boost valve on/off solenoid)	The HWIO reports open crcuit error flag	= TRUE Boolean					>= out of	0.3 0.5	Fail Time (Sec) Sample Time (Sec)	One Trip
					diagnostic monitor enable calibration	=	TRUE	Boolean				
					VFS source must be high side driver 1 or 2 or 3							
					high side driver VFS source is	=	CeTSCR_e_HSD2	enumeration				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					high side driver VFS source enabled	=	TRUE	Boolean				
					controller power mode state is ignition or accessory	=	TRUE	Boolean				
					battery voltage in range for stability time							
					battery voltage stability time	>=	1	seconds				
					battery voltage	>=	8	volts				
					battery voltage	<=	32	Volts				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
clutch2/CB12345R boost valve on/off solenoid	P2827	Pressure Control Solenoid J Control Circuit High (clutch2/CB12345R boost valve on/off solenoid)	The HWIO reports open crcuit error flag	= TRUE Boolean					>=	0.3	Fail Time (Sec)	One Trip
									out of	0.5	Sample Time (Sec)	
					diagnostic monitor enable calibration	=	TRUE	Boolean				
					VFS source must be high side driver 1 or 2 or 3							
					high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
					high side driver VFS source enabled	=	TRUE	Boolean				
					controller power mode state is ignition or accessory	=	TRUE	Boolean				
					battery voltage in range for stability time							
					battery voltage stability time	>=	1	seconds				
					battery voltage	>=	8	volts				
					battery voltage	<=	32	Volts				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Bus Voltage Error (CAN bus off)	= TRUE Boolean					>=	62	counts	One Trip
			Bus off delay time	>= 0.1125 sec					>=	70	counts	
					all conditions A and B and C below must occur for stabilization time							
					Bus Stabilization time	>=	3	seconds				
					A) Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean				
					A) normal serial data communication enabled	=	TRUE	Boolean				
					A) P0073 status not	=	fault active					
					B) secured controller or emission critical then use ignition voltage	=	CeCANR_ e_OBDII_ Dsbl	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					B) secureed controller or emission critical Ignition Voltage	>=	11	volts		
					B) Power Mode	=	Run			
					B) secured controller or emission critical then use controller power mode	=	CeCANR_ e_OBDII_ Dsbl	Boolean		
					B) Power Mode	=	Run			
					C) ignition off enable	=	TRUE	Boolean		
					C) Power Mode	=	accessory			
					C) battery voltage	>=	11	volts		
					all conditions A and B below must occur					
					A) post clear code timer	>=	0.15	seconds		
					B) when Propulsion System Active use low voltage check	=	FALSE	Boolean		
					conditions A or B below during low voltage occur while low voltage mode hysteresis time					
					low voltage mode hysteresis time	<=	0.1	seconds		
					A) system voltage mode	=	2.50E-02	enumeration		
					B) ignition voltage, set low voltage mode	<=	6.4091797	volts		
					conditions A or B above occur while low voltage mode hysteresis time and low voltage time					
					low voltage mode time	>=	2.50E-02	seconds		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None				
Communication	U0100	Lost Communications with ECM (Engine Control Module)	TCM Rx message missed frame		fail times are caculated based on Rx message enable calibration set to CeCANR_e_BusA_ECM		Tx controller			One Trip
			TCM Rx frame message missed frame	= TRUE Boolean	TCM Rx frame calibration enabled	≠	see Table 64 in supporting documents	enumeration	>= see Table 65 in supporting documents seconds	
					Frame recovery stabilization delay	>=	0.5	seconds		
					all conditions A and B and C below must occur for stabilization time					
					Bus Stabilization time	>=	3	seconds		
					A) Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean		
					A) normal serial data communication enabled	=	TRUE	Boolean		
					A) P0073 status not	=	fault active			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					B) secured controller or emission critical then use ignition voltage	=	CeCANR_ e_OBDII_ Dsbl	Boolean		
					B) secureed controller or emission critical Ignition Voltage	>=	11	volts		
					B) Power Mode	=	Run			
					B) secured controller or emission critical then use controller power mode	=	CeCANR_ e_OBDII_ Dsbl	Boolean		
					B) Power Mode	=	Run			
					C) ignition off enable	=	TRUE	Boolean		
					C) Power Mode	=	accessory			
					C) battery voltage	>=	11	volts		
					all conditions A and B below must occur					
					A) post clear code timer	>=	0.15	seconds		
					B) when Propulsion System Active use low voltage check	=	FALSE	Boolean		
					conditions A or B below during low voltage occur while low voltage mode hysteresis time					
					low voltage mode hysteresis time	<=	0.1	seconds		
					A) system voltage mode	=	2.50E-02	enumeration		
					B) ignition voltage, set low voltage mode	<=	6.4091797	volts		
					conditions A or B above occur while low voltage mode hysteresis time and low voltage time					
					low voltage mode time	>=	2.50E-02	seconds		
					U0100 fault status is not	=	fault active			
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: U0073 ECM: None				
Communication	U0121	Loss Communications with ABS (Anti-lock Brake System)	TCM Rx message missed frame		fail times are caculated based on the following Rx messages enable calibration set to CeCANR_e_BusA_ABS		Tx controller			Special No MIL
			TCM Rx frame message missed frame	= TRUE Boolean	TCM Rx frame calibration enabled	≠	see Table 64 in supporting documents	enumeration	>= see Table 65 in supporting documents seconds	
					Frame recovery stabilization delay	>=	0.5	seconds		
					all conditions A and B and C below must occur for stabilization time					
					Bus Stabilization time	>=	3	seconds		
					A) Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					A) normal serial data communication enabled	=	TRUE Boolean		
					A) P0073 status not	=	fault active		
					B) secured controller or emission critical then use ignition voltage	=	CeCANR_ e_OBDII_ Dsbl Boolean		
					B) secureed controller or emission critical Ignition Voltage	>=	11 volts		
					B) Power Mode	=	Run		
					B) secured controller or emission critical then use controller power mode	=	CeCANR_ e_OBDII_ Dsbl Boolean		
					B) Power Mode	=	Run		
					C) ignition off enable	=	TRUE Boolean		
					C) Power Mode	=	accessory		
					C) battery voltage	>=	11 volts		
					all conditions A and B below must occur				
					A) post clear code timer	>=	0.15 seconds		
					B) when Propulsion System Active use low voltage check	=	FALSE Boolean		
					conditions A or B below during low voltage occur while low voltage mode hysteresis time				
					low voltage mode hysteresis time	<=	0.1 seconds		
					A) system voltage mode	=	2.50E-02 enumeration		
					B) ignition voltage, set low voltage mode	<=	6.4091797 volts		
					conditions A or B above occur while low voltage mode hysteresis time and low voltage time				
					low voltage mode time	>=	2.50E-02 seconds		
					U0121 fault status is not	=	fault active		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None			
Communication	U0140	Loss Communications with BCM (Body Control Module)	TCM Rx message missed frame		fail times are caculated based on the following Rx messages enable calibration set to CeCANR_e_BusA_BCM	Tx controller			Special No MIL
			TCM Rx frame message missed frame	= TRUE Boolean	TCM Rx frame calibration enabled	≠	see Table 64 in supporting documents enumeration	>= see Table 65 in supporting documents seconds	
					Frame recovery stabilization delay	>=	0.5 seconds		
					all conditions A and B and C below must occur for stabilization time				
					Bus Stabilization time	>=	3 seconds		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					A) Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean		
					A) normal serial data communication enabled	=	TRUE	Boolean		
					A) P0073 status not	=	fault active			
					B) secured controller or emission critical then use ignition voltage	=	CeCANR_ e_OBDII_ Dsbl	Boolean		
					B) secureed controller or emission critical Ignition Voltage	>=	11	volts		
					B) Power Mode	=	Run			
					B) secured controller or emission critical then use controller power mode	=	CeCANR_ e_OBDII_ Dsbl	Boolean		
					B) Power Mode	=	Run			
					C) ignition off enable	=	TRUE	Boolean		
					C) Power Mode	=	accessory			
					C) battery voltage	>=	11	volts		
					all conditions A and B below must occur					
					A) post clear code timer	>=	0.15	seconds		
					B) when Propulsion System Active use low voltage check	=	FALSE	Boolean		
					conditions A or B below during low voltage occur while low voltage mode hysteresis time					
					low voltage mode hysteresis time	<=	0.1	seconds		
					A) system voltage mode	=	2.50E-02	enumeration		
					B) ignition voltage, set low voltage mode	<=	6.4091797	volts		
					conditions A or B above occur while low voltage mode hysteresis time and low voltage time					
					low voltage mode time	>=	2.50E-02	seconds		
					U0140 fault status is not	=	fault active			

17 OBDG03 TCM Common 8 Speed T87 - Supporting Tables

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	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	1.6000	1.1000	0.9500	0.8500	0.8500	seconds

Table 3

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	1.5500	1.0500	0.9000	0.8000	0.8000	seconds

Table 4

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	1.4000	0.9000	0.7500	0.6500	0.6500	seconds

Table 5

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	1.5500	1.0500	1.0000	1.0000	1.0000	seconds

Table 6

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	1.5500	1.0500	0.9000	0.8000	0.8000	seconds

Table 7

Axis	R_e_CD_21	R_e_CD_31	R_e_CD_32	R_e_CD_42	R_e_CD_43	R_e_CD_51	R_e_CD_53	R_e_CD_54	R_e_CD_63	R_e_CD_64	R_e_CD_65	R_e_CD_71	R_e_CD_75	R_e_CD_76
Curve	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0

Axis	R_e_CD_82	R_e_CD_84	R_e_CD_86	R_e_CD_87	closed throttle down shift type: 2-1, 3-1, 3-2, 4-2, 4-3, 5-1, 5-3, 5-4, 6-3, 6-4, 6-5, 7-1, 7-,5 7-6, 8-2, 8-4, 8-6, 8-7
Curve	750.0	750.0	750.0	750.0	kPa

Table 8

Axis	R_e_US_12	R_e_US_23	R_e_US_34	R_e_US_45	R_e_US_56	R_e_US_67	R_e_US_78	R_e_US_13	R_e_US_24	R_e_US_35	R_e_US_46	R_e_US_57	R_e_US_68	up shift type: 1-2, 2-3, 3-4, 4-5, 5-6, 6-7, 7-8, 1-3, 2-4, 3-5, 4-6, 5-7, 6-8
Curve	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	kPa

Table 9

NOT USED
NOT USED

Table 10

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	1	1	1	1	1	BOOLEAN

Table 11

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	180.0	180.0	180.0	180.0	180.0	N*m

Table 12

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	60.0	60.0	60.0	60.0	60.0	N*m

Table 13

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	10.0	10.0	10.0	10.0	10.0	N*m

Table 14

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	-30.0	-30.0	-30.0	-30.0	-30.0	N*m

Table 15

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	100.0	100.0	100.0	100.0	100.0	N*m

Table 16

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	60.0	60.0	60.0	60.0	60.0	N*m

Table 17

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	10.0	10.0	10.0	10.0	10.0	N*m

Table 18

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	-30.0	-30.0	-30.0	-30.0	-30.0	N*m

Table 19

NOT USED
NOT USED

Table 20

NOT USED
NOT USED

Table 21

Axis	-40.00	0.00	40.00	ºC
Curve	5.00	5.00	5.00	Sec

Table 22

NOT USED
NOT USED

Table 23

NOT USED
NOT USED

Table 24

Axis	-7.00	10.00	40.00	ºC
Curve	1.50	1.25	1.00	Sec

Table 25

Axis	-7.00	10.00	40.00	ºC
Curve	-2000.00	-2000.00	-2000.00	RPM/Sec

Table 26

Axis	-40.00	-30.00	-20.00	0.00	20.00	ºC
Curve	1800.00	1500.00	1200.00	600.00	60.00	Sec

Table 27

Axis	0.00	20.00	60.00	100.00	120.00	Kph
Curve	-8.00	-8.00	-8.00	-8.00	-8.00	ºC

Table 28

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	5.00	3.00	2.00	1.75	1.00	Sec

Table 29

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	0.9000	0.9000	0.9000	0.9000	0.9000	seconds

Table 30

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	0.9000	0.9000	0.9000	0.9000	0.9000	seconds

Table 31

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	0.9000	0.9000	0.9000	0.9000	0.9000	seconds

Table 32

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	4	4	4	4	4	counts

Table 33

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	4	4	4	4	4	counts

Table 34

NOT USED
NOT USED

Table 35

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	0.5000	0.5000	0.5000	0.5000	0.5000	seconds

Table 36

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	0.5000	0.5000	0.5000	0.5000	0.5000	seconds

Table 37

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	300.0	300.0	300.0	300.0	300.0	kPa

Table 38

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	0.9500	0.4500	0.3000	0.3000	0.3000	seconds

Table 39

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	0.9500	0.4500	0.3000	0.2000	0.2000	seconds

Table 40

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	0.9500	0.4500	0.3000	0.2000	0.2000	seconds

Table 41

Axis	-40.00	-20.00	0.00	30.00	110.00	°C
Curve	1.1000	0.6000	0.5500	0.5500	0.5500	seconds

Table 42

Axis	-40.00	-20.00	0.00	30.00	110.00	°C
Curve	0.9500	0.4500	0.3000	0.2000	0.2000	seconds

Table 43

NOT USED
NOT USED

Table 44

NOT USED
NOT USED

Table 45

Axis	R_e_CC_US	R_e_CC_CD	R_e_CC_PD	R_e_CC_GS	up shift, closed throttle down shift, power down shift, garage shift
Curve	1	1	1	0	BOOLEAN

Table 46

Axis	0	1	2	3	1 ADchannel, 2 AD channels, 3 AD channels, 4 AD channels
Curve	1	0	0	0	BOOLEAN

Table 47

Axis	TestVoltage1	TestVoltage2	TestVoltage3	TestVoltage4	1 ADchannel, 2 AD channels, 3 AD channels, 4 AD channels
Curve	5.0000	25.0000	75.0000	95.0000	volts

Table 48

Axis	_6p25msSeq	_12.5msSeq	e_25msSeq	e_LORES_C	6.25 msec loop, 12.5 msec loop, 25 msec loop, low res engine
Curve	0.2000	0.2000	0.2000	409.5938	seconds

Table 49

Axis	_6p25msSeq	_12.5msSeq	e_25msSeq	e_LORES_C	6.25 msec loop, 12.5 msec loop, 25 msec loop, low res engine
Curve	16	8	4	16	counts

Table 50

Axis	/R_i_MontrA	/R_i_MontrB	/R_i_MontrC	seed key test enable, seed sequence test enable, seed timeout test enable
Curve	1	0	0	BOOLEAN

Table 51

Axis	0	1	speed sensor1, speed sensor2
Curve	0.2500	0.0000	volts

Table 52

Axis	0	1	speed sensor1, speed sensor2
Curve	40	65535	counts

Table 53

Axis	0	1	speed sensor1, speed sensor2
Curve	0.0500	409.5938	seconds

Table 54

Axis	0	1	speed sensor1, speed sensor2
Curve	1	0	BOOLEAN

Table 55

Axis	0	1	speed sensor1, speed sensor2
Curve	4.7500	12.0000	volts

Table 56

Axis	0	1	speed sensor1, speed sensor2
Curve	40	65535	counts

Table 57

Axis	0	1	speed sensor1, speed sensor2
Curve	0.0500	409.5938	seconds

Table 58

Axis	0	1	speed sensor circuit low, speed sensor circuit high
Curve	1	0	BOOLEAN

Table 59

Axis	-40.00	-20.00	0.00	30.00	110.00	°C
Curve	1.2000	0.9000	0.8500	0.7500	0.7500	seconds

Table 60

Axis	-40.00	-20.00	0.00	30.00	110.00	°C
Curve	1.2500	0.7500	0.6000	0.6000	0.6000	seconds

Table 61

Axis	-40.00	-20.00	0.00	30.00	110.00	°C
Curve	1.2000	0.7000	0.5500	0.4500	0.4500	seconds

Table 62

Axis	-40.00	-20.00	0.00	30.00	110.00	°C
Curve	1.2000	0.7000	0.5500	0.5500	0.5500	seconds

Table 63

Axis	-40.00	-20.00	0.00	30.00	110.00	°C
Curve	1.2000	0.7000	0.5500	0.4500	0.4500	seconds

Table 64

Axis	_0BE_BusA	GACY_BusA	_0C1_BusA	_0C5_BusA	_0C9_BusA	_0F1_BusA	28_CA_BusA	_12A_BusA	_185_BusA	_18E_BusA	GACY_BusA	_191_BusA	_1A1_BusA	_1A3_BusA	1A5_BusA	1AA_BusA	ACY_BusA	1BA_BusA	1CB_BusA	1DF_BusA	frame
Curve	_BusA_ECM	alidRxDevice	_BusA_ABS	_BusA_ABS	_BusA_ECM	_BusA_BCM	alidRxDevice	_BusA_BCM	alidRxDevice	_BusA_ECM	alidRxDevice	alidRxDevice	_BusA_ECM	_BusA_ECM	dRxDevice	BusA_ECM	dRxDevice	BusA_ECM	dRxDevice	dRxDevice	enable or invalid
Axis	_1E9_BusA	_1F1_BusA	_1F3_BusA	_1F9_BusA	_1FC_BusA	_287_BusA	_2D1_BusA	_2F9_BusA	_3D1_BusA	_3E9_BusA	_3FC_BusA	_4A3_BusA	_4C1_BusA	4C7_BusA	4DF_BusA	4E1_BusA	4E9_BusA	4F1_BusA	589_BusA		frame
Curve	_BusA_ABS	_BusA_BCM	_BusA_BCM	alidRxDevice	_BusA_ABS	_BusA_ECM	alidRxDevice	alidRxDevice	_BusA_ECM	_BusA_ECM	alidRxDevice	alidRxDevice	_BusA_ECM	dRxDevice	_CHCM_A	BusA_BCM	BusA_BCM	BusA_ECM	BusA_ECM		enable or invalid

Table 65

Axis	_0BE_BusA	GACY_BusA	_0C1_BusA	_0C5_BusA	_0C9_BusA	_0F1_BusA	28_CA_BusA	_12A_BusA	_185_BusA	_18E_BusA	GACY_BusA	_191_BusA	_1A1_BusA	_1A3_BusA	1A5_BusA	1AA_BusA	ACY_BusA	1BA_BusA	1CB_BusA	1DF_BusA	frame
Curve	12.000	12.000	12.000	12.000	0.500	12.000	12.000	12.000	12.000	0.500	12.000	12.000	12.000	12.000	12.000	0.500	12.000	0.500	12.000	12.000	seconds
Axis	_1E9_BusA	_1F1_BusA	_1F3_BusA	_1F9_BusA	_1FC_BusA	_287_BusA	_2D1_BusA	_2F9_BusA	_3D1_BusA	_3E9_BusA	_3FC_BusA	_4A3_BusA	_4C1_BusA	4C7_BusA	4DF_BusA	4E1_BusA	4E9_BusA	4F1_BusA	589_BusA		frame
Curve	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	0.500		seconds

Supporting Documents - 3D Tables

3D_Table 1	CeTSKR_Cnt_MaxCPUs	X-Axis Calibration	CeTSKR_e_CPU				CeTSKR_e_CPU2				CPU
	CePISR_e_NumOfSeqTasks	Y-Axis Calibration	CePISR_e_6p25msSeq	CePISR_e_12p5msSeq	CePISR_e_25msSeq	CePISR_e_LORES_C	CePISR_e_6p25msSeq	CePISR_e_12p5msSeq	CePISR_e_25msSeq	CePISR_e_LORES_C	loop test typ
	KaPISD_b_ProgSeqWatchEnbl	Table Calibration	1	1	1	0	0	0	0	0	BOOLEAN

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Tap Up Tap Down Switch (TUTD)	P1765	Upshift Switch Circuit #2	Fail Case 1	Tap Up Tap Switch Stuck in the Up Position in Range 1 Enabled	=	1	Boolean									Special No MIL
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	=	0	Boolean									
				Tap Up Switch Stuck in the Up Position in Park Enabled	=	0	Boolean									
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean									
				Tap Up Switch ON	=	TRUE	Boolean						>=	1	Fail Time (Sec)	
			Fail Case 2	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	=	0	Boolean									
				Tap Up Switch Stuck in the Up Position in Park Enabled	=	0	Boolean									
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean									
				Tap Up Switch ON	=	TRUE	Boolean									
				NOTE: Both Failcase1 and Failcase 2 Must Be Met									>=	120	Fail Time (Sec)	
								Time Since Last Range Change	>=	1	Enable Time (Sec)				
								Ignition Voltage Lo	>=	9	Volts				
								Ignition Voltage Hi	<=	31.999023	Volts				
								Engine Speed Lo	>=	250	RPM				
								Engine Speed Hi	<=	7500	RPM				
								Engine Speed is within the allowable limits for	>=	5	Sec				
								P1765 Status is	≠	Test Failed This Key On or Fault Active					

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: P1767, P1761, P182E, P1915 ECM: None				
Tap Up Tap Down Switch (TUTD)	P1766	Downshift Switch Circuit #2	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1	Boolean						Special No MIL
			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 Range Neutral Enabled	=	0	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	=	0	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	=	0	Boolean						
			Tap Down Switch ON	=	TRUE	Boolean			>=	1	sec	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	1	Boolean						
			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	=	TRUE	Boolean						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			NOTE: Both Failcase1 and Failcase 2 Must Be Met							>=	120	sec	
						Time Since Last Range Change	>=	1	Sec				
						Ignition Voltage Lo	>=	9	Volts				
						Ignition Voltage Hi	<=	18	Volts				
						Engine Speed Lo	>=	250	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						P1766 Status is	≠	Test Failed This Key On or Fault Active					
			Disable Conditions:	MIL not Illuminated for DTC's:		TCM: P1767, P1761, P182E, P1915 ECM: None							
Tap Up Tap Down Switch (TUTD)	P1767	Up and Down Shift Switch Circuit #2	TUTD Circuit Reads Invalid Voltage	= TRUE	Boolean					>=	60	Fail Time (Sec)	Special No MIL
						Ignition Voltage Lo	>=	9	Volts				
						Ignition Voltage Hi	<=	31.999023	Volts				
						Engine Speed Lo	>=	250	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						P1767 Status is	≠	Test Failed This Key On or Fault Active					
			Disable Conditions:	MIL not Illuminated for DTC's:		TCM: P1761 ECM: None							
Tap Up Tap Down Switch (TUTD)	P1876	Tap Up and Down Enable Switch Circuit	Current range	= Park or Reverse or Neutral	Range State								Special No MIL
			TUTD Enable Switch is Active	= TRUE	Boolean					>=	3	Fail Time (Sec)	
										>=	5	Fail Counts	
						Ignition Voltage Lo	>=	9	Volts				
						Ignition Voltage Hi	<=	31.999023	Volts				
						Vehicle Speed Lo	<=	511.99219	KPH				
						Engine Speed Lo	>=	250	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						P1876 Status is	≠	Test Failed This Key On or Fault Active					

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: P0815, P0816, P0826, P1761, P1825, P1877, P1915, U0100 ECM: None		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	C124F	The lateral accleration sensor signal failed at a low voltge	hardware configuration	= CeLATR_e_V oltageDirectPr op	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			Lateral accleration sensor raw signal	<= -3.849999905 g's					out of	120	Sec	
			hardware configuration	= CeLATR_e_V oltageDirectPr op								
			Lateral accleration magnitude	>= -3.849999905 g's								
					Lateral acceleration low voltage diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					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: MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						
Transmission Control Module (TCM)	C1250	The lateral accleration sensor signal failed at a high voltge	hardware configuration	= CeLATR_e_V oltageDirectPr op	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			Lateral accleration sensor raw signal	>= 3.849999905 g's					out of	120	Sec	
			hardware configuration	= CeLATR_e_V oltageDirectPr op								
			Lateral accleration magnitude	<= 3.849999905 g's								
					Lateral acceleration high voltage diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					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: MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
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	>=	0.53	g's	>=	75	Sec	Special No MIL
			absolute value (lateral accleration)	<= 3.849999905 g's	absolute value (lateral accleration) for stablity	<=	3.8499999	g's				
					stability time	>=	30	Sec				
					Diagnostic shifting override command	=	FALSE	Boolean				
					Attained Gear State	=	1st through 8th					
					Attained Gear Slip	<=	100	RPM				
					Transmission Type	=	Clutch to Clutch Transmission					
					High Side Drivers enabled	=	TRUE	Boolean				
					Vehicle Speed	>=	15	kph				
					Lateral acceleration stuck in range diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					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: MIL not Illuminated for DTC's: TCM: P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073

ECM: None

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	C1252	The longitudinal accleration sensor signal failed at a low voltge	hardware configuration	= CeLATR_e_VoltageDirectProp	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			longitudinal accleration sensor raw signal	<= -3.849999905 g's					out of	120	Sec	
			hardware configuration	= CeLATR_e_VoltageDirectProp								
			longitudinal accleration sensor raw signal	>= -3.849999905 g's								
					longitudinal acceleration low voltage diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					Ignition Voltage	<=	31.999023	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
							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:			**MIL not Illuminated for DTC's:** TCM: U0073 ECM: None							
Transmission Control Module (TCM)	C1253	The longitudinal acceleration sensor signal failed at a high voltge	hardware configuration	=	CeLATR_e_V oltageDirectPr op		transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			longitudinal accleration sensor raw signal	>=	3.849999905	g's					out of	120	Sec	
			hardware configuration	=	CeLATR_e_V oltageDirectPr op									
			longitudinal accleration sensor raw signal	<=	3.849999905	g's								
							longitudinal acceleration high voltage diagnostic enable calibration	=	1					
							Battery Voltage	<=	31.999023	Volts				
							Battery Voltage	>=	9	Volts				
							Battery voltage is within the allowable limits for	>=	0.1	Sec				
							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:			**MIL not Illuminated for DTC's:** TCM: U0073 ECM: None							
Transmission Control Module (TCM)	C1254	The longitudinal accleration signal is stuck at a high magnitude in range	absolute value (longitudinal accleration)	>=	0.529999971	g's	absolute value (longitudinal accleration) for stablity	>=	0.53	g's	>=	75	Sec	Special No MIL
			absolute value (longitudinal accleration)	<=	3.849999905	g's	absolute value (longitudinal accleration) for stablity	<=	3.8499999	g's	out of	120	Sec	
							stability time	>=	30	Sec				
							Diagnostic shifting override command	=	FALSE	Boolean				
							Attained Gear State	=	1st through 8th					
							Attained Gear Slip	<=	100	RPM				
							Transmission Type	=	Clutch to Clutch Transmissi on					
							High Side Drivers enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					transmssion output speed acceleration	>=	0.53	meter/second /second				
					Vehicle Speed	>=	15	kph				
					longitudinal acceleration stuck in range diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					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:	MIL not Illuminated for DTC's: TCM: P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073 ECM: None							
Manual Mode Switch	P0827	Manual Mode Switch Circuit Low Voltage	Manual Mode Switch State = Invalid 1 enumeration						>= out of	5 7.5	Fail Time (Sec) Sample Time (Sec)	Special No MIL
					manual mode switch diagnostic monitor enable calibration	=	1					
					Diagnostic enable complete flag	=	TRUE	Boolean				
					Diagnostic re-enable complete flag	=	TRUE	Boolean				
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
					Ignition Voltage Max (disabled above this value)	<=	31.999023	Volts				
					Ignition Voltage Min (enabled above this value)	>=	9	Volts				
					Ignition voltage delay timer	>=	0.1	Enable Time (Sec)				
					P0828 & P085F Status is	≠	Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's: TCM: None ECM: None							
Manual Mode Switch	P0828	Manual Mode Switch Circuit High Voltage	Manual Mode Switch State = Tap Down enumeration or Manual Mode Switch State = Invalid 3 enumeration									Special No MIL

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required		Mil Illum.
			or Manual Mode Switch State = Invalid 4 enumeration					>= 5 Fail Time (Sec) out of 7.5 Sample Time (Sec)		
					manual mode switch diagnostic monitor enable calibration	=	1			
					Diagnostic enable complete flag	=	TRUE Boolean			
					Diagnostic re-enable complete flag	=	TRUE Boolean			
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE Boolean			
					Ignition Voltage Max (disabled above this value)	<=	31.999023 Volts			
					Ignition Voltage Min (enabled above this value)	>=	9 Volts			
					Ignition voltage delay timer	>=	0.1 Enable Time (Sec)			
					P0827 & P085F Status is	≠	Fault Active			
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: None				
						ECM: None				
Manual Mode Switch	P085F	Manual Mode Switch Circuit Performance	Manual Mode Switch State = Invalid 2 enumeration					>= 5 Fail Time (Sec) out of 7.5 Sample Time (Sec)		Special No MIL
					manual mode switch diagnostic monitor enable calibration	=	1			
					Diagnostic enable complete flag	=	TRUE Boolean			
					Diagnostic re-enable complete flag	=	TRUE Boolean			
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE Boolean			
					Ignition Voltage Max (disabled above this value)	<=	31.999023 Volts			
					Ignition Voltage Min (enabled above this value)	>=	9 Volts			
					Ignition voltage delay timer	>=	0.1 Enable Time (Sec)			
					P0827 & P0828 Status is	≠	Fault Active			
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: None				
						ECM: None				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM and expected TCM calculated value not	= TRUE Boolean					>=	3	Fail Counter (100 msec continuous)	Special No MIL
									>	10	Fail Timer (Sec)	
					Tap up/down message health (message receive occur)	=	TRUE	Boolean				
					Tap up/downswitch signal circuit (rolling count) diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage	<=	31.999023	Volts				
					Ignition Voltage	>=	9	Volts				
					Service Fast Learn (SFL) Mode	=	FALSE	Boolean				
					VBS Failsafe							
					Ignition voltage and SFL conditions met for	>=	0.1	Sec				
					Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean				
				Disable Conditions:	MIL not Illuminated for DTC's:							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	C124F	The lateral accleration sensor signal failed at a low voltge	hardware configuration	=	CeLATR_e_V oltageDirectPr op	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			Lateral accleration sensor raw signal	<=	-3.849999905 g's					out of	120	Sec	
			hardware configuration	=	CeLATR_e_V oltageDirectPr op								
			Lateral accleration magnitude	>=	-3.849999905 g's								
						Lateral acceleration low voltage diagnostic enable calibration	=	1					
						Battery Voltage	<=	31.999023	Volts				
						Battery Voltage	>=	9	Volts				
						Battery voltage is within the allowable limits for	>=	0.1	Sec				
						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:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						
Transmission Control Module (TCM)	C1250	The lateral accleration sensor signal failed at a high voltge	hardware configuration	=	CeLATR_e_V oltageDirectPr op	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			Lateral accleration sensor raw signal	>=	3.849999905 g's					out of	120	Sec	
			hardware configuration	=	CeLATR_e_V oltageDirectPr op								
			Lateral accleration magnitude	<=	3.849999905 g's								
						Lateral acceleration high voltage diagnostic enable calibration	=	1					
						Battery Voltage	<=	31.999023	Volts				
						Battery Voltage	>=	9	Volts				
						Battery voltage is within the allowable limits for	>=	0.1	Sec				
						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:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
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	>=	0.53	g's	>=	75	Sec	Special No MIL
			absolute value (lateral accleration)	<= 3.849999905 g's	absolute value (lateral accleration) for stablity	<=	3.8499999	g's				
					stability time	>=	30	Sec				
					Diagnostic shifting override command	=	FALSE	Boolean				
					Attained Gear State	=	1st through 8th					
					Attained Gear Slip	<=	100	RPM				
					Transmission Type	=	Clutch to Clutch Transmission					
					High Side Drivers enabled	=	TRUE	Boolean				
					Vehicle Speed	>=	15	kph				
					Lateral acceleration stuck in range diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					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: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073

ECM: None

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	C1252	The longitudinal accleration sensor signal failed at a low voltge	hardware configuration	= CeLATR_e_VoltageDirectProp	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			longitudinal accleration sensor raw signal	<= -3.849999905 g's					out of	120	Sec	
			hardware configuration	= CeLATR_e_VoltageDirectProp								
			longitudinal accleration sensor raw signal	>= -3.849999905 g's								
					longitudinal acceleration low voltage diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					Ignition Voltage	<=	31.999023	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					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: **MIL not Illuminated for DTC's:** TCM: U0073 ECM: None							
Transmission Control Module (TCM)	C1253	The longitudinal accleration sensor signal failed at a high voltge	hardware configuration	CeLATR_e_V oltageDirectPr op	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			=						out of	120	Sec	
			longitudinal accleration sensor raw signal	>= 3.849999905 g's								
			hardware configuration	CeLATR_e_V oltageDirectPr op								
			=									
			longitudinal accleration sensor raw signal	<= 3.849999905 g's								
					longitudinal acceleration high voltage diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					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: **MIL not Illuminated for DTC's:** TCM: U0073 ECM: None							
Transmission Control Module (TCM)	C1254	The longitudinal accleration signal is stuck at a high magnitude in range	absolute value (longitudinal accleration)	>= 0.529999971 g's	absolute value (longitudinal accleration) for stablity	>=	0.53	g's	>=	75	Sec	Special No MIL
			absolute value (longitudinal accleration)	<= 3.849999905 g's	absolute value (longitudinal accleration) for stablity	<=	3.8499999	g's	out of	120	Sec	
					stability time	>=	30	Sec				
					Diagnostic shifting override command	=	FALSE	Boolean				
					Attained Gear State	=	1st through 8th					
					Attained Gear Slip	<=	100	RPM				
					Transmission Type	=	Clutch to Clutch Transmissi on					
					High Side Drivers enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
							transmssion output speed acceleration	>=	0.53	meter/second /second				
							Vehicle Speed	>=	15	kph				
							longitudinal acceleration stuck in range diagnostic enable calibration	=	1					
							Battery Voltage	<=	31.999023	Volts				
							Battery Voltage	>=	9	Volts				
							Battery voltage is within the allowable limits for	>=	0.1	Sec				
							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:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073 ECM: None						
Tap Up Tap Down Switch (TUTD)	P1765	Upshift Switch Circuit #2	Fail Case 1	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	=	1	Boolean							Special No MIL
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	=	0	Boolean							
				Tap Up Switch Stuck in the Up Position in Park Enabled	=	0	Boolean							
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean							
				Tap Up Switch ON	=	TRUE	Boolean				>=	1	Fail Time (Sec)	
			Fail Case 2	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	=	1	Boolean							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Tap Up Switch Stuck in the Up Position in Neutral Enabled	=	0	Boolean							
			Tap Up Switch Stuck in the Up Position in Park Enabled	=	0	Boolean							
			Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean							
			Tap Up Switch ON	=	TRUE	Boolean							
			NOTE: Both Failcase1 and Failcase 2 Must Be Met							>=	120	Fail Time (Sec)	
							Time Since Last Range Change	>=	1	Enable Time (Sec)			
							Ignition Voltage Lo	>=	9	Volts			
							Ignition Voltage Hi	<=	31.999023	Volts			
							Engine Speed Lo	>=	250	RPM			
							Engine Speed Hi	<=	7500	RPM			
							Engine Speed is within the allowable limits for	>=	5	Sec			
							P1765 Status is	≠	Test Failed This Key On or Fault Active				
						Disable Conditions:	MIL not Illuminated for DTC's: TCM: P1767, P1761, P182E, P1915 ECM: None						
Tap Up Tap Down Switch (TUTD)	P1766	Downshift Switch Circuit #2	Fail Case 1										Special No MIL
			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 Range Neutral Enabled	=	0	Boolean							
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	=	0	Boolean							
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	=	0	Boolean							
			Tap Down Switch ON	=	TRUE	Boolean					>=	1	sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			Threshold Value		Secondary Malfunction	Enable Conditions				Time Required			Mil Illum.
			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							>=	120	sec	
								Time Since Last Range Change	>=	1	Sec					
								Ignition Voltage Lo	>=	9	Volts					
								Ignition Voltage Hi	<=	18	Volts					
								Engine Speed Lo	>=	250	RPM					
								Engine Speed Hi	<=	7500	RPM					
								Engine Speed is within the allowable limits for	>=	5	Sec					
								P1766 Status is	≠	Test Failed This Key On or Fault Active						
						Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P1767, P1761, P182E, P1915 ECM: None							
Tap Up Tap Down Switch (TUTD)	P1767	Up and Down Shift Switch Circuit #2	TUTD Circuit Reads Invalid Voltage	=	TRUE		Boolean						>=	60	Fail Time (Sec)	Special No MIL
								Ignition Voltage Lo	>=	9	Volts					
								Ignition Voltage Hi	<=	31.999023	Volts					
								Engine Speed Lo	>=	250	RPM					
								Engine Speed Hi	<=	7500	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.
					P1767 Status is ≠	Test Failed This Key On or Fault Active		
					Disable Conditions:	MIL not Illuminated for DTC's: TCM: P1761 ECM: None		
Tap Up Tap Down Switch (TUTD)	P1876	Tap Up and Down Enable Switch Circuit	Current range = TUTD Enable Switch is Active =	Park or Reverse or Neutral Range State TRUE Boolean			>= 3 Fail Time (Sec) >= 5 Fail Counts	Special No MIL
					Ignition Voltage Lo >= 9 Volts Ignition Voltage Hi <= 31.999023 Volts Vehicle Speed Lo <= 511.99219 KPH Engine Speed Lo >= 250 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec P1876 Status is ≠	Test Failed This Key On or Fault Active		
					Disable Conditions:	MIL not Illuminated for DTC's: TCM: P0815, P0816, P0826, P1761, P1825, P1877, P1915, U0100 ECM: None		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	C124F	The lateral accleration sensor signal failed at a low voltge	hardware configuration	= CeLATR_e_V oltageDirectPr op	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			Lateral accleration sensor raw signal	<= -3.849999905 g's					out of	120	Sec	
			hardware configuration	= CeLATR_e_V oltageDirectPr op								
			Lateral accleration magnitude	>= -3.849999905 g's								
					Lateral acceleration low voltage diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					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:	**MIL not Illuminated for DTC's:** TCM: U0073 ECM: None							
Transmission Control Module (TCM)	C1250	The lateral accleration sensor signal failed at a high voltge	hardware configuration	= CeLATR_e_V oltageDirectPr op	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			Lateral accleration sensor raw signal	>= 3.849999905 g's					out of	120	Sec	
			hardware configuration	= CeLATR_e_V oltageDirectPr op								
			Lateral accleration magnitude	<= 3.849999905 g's								
					Lateral acceleration high voltage diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					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:	**MIL not Illuminated for DTC's:** TCM: U0073 ECM: None							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
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	>=	0.53	g's	>=	75	Sec	Special No MIL
			absolute value (lateral accleration)	<= 3.849999905 g's	absolute value (lateral accleration) for stablity	<=	3.8499999	g's				
					stability time	>=	30	Sec				
					Diagnostic shifting override command	=	FALSE	Boolean				
					Attained Gear State	=	1st through 8th					
					Attained Gear Slip	<=	100	RPM				
					Transmission Type	=	Clutch to Clutch Transmission					
					High Side Drivers enabled	=	TRUE	Boolean				
					Vehicle Speed	>=	15	kph				
					Lateral acceleration stuck in range diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					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:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073 ECM: None						
Transmission Control Module (TCM)	C1252	The longitudinal accleration sensor signal failed at a low voltge	hardware configuration	= CeLATR_e_V oltageDirectPr op	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			longitudinal accleration sensor raw signal	<= -3.849999905 g's					out of	120	Sec	
			hardware configuration	= CeLATR_e_V oltageDirectPr op								
			longitudinal accleration sensor raw signal	>= -3.849999905 g's								
					longitudinal acceleration low voltage diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					Ignition Voltage	<=	31.999023	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					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: **MIL not Illuminated for DTC's:** TCM: U0073 ECM: None							
Transmission Control Module (TCM)	C1253	The longitudinal acceleration sensor signal failed at a high voltge	hardware configuration =	CeLATR_e_V oltageDirectPr op	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			longitudinal accleration sensor raw signal >=	3.849999905 g's					out of	120	Sec	
			hardware configuration =	CeLATR_e_V oltageDirectPr op								
			longitudinal accleration sensor raw signal <=	3.849999905 g's								
					longitudinal acceleration high voltage diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					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: **MIL not Illuminated for DTC's:** TCM: U0073 ECM: None							
Transmission Control Module (TCM)	C1254	The longitudinal accleration signal is stuck at a high magnitude in range	absolute value (longitudinal accleration) >=	0.529999971 g's	absolute value (longitudinal accleration) for stablity	>=	0.53	g's	>=	75	Sec	Special No MIL
			absolute value (longitudinal accleration) <=	3.849999905 g's	absolute value (longitudinal accleration) for stablity	<=	3.8499999	g's	out of	120	Sec	
					stability time	>=	30	Sec				
					Diagnostic shifting override command	=	FALSE	Boolean				
					Attained Gear State	=	1st through 8th					
					Attained Gear Slip	<=	100	RPM				
					Transmission Type	=	Clutch to Clutch Transmissi on					
					High Side Drivers enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
							transmssion output speed acceleration	>=	0.53	meter/second /second			
							Vehicle Speed	>=	15	kph			
							longitudinal acceleration stuck in range diagnostic enable calibration	=	1				
							Battery Voltage	<=	31.999023	Volts			
							Battery Voltage	>=	9	Volts			
							Battery voltage is within the allowable limits for	>=	0.1	Sec			
							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:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073 ECM: None					
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM and expected TCM calculated value not	=	TRUE	Boolean					>= 3	Fail Counter (100 msec continuous)	Special No MIL
											> 10	Fail Timer (Sec)	
							Tap up/down message health (message receive occur)	=	TRUE	Boolean			
							Tap up/downswitch signal circuit (rolling count) diagnostic monitor enable calibration	=	1	Boolean			
							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			
							Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean			
						Disable Conditions:	MIL not Illuminated for DTC's:						
Transmission Cooling Fan	P184F	Transmission Cooling Fan Performance	If drop in TCM trans oil temp after 300 second monitoring period	<=	Refer to Table 27 in supporting documents	°C					>= 2	Fail Counts (300 sec sample period)	Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
			delta transmission fluid temperature fail = transmission fluid temperature start of test - current value transmission fluid temperature transmission fluid temperature start of test is latched to the current value of transmission fluid temperature when transmission cooling fan run time is not zero (0.0)							
					Outisde Air Signal Valid	=	TRUE	Boolean		
					Fan Status Valid	=	TRUE	Boolean		
					Battery Voltage	<=	31.99902	Volts		
					Battery Voltage	>=	9	Volts		
					Battery voltage is within the allowable limits for	>=	0.1	Sec		
					Range Shift State	≠	RangeShift Completed	Enumeration		
					Range Shift State Previous	=	RangeShift Completed	Enumeration		
					Absolute TCC Slip	>=	80	RPM		
					Attained Gear	>=	First - Sixth	Enumeration		
					Transmission Input Speed	<=	3000	RPM		
					Outside Air	>=	-8192	ºC		
					Outside Air	<=	58	ºC		
					Outside Air Mask Calibration	=	FALSE	Boolean		
					Transmission Temp	<=	255	ºC		
					Transmission Temp	>=	110	ºC		
					Powertrain Fan Status	=	FanIsOn	Enumeration		
					Fan Command Percent	>=	18.5	%		
					Disable Conditions:	MIL not Illuminated for DTC's: TCM: P0711, P0712, P0713, P0716, P0717, P07BF, P07C0, P2808, P2809, P2812, P2814, P2815				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	C1252	The longitudinal accleration sensor signal failed at a low voltge	hardware configuration	=	CeLATR_e_V oltageDirectPr op	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			longitudinal accleration sensor raw signal	<=	-3.849999905 g's					out of	120	Sec	
			hardware configuration	=	CeLATR_e_V oltageDirectPr op								
			longitudinal accleration sensor raw signal	>=	-3.849999905 g's								
						longitudinal acceleration low voltage diagnostic enable calibration	=	1					
						Battery Voltage	<=	31.999023	Volts				
						Battery Voltage	>=	9	Volts				
						Battery voltage is within the allowable limits for	>=	0.1	Sec				
						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: MIL not Illuminated for DTC's: TCM: U0073

ECM: None

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	C1253	The longitudinal accleration sensor signal failed at a high voltge	hardware configuration	=	CeLATR_e_V oltageDirectPr op	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			longitudinal accleration sensor raw signal	>=	3.849999905 g's					out of	120	Sec	
			hardware configuration	=	CeLATR_e_V oltageDirectPr op								
			longitudinal accleration sensor raw signal	<=	3.849999905 g's								
						longitudinal acceleration high voltage diagnostic enable calibration	=	1					
						Battery Voltage	<=	31.999023	Volts				
						Battery Voltage	>=	9	Volts				
						Battery voltage is within the allowable limits for	>=	0.1	Sec				
						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				

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: U0073 ECM: None						
Transmission Control Module (TCM)	C1254	The longitudinal accleration signal is stuck at a high magnitude in range	absolute value (longitudinal accleration)	>= 0.529999971 g's	absolute value (longitudinal accleration) for stablity	>=	0.53	g's	>=	75	Sec	Special No MIL
			absolute value (longitudinal accleration)	<= 3.849999905 g's	absolute value (longitudinal accleration) for stablity	<=	3.8499999	g's	out of	120	Sec	
					stability time	>=	30	Sec				
					Diagnostic shifting override command	=	FALSE	Boolean				
					Attained Gear State	=	1st through 8th					
					Attained Gear Slip	<=	100	RPM				
					Transmission Type	=	Clutch to Clutch Transmission					
					High Side Drivers enabled	=	TRUE	Boolean				
					transmssion output speed acceleration	>=	0.53	meter/second/second				
					Vehicle Speed	>=	15	kph				
					longitudinal acceleration stuck in range diagnostic enable calibration	=	1					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage	>=	9	Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					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:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073 ECM: None						
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM and expected TCM calculated value not	= TRUE Boolean					>=	3	Fail Counter (100 msec continuous)	Special No MIL
									>	10	Fail Timer (Sec)	
					Tap up/down message health (message receive occur)	=	TRUE	Boolean				
					Tap up/downswitch signal circuit (rolling count) diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage	<=	31.999023	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					Ignition Voltage	>=	9	Volts		
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean		
					Ignition voltage and SFL conditions met for	>=	0.1	Sec		
					Service mode $04 active and end of trip pocessing active	=	FALSE	Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:					

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lateral Acceleration Sensor Signal	C124F	Lateral Acceleration Sensor Circuit Low	Lateral Acceleration Sensor Signal Value	<= -3.85 [G]	Ignition Voltage	> 9000 [mV] for 3 sec continuously	180 sec	No MIL "Special C"
					Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)		
					Diagnostic Service Request to Disable Normal Communication	= NOT PRESENT		
					U0121 (Lost Communication with Anti-Lock Brake System (ABS) Control Module)	= NOT DETECTED		
					P0826 (Up and Down Shift Switch Circuit)	= NOT DETECTED		
					C1251 (Lateral Acceleration Sensor Performance)	= NOT DETECTED		
					P175F (Acceleration Sensor Signal message Counter Incorrect)	= NOT DETECTED		
Lateral Acceleration Sensor Signal	C1250	Lateral Acceleration Sensor Circuit High	Lateral Acceleration Sensor Signal Value	>= 3.85 [G]	Ignition Voltage Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 3 sec continuously > 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	180 sec	No MIL "Special C"
					Diagnostic Service Request to Disable Normal Communication	= NOT PRESENT		
					U0121 (Lost Communication with Anti-Lock Brake System (ABS) Control Module)	= NOT DETECTED		
					P0826 (Up and Down Shift Switch Circuit)	= NOT DETECTED		
					C1251 (Lateral Acceleration Sensor Performance)	= NOT DETECTED		
					P175F (Acceleration Sensor Signal message Counter Incorrect)	= NOT DETECTED		
Lateral Acceleration Sensor Signal	C1251	Lateral Acceleration Sensor Performance	Lateral Acceleration Sensor Signal Value	= unchanged	Ignition Voltage Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 3 sec continuously > 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	240 msec	No MIL "Special C"
					Diagnostic Service Request to Disable Normal Communication	= NOT PRESENT		
					U0121 (Lost Communication with Anti-Lock Brake System (ABS) Control Module)	= NOT DETECTED		
					C124F (Lateral Acceleration Sensor Circuit Low)	= NOT DETECTED		
					C1250 (Lateral Acceleration Sensor Circuit High)	= NOT DETECTED		
					P175F (Acceleration Sensor Signal message Counter Incorrect)	= NOT DETECTED		
					P077D (Output Speed Sensor Circuit Low)	= NOT DETECTED		
					P077C (Output Speed Sensor Circuit High)	= NOT DETECTED		
					P0722 (Output Speed Sensor No Pulse)	= NOT DETECTED		
					Vehicle Speed	>= 15 [kph]		
					Absolute Value of Lateral Acceleration Sensor Signal Value CAN signal	0.53 [G] < "Value" < 3.85 [G]		
System Voltage	P0563	System Voltage High	Battery Voltage	> 18 [V]	Ignition Voltage	> 9000 [mV]	10 sec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					Input Speed	> 400 [rpm] for [> 2 sec]		
					P07C0 (Input/Turbine Speed Sensor "A" Circuit High)			
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low)	= NOT DETECTED		
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)	= NOT DETECTED = NOT DETECTED		
					OR			
					Ignition Voltage	> 9000 [mV]		
					Engine speed	> 400 [rpm] for [> 2 sec]		
					Engine speed signal validity	= VALID		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
Internal Control Module Memory	P0601	Internal Control Module Memory Checksum Error	Read each memory location in the Flash ROM and calculate the checksum. Compare the calculated checksum to the checksum originally stored in Flash ROM.	Checksums do not match	Ignition Voltage (Diagnostic test is only executed during TCM initialization, immediately after the TCM is powered up)	> 9000 [mV]	100 msec	1
Internal Control Module Memory Keep Alive Memory (KAM)	P0603	Internal Control Module Keep Alive Memory (KAM) Error	Compare calculated checksum with stored checksum.	Checksums do not match	Ignition Voltage (Diagnostic test is only executed during TCM initialization, immediately after the TCM is powered up)	> 9000 [mV]	100 msec	1
Internal Control Module Random Access Memory (RAM)	P0604	Internal Control Module Random Access Memory (RAM) Error	Compare memory location with expected value that was written to it (0x55555555 or 0xAAAAAAAA)	If any 8-bit memory location reads a different number than was written to it, the TCM recognizes this as a RAM malfunction.	Ignition Voltage (Diagnostic test is only executed during TCM initialization, immediately after the TCM is powered up)	> 9000 [mV]	100 msec	1
Transmission Control Module (TCM)	P0606	Control Module Processor	Main Processor Failure This TCM is an ISO 26262 (System Functional Safety) compliant module. In order to confirm that the TCM control system functioning properly, the TCM is equipped with a secondary CPU which validates the basic operation / calculations of the primary CPU (and ultimately, the control		(none)	(none)	10 msec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			system software). There are several Safety Integrity Functions which are capable of detecting microprocessor or TCM hardware related malfunctions, which would require the activation of safe state reactions. The TCM performs checks on the processor performance every 10 msec. If any of the following checks fail a single time, then this malfunction is confirmed. CPU Core Check malfunction confirmed ROM Check malfunction confirmed RAM Check malfunction confirmed Program Flow Check malfunction confirmed	= TRUE = TRUE = TRUE = TRUE				
Transmission Control Module (TCM)	P0606	Control Module Processor	Communication Failure with Sub Processor The Main and Sub Processor both check for correct communication with eachother every 10 msec. If either processor detects a communication error a single time, this malfunction is confirmed. Communication Error between Main and Sub Processors is detected	= TRUE	(none)	(none)	10 msec	1
Transmission Control Module (TCM)	P0606	Control Module Processor	Solenoid Cut Malfunction (Main OR Sub Processor Solenoid Cut Line) During a TCM power-down, both the Primary and Secondary CPU's perform a test on their ability to cut (override) the command current to the linear shift solenoids. The basic test performed by each CPU is as follows: • After commanding an all solenoid current cut, the feedback current from linear solenoids SL1 to SL5 (all drive clutch linear solenoids) is less than a calibrated threshold for a calibrated time period. (Note that this calibrated threshold is less than the solenoid standby current) If the above test does NOT pass, a malfunction is assumed and a flag is stored in the TCM non-volatile memory. Upon the next TCM power-up, the OBD system will report the malfunction and illuminate the MIL. Main Processor Solenoid Cut Request Feedback Current for any of the solenoids (SL1 - SL5) OR Sub Processor Solenoid Cut Request Feedback Current for any of the solenoids (SL1 - SL5)	= ACTIVE > 20 [mA] = ACTIVE > 20 [mA]	TCM is powering down (Ignition Voltage transitions from High to Low)	= TRUE	100 msec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmission Range Sensor "A" Circuit	P0705	Transmission Range Switch Circuit	Transmission Range Sensor P,R,N, and D Circuits Vehicle Speed P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse)	> (Battery Voltage - 2 [V]) >= 30 [kph] = NOT DETECTED = NOT DETECTED = NOT DETECTED	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE	30 sec	1
Transmission Range Sensor "A" Circuit	P0706	Transmission Range Switch Performance	2 or more Transmission Range Sensor P,R,N, or D Circuits	< 2 [V]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	5 sec	1
Transmission Fluid Temperature Sensor "A" Circuit	P0711	Transmission Fluid Temperature Sensor "A" Circuit Range/Performance	Difference between Initial ATF Temperature Value and the Initial Engine Coolant Temperature Value (*) (*) After the Ignition Switch is turned ON and the TCM is initialized, the difference between the ATF Temperature and Engine Coolant Temperature is stored in memory. Once the enable criteria have been met, that value is compared to a calibrated threshold. If the value exceeds the calibrated threshold, the TCM will determine that the ATF temperature is not rational and that a malfunction has occurred.	> Difference_Temp_Map (*13)	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory ATF Temperature at Power-up ATF Temperature Vehicle Speed Change in Engine Coolant temperature Propulsion System Off Time Propulsion System Off Time Validity Engine Coolant Temperature Signal Status U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM "A") P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0713 (Transmission Fluid Temperature Sensor "A" Circuit High) P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low) Emergency Mode (*4) Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED -55 [deg C] < ATF Temp < 200 [deg C] > 20 [deg C] > 24 [km/h], for [400 sec cumulatively] > +5 [deg C] > 8 [hours] = VALID = Signal OK for 400 [sec] = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE > 8 [sec]	10 msec	2
Transmission Fluid Temperature Sensor "A" Circuit	P0711	Transmission Fluid Temperature Sensor "A" Circuit Range/Performance	ATF Temperature (*) (*) <Detection1> The first diagnostic is designed to check the ATF	<= 20 [deg C]	Ignition Voltage Battery Voltage Battery Voltage Engine Speed	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V]	10 min	2

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			temperature value at start-up and confirm that it gradually increases over a period of time, once the vehicle has been driven at a speed above a calibrated threshold. This is done by checking if the ATF temperature has remained below a calibrated threshold value for a calibrated period of time. This diagnostic routine will only be able to detect a malfunction if the actual ATF temperature at TCM power-up is less than the aforementioned threshold value.		Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) ATF Temperature P0713 (Transmission Fluid Temperature Sensor "A" Circuit High) P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low) Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Vehicle speed Emergency Mode (*4) Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE	> 400 [RPM] = VALID = NOT DETECTED -55 [deg C] < ATF Temp < 200 [deg C] = NOT DETECTED = NOT DETECTED Not in P, R or N Range = NOT DETECTED = NOT DETECTED >= 40 [km/h] (One time during the drive cycle) = NOT ACTIVE = NOT ACTIVE > 8 [sec]		
			OR					
			ATF Temperature T/C Heat Load **(*)** <Detection2> The second diagnostic checks for a stuck ATF value by analyzing the estimated **torque converter (T/C) Heat Load (*)** over time. The T/C heat load calculation is used by other existing transmission controls, and therefore provides an excellent metric by which the rationality of the ATF temperature value can be determined during warm-up. For this diagnostic test, the T/C Heat Load, which is calculated each task cycle by the TCM, is continually summed. Over time, this sum will become a large value, and during that time the ATF temperature must be increasing. A malfunction is determined if the value of the ATF temperature has remained below a calibrated threshold temperature and the value of the T/C Heat Load Sum becomes greater than a calibrated threshold (based on the ATF temperature value when the test started). If the ATF temperature value becomes less than the value stored when the summing of the T/C heat load started, or exceeds the calibrated threshold, the heat load calculation sum will be **(*)** T/C Heat Load = (**TCCF** x Torque Capacity x | (Engine Speed – Input Speed x **Tr**) |) [kW] **TCCF:** T/C Capacity Factor	<= 20deg.C >= otcal_map **(*3)**	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its ATF Temperature P0713 (Transmission Fluid Temperature Sensor "A" Circuit High) P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low) Emergency Mode (*4) Input Speed CAN signal validity Output Speed CAN signal validity	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED -55 [deg C] < ATF Temp < 200 [deg C] = NOT DETECTED = NOT DETECTED = NOT ACTIVE = VALID = VALID	193 sec minimum (Depending on the vehicle operating conditions and driving pattern, this algorithm may take longer than 10 min to detect a malfunction. In that case, the algorithm above will catch the malfunction first.)	

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Tr: Torque Ratio (Note): The Heat Load is only calculated if the Output Speed is greater than a calibrated					
Transmission Fluid Temperature Sensor "A" Circuit	P0712	Transmission Fluid Temperature Sensor "A" Circuit Low	Transmission Fluid Temperature Sensor Value	> 200 [degC]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	60 sec	1
Transmission Fluid Temperature Sensor "A" Circuit	P0713	Transmission Fluid Temperature Sensor "A" Circuit High	Transmission Fluid Temperature Sensor Value	< -55 [degC]	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Drive Time (*) (*) Drive Time is defined as follows: Range Selector Position Switch P0705 (Range Selector Switch B+ Short / Open) P0706 (Range Selector Switch GND Short)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED > 1 [minute] (cumulative) = D Range = NOT DETECTED = NOT DETECTED	12 sec	1
Input/Turbine Speed Sensor "A" Circuit	P0717	Input/Turbine Speed Sensor "A" Circuit No Signal	Number of pulses received from the Output Speed Sensor while no pulses are received from the Input Speed Sensor. The time to complete the test is a function of output shaft speed.	>= 6500 pulses	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory Emergency Mode (*4) Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously C1 OFF Control has been INACTIVE for this amount of time continuously C2 OFF Control has been INACTIVE for this amount of time continuously Current Gear P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) Output Speed P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously) = NOT ACTIVE = D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) T_C1ctrlFin (*1) T_C3ctrlFin (*1) >= 2nd Gear = NOT DETECTED = NOT DETECTED = NOT DETECTED >= 300 RPM = NOT DETECTED = NOT DETECTED	At Max Output Speed: 2.4 [sec] At Min Output Speed: 54.2 [sec]	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761)	ALL = NOT DETECTED		
					P07C0 (Input/Turbine Speed Sensor "A" Circuit High)			
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low)	= NOT DETECTED		
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)	= NOT DETECTED = NOT DETECTED		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has been INACTIVE	>= 8 sec		
Output Speed Sensor Circuit	P0722	Output Speed Sensor Circuit No Signal	Number of pulses received from the Input Speed Sensor while no pulses are received from the Output Speed Sensor. The time to complete the test is a function of input shaft speed.	>= 13000 pulses	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously)	At Max Input Speed: 8.9 [sec] At Idle Input Speed: 108.3 [sec]	1
					Emergency Mode (*4) Range Selector Position Switch	= NOT ACTIVE = D Range		
					P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	= NOT DETECTED = NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					C1 OFF Control has been INACTIVE for this amount of time continuously	T_C1ctrlFin (*1)		
					C2 OFF Control has been INACTIVE for this amount of time continuously	T_C3ctrlFin (*1)		
					P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)	= NOT DETECTED = NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low)	= NOT DETECTED = NOT DETECTED		
					Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761)	= NOT DETECTED		
					Output Speed calculated by Input Speed sensor P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High)	>= 300 [rpm] = NOT DETECTED = NOT DETECTED		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has been INACTIVE	>= 8 [sec]		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Gear Ratio (6th Gear)	P0729	Gear 6 Incorrect Ratio	Difference between actual Gear Ratio and 6th Gear Ratio	> 20 [%]	Current Gear	= 6TH GEAR	12 sec (cumulatively)	1
					Output Speed	>= 500 [rpm]		
					Ignition Voltage	> 9000 [mV] for 10 [msec]		
					Battery Voltage	> 10.2 [V]		
					Battery Voltage	<= 32.0 [V]		
					Engine Speed	> 400 [RPM]		
					Engine Speed Signal Validity	= VALID		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					Emergency Mode (*4)	= NOT ACTIVE		
					Neutral Avoidance Control	= NOT ACTIVE		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has been INACTIVE	> 8 [sec]		
						ALL Malfunctions = NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High)			
					P0973 (Shift Solenoid "A" Control Circuit Low)			
					Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761)			
					P07C0 (Input/Turbine Speed Sensor "A" Circuit High)			
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low)			
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)			
					P077D (Output Speed Sensor Circuit Low)			
					P077C (Output Speed Sensor Circuit High)			
					P0722 (Output Speed Sensor No Pulse)			
					P0592 (System Voltage Low Supply 2) (*Note 1)			
					P0563 (System Voltage High)			
					P2535 (Ignition Switch Run/Start Position Circuit High)			
					Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit)	= NOT DETECTED		
					P0706 (Transmission Range Switch Performance)	= NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
					AND the following conditions are NOT satisfied			

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Difference between actual Gear Ratio and 7th Gear Ratio	< 4 [%] for 1 [sec] continuously		
Gear Ratio (6th Gear Stuck)	P0729	Gear 6 Incorrect Ratio	Difference between actual Gear Ratio and 7th Gear Ratio	< 4 %	Current Gear	= 6TH GEAR	5 sec	1
					Output Speed	>= 60 [rpm]		
					Input Torque	>= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during		
					Ignition Voltage	> 9000 [mV] for 10 [msec]		
					Battery Voltage	> 10.2 [V]		
					Battery Voltage	<= 32.0 [V]		
					Engine Speed	> 400 [RPM]		
					Engine Speed Signal Validity	= VALID		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					Emergency Mode (*4)	= NOT ACTIVE		
					Neutral Avoidance Control	= NOT ACTIVE		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has been INACTIVE	> 8 [sec]		
						ALL Malfunctions = NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High)			
					P0973 (Shift Solenoid "A" Control Circuit Low)			
					Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761)			
					P07C0 (Input/Turbine Speed Sensor "A" Circuit High)			
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low)			
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)			
					P077D (Output Speed Sensor Circuit Low)			
					P077C (Output Speed Sensor Circuit High)			
					P0722 (Output Speed Sensor No Pulse)			
					P0592 (System Voltage Low Supply 2) (*Note 1)			
					P0563 (System Voltage High)			
					P2535 (Ignition Switch Run/Start Position Circuit High)			
					Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit)	= NOT DETECTED		
					P0706 (Transmission Range Switch Performance)	= NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
Gear Ratio (1st Gear Stuck)	P0731	Gear 1 Incorrect Ratio	Difference between actual Gear Ratio and 2nd Gear Ratio	< 4 [%]	Current Gear	= 1ST GEAR	2.25 sec	1
			OR		Output Speed	>= 60 [rpm]		
			Difference between actual Gear Ratio and 3rd Gear Ratio	< 4 [%]	Input Speed	<= 6000 [rpm]		
					Engine Torque	{if ATF Temp >= 0 [degC]} >= 80 [Nm] {if ATF Temp < 0 [degC]} >= 150 [Nm]		
			OR					
			Difference between actual Gear Ratio and 4th Gear Ratio	< 4 [%]	Ignition Voltage	> 9000 [mV] for 10 [msec]		
					Battery Voltage	> 10.2 [V]		
			OR		Battery Voltage	<= 32.0 [V]		
			Difference between actual Gear Ratio and 5th Gear Ratio	< 4 [%]	Engine Speed	> 400 [RPM]		
					Engine Speed Signal Validity	= VALID		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					The TCM has completed the read operation of its non-volatile memory	(all 8 criteria for 2 [sec] continuously)		
					Emergency Mode (*4)	= NOT ACTIVE		
					Neutral Avoidance Control	= NOT ACTIVE		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has been INACTIVE	> 8 [sec]		
						ALL Malfunctions = NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High)			
					P0973 (Shift Solenoid "A" Control Circuit Low)			
					Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761)			
					P07C0 (Input/Turbine Speed Sensor "A" Circuit High)			
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low)			
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)			
					P077D (Output Speed Sensor Circuit Low)			
					P077C (Output Speed Sensor Circuit High)			
					P0722 (Output Speed Sensor No Pulse)			
					P0592 (System Voltage Low Supply 2) (*Note 1)			
					P0563 (System Voltage High)			
					P2535 (Ignition Switch Run/Start Position Circuit High)			
					Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit)	= NOT DETECTED		
					P0706 (Transmission Range Switch Performance)	= NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
Gear Ratio (2nd Gear)	P0732	Gear 2 Incorrect Ratio	Difference between actual Gear Ratio and 2nd Gear Ratio	> 20 [%]	Current Gear	= 2ND GEAR	12 sec (cumulatively)	1
					Output Speed	>= 500 [rpm]		
					Ignition Voltage	> 9000 [mV] for 10 [msec]		
					Battery Voltage	> 10.2 [V]		
					Battery Voltage	<= 32.0 [V]		
					Engine Speed	> 400 [RPM]		
					Engine Speed Signal Validity	= VALID		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					Emergency Mode (*4)	= NOT ACTIVE		
					Neutral Avoidance Control	= NOT ACTIVE		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has been INACTIVE	> 8 [sec]		
						ALL Malfunctions = NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High)			
					P0973 (Shift Solenoid "A" Control Circuit Low)			
					Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761)			
					P07C0 (Input/Turbine Speed Sensor "A" Circuit High)			
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low)			
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)			
					P077D (Output Speed Sensor Circuit Low)			
					P077C (Output Speed Sensor Circuit High)			
					P0722 (Output Speed Sensor No Pulse)			
					P0592 (System Voltage Low Supply 2) (*Note 1)			
					P0563 (System Voltage High)			
					P2535 (Ignition Switch Run/Start Position Circuit High)			
					Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit)	= NOT DETECTED		
					P0706 (Transmission Range Switch Performance)	= NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
					AND the following conditions are NOT satisfied			
					Difference between actual Gear Ratio and 3rd Gear Ratio	< 4 [%] for 1 [sec] continuously		
					Difference between actual Gear Ratio and 4th Gear Ratio	< 4 [%] for 1 [sec] continuously		
					Difference between actual Gear Ratio and 7th Gear Ratio	< 4 [%] for 1 [sec] continuously		
					Difference between actual Gear Ratio and 8th Gear Ratio	< 4 [%] for 1 [sec] continuously		
Gear Ratio (2nd Gear Stuck)	P0732	Gear 2 Incorrect Ratio	Difference between actual Gear Ratio and 3rd Gear Ratio	< 4 %	Current Gear	= 2ND GEAR	5 sec	1
			OR		Output Speed	>= 60 [rpm]		
			Difference between actual Gear Ratio and 4th Gear Ratio	< 4 %	Input Torque	>= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during detection)		
			OR		Ignition Voltage	> 9000 [mV] for 10 [msec]		
			Difference between actual Gear Ratio and 8th Gear Ratio	< 4 %	Battery Voltage	> 10.2 [V]		
					Battery Voltage	<= 32.0 [V]		
					Engine Speed	> 400 [RPM]		
					Engine Speed Signal Validity	= VALID		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					The TCM has completed the read operation of its Emergency Mode (*4)	= NOT ACTIVE		
					Neutral Avoidance Control	= NOT ACTIVE		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has been INACTIVE	> 8 [sec]		
						ALL Malfunctions = NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High)			
					P0973 (Shift Solenoid "A" Control Circuit Low)			
					Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761)			
					P07C0 (Input/Turbine Speed Sensor "A" Circuit High)			
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low)			
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)			
					P077D (Output Speed Sensor Circuit Low)			
					P077C (Output Speed Sensor Circuit High)			
					P0722 (Output Speed Sensor No Pulse)			

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0592 (System Voltage Low Supply 2) (*Note 1)			
					P0563 (System Voltage High)			
					P2535 (Ignition Switch Run/Start Position Circuit High)			
					Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit)	= NOT DETECTED		
					P0706 (Transmission Range Switch Performance)	= NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
Gear Ratio (3rd Gear)	P0733	Gear 3 Incorrect Ratio	Difference between actual Gear Ratio and 3rd Gear Ratio	> 20 [%]	Current Gear	= 3RD GEAR	12 sec (cumulatively)	1
					Output Speed	>= 500 [rpm]		
					Ignition Voltage	> 9000 [mV] for 10 [msec]		
					Battery Voltage	> 10.2 [V]		
					Battery Voltage	<= 32.0 [V]		
					Engine Speed	> 400 [RPM]		
					Engine Speed Signal Validity	= VALID		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					Emergency Mode (*4)	= NOT ACTIVE		
					Neutral Avoidance Control	= NOT ACTIVE		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has been INACTIVE	> 8 [sec]		
						ALL Malfunctions = NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High)			
					P0973 (Shift Solenoid "A" Control Circuit Low)			
					Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761)			
					P07C0 (Input/Turbine Speed Sensor "A" Circuit High)			
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low)			
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)			
					P077D (Output Speed Sensor Circuit Low)			
					P077C (Output Speed Sensor Circuit High)			
					P0722 (Output Speed Sensor No Pulse)			
					P0592 (System Voltage Low Supply 2) (*Note 1)			
					P0563 (System Voltage High)			

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P2535 (Ignition Switch Run/Start Position Circuit High)			
					P2531 (Ignition Control Module M... Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit)	= NOT DETECTED		
					P0706 (Transmission Range Switch Performance)	= NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
					AND the following conditions are NOT satisfied			
					Difference between actual Gear Ratio and 7th Gear Ratio	< 4 [%] for 1 [sec] continuously		
Gear Ratio (3rd Gear Stuck)	P0733	Gear 3 Incorrect Ratio	Difference between actual Gear Ratio and 7th Gear Ratio	< 4 [%]	Current Gear	= 3RD GEAR	5 sec	1
					Output Speed	>= 60 [rpm]		
					Input Torque	>= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during		
					Ignition Voltage	> 9000 [mV] for 10 [msec]		
					Battery Voltage	> 10.2 [V]		
					Battery Voltage	<= 32.0 [V]		
					Engine Speed	> 400 [RPM]		
					Engine Speed Signal Validity	= VALID		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					Emergency Mode (*4)	= NOT ACTIVE		
					Neutral Avoidance Control	= NOT ACTIVE		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has been INACTIVE	> 8 [sec]		
						ALL Malfunctions = NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High)			
					P0973 (Shift Solenoid "A" Control Circuit Low)			
					Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761)			
					P07C0 (Input/Turbine Speed Sensor "A" Circuit High)			
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low)			
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)			
					P077D (Output Speed Sensor Circuit Low)			

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) ~~P2601 (Internal Control Module M...)~~ Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	 = D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE		
Gear Ratio (4th Gear)	P0734	Gear 4 Incorrect Ratio	Difference between actual Gear Ratio and 4th Gear Ratio	> 20 [%]	Current Gear Output Speed Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) ~~P0592 (System Voltage Low Supply 2) (*Note 1)~~	= 4TH GEAR >= 500 [rpm] > 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	12 sec (cumulatively)	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) ~~P2601 (Internal Control Module M~~			
					Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit)	= NOT DETECTED		
					P0706 (Transmission Range Switch Performance)	= NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
					AND the following conditions are NOT satisfied			
					Difference between actual Gear Ratio and 3rd Gear Ratio	< 4 [%] for 1 [sec] continuously		
					Difference between actual Gear Ratio and 6th Gear Ratio	< 4 [%] for 1 [sec] continuously		
					Difference between actual Gear Ratio and 7th Gear Ratio	< 4 [%] for 1 [sec] continuously		
Gear Ratio (4th Gear Stuck)	P0734	Gear 4 Incorrect Ratio	Difference between actual Gear Ratio and 3rd Gear Ratio	< 4 %	Current Gear	= 4TH GEAR	5 sec	1
			OR		Output Speed	>= 60 [rpm]		
			Difference between actual Gear Ratio and 6th Gear Ratio	< 4 %	Input Torque	>= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during detection)		
					Ignition Voltage	> 9000 [mV] for 10 [msec]		
					Battery Voltage	> 10.2 [V]		
					Battery Voltage	<= 32.0 [V]		
					Engine Speed	> 400 [RPM]		
					Engine Speed Signal Validity	= VALID		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					Emergency Mode (*4)	= NOT ACTIVE		
					Neutral Avoidance Control	= NOT ACTIVE		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has been INACTIVE	> 8 [sec]		
						ALL Malfunctions = NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High)			
					P0973 (Shift Solenoid "A" Control Circuit Low)			
					Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725,			

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High)			
					Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	= NOT DETECTED = NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
Gear Ratio (5th Gear)	P0735	Gear 5 Incorrect Ratio	Difference between actual Gear Ratio and 5th Gear Ratio	> 20 [%]	Current Gear	= 5TH GEAR	12 sec (cumulatively)	1
					Output Speed Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE	>= 500 [rpm] > 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit			

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					High)			
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low)			
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)			
					P077D (Output Speed Sensor Circuit Low)			
					P077C (Output Speed Sensor Circuit High)			
					P0722 (Output Speed Sensor No Pulse)			
					P0592 (System Voltage Low Supply 2) (*Note 1)			
					P0563 (System Voltage High)			
					P2535 (Ignition Switch Run/Start Position Circuit High)			
					Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit)	= NOT DETECTED		
					P0706 (Transmission Range Switch Performance)	= NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
					AND the following conditions are NOT satisfied			
					Difference between actual Gear Ratio and 6th Gear Ratio	< 4 [%] for 1 [sec] continuously		
					Difference between actual Gear Ratio and 7th Gear Ratio	< 4 [%] for 1 [sec] continuously		
					Difference between actual Gear Ratio and 8th Gear Ratio	< 4 [%] for 1 [sec] continuously		
Gear Ratio (5th Gear Stuck)	P0735	Gear 5 Incorrect Ratio	Difference between actual Gear Ratio and 6th Gear Ratio	< 4 %	Current Gear	= 5TH GEAR	5 sec	1
					Output Speed	>= 60 [rpm]		
			OR		Input Torque	>= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during detection)		
			Difference between actual Gear Ratio and 7th Gear Ratio	< 4 %	Ignition Voltage	> 9000 [mV] for 10 [msec]		
					Battery Voltage	> 10.2 [V]		
			OR		Battery Voltage	<= 32.0 [V]		
			Difference between actual Gear Ratio and 8th Gear Ratio	< 4 %	Engine Speed	> 400 [RPM]		
					Engine Speed Signal Validity	= VALID		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					The TCM has completed the read operation of its Emergency Mode (*4)	= NOT ACTIVE		
					Neutral Avoidance Control	= NOT ACTIVE		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has	> 8 [sec]		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					been INACTIVE	ALL Malfunctions = NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High)			
					Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE		
Torque Converter Clutch Circuit	P0741	Torque Converter Clutch Circuit Performance/Stuck Off	Difference between Engine Speed and Input Speed: **AND** The time since SLU pressure has gone above a calibratable value: is greater than a calibratable time:	> 100 [rpm] >= 6290 [gf/cm^2] T_SLUFull (*6)	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High)	> 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously) = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	12 sec (cumulatively)	2

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High)			
					Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously Range Selector Position Switch Time since shifting to D Engine Torque Engine Speed ATF Temperature SLU Pressure: - Pressure Value: - Time since meeting value criteria: SL Solenoid Command The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor P2770 (SL Solenoid B+ Short / Open) P2769 (SL Solenoid GND Short) P2763 (SLU Solenoid B+ Short / Open) P2764 (SLU Solenoid GND Short) P2761 (SLU Feedback stuck) P0713 (Transmission Fluid Temperature Sensor "A" Circuit High) P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low)	T_GarageFin (*1) T_ShiftFin (*1) = D Range = 8 [sec] >= 0 [Nm] < 4000 [rpm] >= 20 [degC] PLUP_CLOSE_FAIL (*5) T_SLUFull (*6) = ON = TRUE = TRUE = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED		
Pressure Control Solenoid "A" Control Circuit (SLT Solenoid)	P0748	Pressure Control Solenoid "A" Electrical	sum_ie (*)	> 60000 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	1 to 3 sec cumulatively	1
			(*) The first algorithm checks the cumulative sum of the difference of the linear solenoid feedback current and commanded current. This sum,		Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			named "sum_ie", will be updated on every clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed. ie: Difference of "commanded current" and "feedback current" ie added to "sum_ie" every 10 msec sum_ie is cleared if at least one of the following conditions are satisfied 1) Enable conditions are not satisfied 2) -50mA =< ie =< 50mA" 3) Sign of ie is changed		P0962 (Pressure Control Solenoid "A" Control Circuit Low) P0963 (Pressure Control Solenoid "A" Control Circuit High) Emergency Mode (*4)	= NOT DETECTED = NOT DETECTED = NOT ACTIVE		
			OR					
			| ie | (*) (*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over time. If the absolute value of the difference of the linear solenoid feedback current and commanded current exceeds a calibrated threshold for a calibrated period of time continuously, a malfunction will be detected. | ie |: Absolute value of ie ie: Difference between "commanded current" and "feedback current"	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P0962 (Pressure Control Solenoid "A" Control Circuit Low) P0963 (Pressure Control Solenoid "A" Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE	2 sec	1
Gear Ratio (7th Gear)	P076F	Gear 7 Incorrect Ratio	Difference between actual Gear Ratio and 7th Gear Ratio	> 20 [%]	Current Gear Output Speed Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725,	= 7TH GEAR >= 500 [rpm] > 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	12 sec (cumulatively)	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High)			
					Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	= NOT DETECTED = NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
Neutral condition at D Range (C1 no engagement)	P0776	Pressure Control Solenoid "B" Stuck OFF	Neutral Condition Decision (C1 cannot engage)					1
			| Engine Speed – Input Speed | Input Speed	< 150 [rpm] > Output Speed x I_gear(*7) + 400 [rpm]	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High)	> 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	{ gearRpm(*8) >= 0 AND gearRpm <= 1500 } 3.3 sec { gearRpm(*8) >= 1501 AND gearRpm <= 3000 } { gearRpm(*8) >= 3001 } 0.8 sec	

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High)			
					ATF temperature	>= 0 [degC]		
					Garage Shift Control (N to D) has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					Range Selector Position Switch	= D Range for 1000 [msec] continuously		
					Current gear	1st OR 2nd OR 3rd OR 4th OR 5th		
					Output Speed	<= 500 [rpm]		
					Current lock up status	= OFF		
					Lockup type	= LUP NO CONTROL		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					P0713 (Transmission Fluid Temperature Sensor "A" Circuit High)	= NOT DETECTED		
					P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low)	= NOT DETECTED		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Prohibit Neutral Judgment flag (*)	= FALSE		

(*) Prohibit Neutral Judgment :
  The following Criteria is met, Prohibit Neutral Judgment flag = TRUE
  Clear counter_NfailD

  Criteria: 1 and 2 and 3 and 4 and 5 and 6, for 300 [msec] continuously
  1. current Gear: 4th
  2. RANGE_D(defined signal)
  3. Slip Speed > 500 [rpm]
  4. Output Speed = 0 [rpm]
  5. Not shifting
  6. Current gear != GEAR_1STEB

  Release condition
  The following Criteria is met, Prohibit Neutral Judgment flag = FALSE

  Criteria: 1 or 2 or 3
  1. RANGE_P, RANGE_R or RANGE_N

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Confirm C1 as Failed Element (Check C2 and C3 to see if C1 has malfunctioned)					
			When the following conditions are ALL satisfied, the criteria are considered to be met: Increment counter_NfailD					
			Input Speed	< 200 [rpm]				
			Engine Speed	> 600 [rpm]				
			Neutral condition detection in progress	Yes				
Pressure Control Solenoid "B"	P0777	Pressure Control Solenoid "B" Stuck ON	This fault is confirmed after a calibratable number of counts of the **"SL1 Stuck ON"(*)** failure counter: Number of counts:	= 4	Ignition Voltage Battery Voltage Battery Voltage Engine Speed	> 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM]	4 sec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Engine Speed Signal Validity	= VALID		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
			(*) If the following conditions are met for a calibrated time period continuously, the algorithm will increment the "SL1 Stuck ON" failure Timer:		The TCM has completed the read operation of its non-volatile memory	(all 8 criteria for 2 [sec] continuously)		
			Current Gear	= 1000 [msec] = 6th or 7th or 8th	Emergency Mode (*4)	= NOT ACTIVE		
			Difference between Actual Gear Ratio and Expected Gear Ratio:	< 4 [%]	Neutral Avoidance Control	= NOT ACTIVE		
			ATF Pressure Switch Command	= ON	Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
			Flag_SLC1drain (*)	= ON	Time since Solenoid Cut (*Note 3) control has been INACTIVE	> 8 [sec]		
			Flag_SLC1drain (*) is determined to be ON when the following condition is true:			ALL Malfunctions = NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High)			
					P0973 (Shift Solenoid "A" Control Circuit Low)			
			SLC1 Pressure	<= 300 [gf/cm^2]	Status of all of the Gear Ratio malfunctions:			
			For the following time continuously:	= Time_PSLdrain (*12) [msec]	(P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761)			
					P07C0 (Input/Turbine Speed Sensor "A" Circuit High)			
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low)			
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)			
					P077D (Output Speed Sensor Circuit Low)			
					P077C (Output Speed Sensor Circuit High)			
					P0722 (Output Speed Sensor No Pulse)			
					P0592 (System Voltage Low Supply 2) (*Note 1)			
					P0563 (System Voltage High)			
					P2535 (Ignition Switch Run/Start Position Circuit High)			
					P0601 (Internal Control Module Memory Checksum Error)			
					P0603 (Control Module Programming Error)			
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					Range Selector Position Switch	= D Range		
					Time since changing Range Selector Position to D	= 8000 [msec]		
					ATF temperature	>= -10 [degC]		
					P0713 (Transmission Fluid Temperature Sensor "A" Circuit High)	= NOT DETECTED		
					P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low)	= NOT DETECTED		
					P0842 (Transmission Fluid Pressure Sensor/Switch "A" Circuit Low)	= NOT DETECTED		
					P0843 (Transmission Fluid Pressure Sensor/Switch "A" Circuit High	= NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					Quick Stop Detection Flag (*Note 4)	= FALSE		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Safe Gear Control has been INACTIVE for this amount of time continuously Engine Torque Output Speed The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	tmr_inh_GE (*1) >= 80 [Nm] >= 60 [rpm] = TRUE		
Pressure Control Solenoid "B" Control Circuit (SL1 Solenoid)	P0778	Pressure Control Solenoid "B" Electrical	sum_ie (*) (*) The first algorithm checks the cumulative sum of the difference of the linear solenoid feedback current and commanded current. This sum, named "sum_ie", will be updated on every clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed. ie: Difference of "commanded current" and "feedback current" ie added to "sum_ie" every 10 msec sum_ie is cleared if at least one of the following conditions are satisfied 1) Enable conditions are not satisfied 2) -50mA =< ie =< 50mA" 3) Sign of ie is changed	> 60000 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P0966 (Pressure Control Solenoid "B" Control Circuit Low) P0967 (Pressure Control Solenoid "B" Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE	1 to 3 sec (cumulatively)	1
			OR					
			| ie | (*) (*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over time. If the absolute value of the difference of the linear solenoid feedback current and commanded current exceeds a calibrated threshold for a calibrated period of time continuously, a malfunction will be detected. | ie |: Absolute value of ie ie: Difference between "commanded current" and "feedback current"	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P0966 (Pressure Control Solenoid "B" Control Circuit Low) P0967 (Pressure Control Solenoid "B" Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE	2 sec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Circuit	P077C	Output Speed Sensor Circuit High	Output Speed Sensor Circuit Voltage	< 0.206 [V]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	1 sec	1
Output Speed Sensor Circuit	P077D	Output Speed Sensor Circuit Low	Output Speed Sensor Circuit Voltage	> 2.727 [V]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	1 sec	1
Pressure Control Solenoid "C" Control Circuit (SL2 Solenoid)	P0798	Pressure Control Solenoid "C" Electrical	sum_ie (*) (*) The first algorithm checks the cumulative sum of the difference of the linear solenoid feedback current and commanded current. This sum, named "sum_ie", will be updated on every clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed. ie: Difference of "commanded current" and "feedback current" ie added to "sum_ie" every 10 msec sum_ie is cleared if at least one of the following conditions are satisfied 1) Enable conditions are not satisfied 2) -50mA =< ie =< 50mA" 3) Sign of ie is changed	> 60000 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P0970 (Pressure Control Solenoid "C" Control Circuit Low) P0971 (Pressure Control Solenoid "C" Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE	1 to 3 sec cumulatively	1
			OR					
			| ie | (*) (*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over time. If the absolute value of the difference of the linear solenoid feedback current and commanded current exceeds a calibrated threshold for a calibrated period of time continuously, a malfunction will be detected. | ie |: Absolute value of ie	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P0970 (Pressure Control Solenoid "C" Control Circuit Low) P0971 (Pressure Control Solenoid "C" Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE	2 sec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			ie: Difference between "commanded current" and "feedback current"					
Input/Turbine Speed Sensor "A" Circuit	P07BF	Input/Turbine Speed Sensor "A" Circuit Low	Input Speed Sensor Circuit Voltage	< 0.206 V	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	1 sec	1
Input/Turbine Speed Sensor "A" Circuit	P07C0	Input/Turbine Speed Sensor "A" Circuit High	Input Speed Sensor Circuit Voltage	> 2.727 V	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	1 sec	1
Gear Ratio (8th Gear)	P07D9	Gear 8 Incorrect Ratio	Difference between actual Gear Ratio and 8th Gear Ratio	> 20 [%]	Current Gear Output Speed Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	= 8TH GEAR >= 500 [rpm] > 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED = D Range = NOT DETECTED = NOT DETECTED	12 sec (cumulatively)	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
					AND the following conditions are NOT satisfied			
					Difference between actual Gear Ratio and 6th Gear Ratio	< 4 [%] for 1 [sec] continuously		
					Difference between actual Gear Ratio and 7th Gear Ratio	< 4 [%] for 1 [sec] continuously		
Gear Ratio (8th Gear Stuck)	P07D9	Gear 8 Incorrect Ratio	Difference between actual Gear Ratio and 7th Gear Ratio OR Difference between actual Gear Ratio and 6th Gear Ratio	< 4 % < 4 %	Current Gear Output Speed Input Torque Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse)	= 8TH GEAR >= 60 [rpm] >= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during detection) > 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	5 sec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0592 (System Voltage Low Supply 2) (*Note 1)			
					P0563 (System Voltage High)			
					P2535 (Ignition Switch Run/Start Position Circuit High)			
					Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit)	= NOT DETECTED		
					P0706 (Transmission Range Switch Performance)	= NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
Tap Up Switch	P0815	Upshift Switch Circuit	"Platform Transmission Tap Up/Down Switch State" CAN Signal	= $1 (Increment Switch Active)	Ignition Voltage	> 9000 [mV] for 3 sec continuously	34 sec Total (4 sec for P, R, N-Range) (30 sec for D-Range)	No MIL "Special C"
					Ignition Voltage / Battery Voltage / Battery Voltage / The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously / > 10.2 [V] / <= 32.0 [V] / (all 4 criteria for 2 [sec] continuously)		
					Diagnostic Service Request to Disable Normal Communication	= NOT PRESENT		
					U0140 (Lost Communication with Body Control Module)	= NOT DETECTED		
					P0826 (Up and Down Shift Switch Circuit)	= NOT DETECTED		
					P1761 (Up and Down Shift Switch Signal Circuit)	= NOT DETECTED		
					P0705 (Transmission Range Switch Circuit)	= NOT DETECTED		
					P0706 (Transmission Range Switch Performance)	= NOT DETECTED		
Tap Down Switch	P0816	Downshift Switch Circuit	"Platform Transmission Tap Up/Down Switch State" CAN Signal	= $2 (Decrement Switch Active)	Ignition Voltage	> 9000 [mV] for 3 sec continuously	34 sec Total (4 sec for P, R, N-Range) (30 sec for D-Range)	No MIL "Special C"
					Ignition Voltage / Battery Voltage / Battery Voltage / The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously / > 10.2 [V] / <= 32.0 [V] / (all 4 criteria for 2 [sec] continuously)		
					Diagnostic Service Request to Disable Normal Communication	= NOT PRESENT		
					U0140 (Lost Communication with Body Control Module)	= NOT DETECTED		
					P0826 (Up and Down Shift Switch Circuit)	= NOT DETECTED		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P1761 (Up and Down Shift Switch Signal Circuit)	= NOT DETECTED		
					P0705 (Transmission Range Switch Circuit)	= NOT DETECTED		
					P0706 (Transmission Range Switch Performance)	= NOT DETECTED		
Tap Up/Down Switch	P0826	Up and Down Shift Switch Circuit	"Platform Transmission Tap Up/Down Switch State" CAN Signal	= $3 (Illegal Up/Down Switch State Active)	Ignition Voltage	> 9000 [mV] for 3 sec continuously	4 sec	No MIL "Special C"
					Ignition Voltage	> 9000 [mV] for 10 [msec] continuously		
					Battery Voltage	> 10.2 [V]		
					Battery Voltage	<= 32.0 [V]		
					The TCM has completed the read operation of its non-volatile memory			
						(all 4 criteria for 2 [sec] continuously)		
					Diagnostic Service Request to Disable Normal Communication	= NOT PRESENT		
					U0140 (Lost Communication with Body Control Module)	= NOT DETECTED		
					P1761 (Up and Down Shift Switch Signal Circuit)	= NOT DETECTED		
					P0705 (Transmission Range Switch Circuit)	= NOT DETECTED		
					P0706 (Transmission Range Switch Performance)	= NOT DETECTED		
Manual Mode Switch	P0827	Up and Down Shift Switch Circuit Low Voltage	Manual Mode Switch Signal Level (*) (*) The Manual Mode Switch signal level is determined as a percentage of Ignition Voltage (= Manual Mode Switch Voltage / Ignition Voltage [%])	< 5.0 [%]	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Ignition Voltage P2534 (Ignition Voltage Low Supply) P2535 (Ignition Switch Run/Start Position Circuit High)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED 9 [V] <= IG <= 32 [V] = NOT DETECTED = NOT DETECTED	30 sec	No MIL "Special C"
Manual Mode Switch	P0828	Up and Down Shift Switch Circuit High Voltage	Manual Mode Switch Signal Level (*) (*) The Manual Mode Switch signal level is determined as a percentage of Ignition Voltage (= Manual Mode Switch Voltage / Ignition Voltage [%])	> 25.5 [%]	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Ignition Voltage P2534 (Ignition Voltage Low Supply) P2535 (Ignition Switch Run/Start Position Circuit High)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED 9 [V] <= IG <= 32 [V] = NOT DETECTED = NOT DETECTED	30 sec	No MIL "Special C"
Transmission Fluid Pressure Sensor/Switch "A" Circuit	P0842	Transmission Fluid Pressure Sensor/Switch "A" Circuit Low	Transmission Fluid Pressure Sensor Status	= ON	The following parameters must be met for a calibrated period of time.	Time_SwONfailw (*2)	1 sec	2
					Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT ACTIVE		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Neutral Avoidance Control	= NOT ACTIVE		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has been INACTIVE	> 8 [sec]		
					P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) P0601 (Internal Control Module Memory Checksum Error) P0603 (Control Module Programming Error)	ALL Malfunctions = NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					ATF Temperature	>= 20 [deg C]		
					P0713 (Transmission Fluid Temperature Sensor "A" Circuit High)	= NOT DETECTED		
					P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low)	= NOT DETECTED		
					Range Selector Position Switch	= P or R or N Range		
					Time Since Shifting to P,R, or N	Time_SwDNFin (*2)		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					Gear Ratio Failure Status (P0731, P0732, P0733, P0734, P0735, P0729, P076F, P07D9)	ALL = NOT DETECTED		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
Transmission Fluid Pressure Sensor/Switch "A" Circuit	P0843	Transmission Fluid Pressure Sensor/Switch "A" Circuit High	Current Gear	= 1st, 2nd, 3rd, 4th, or 5th	The following parameters must be met for a calibrated period of time continuously.	Time_SwOFFfailw (*2)	2 sec	2
			Difference between actual Gear Ratio and Expected Gear Ratio	< 4 %	Ignition Voltage Battery Voltage	> 9000 [mV] for 10 [msec] continuously		
			ATF Pressure Command	>= 1600 [kPa]	Battery Voltage	> 10.2 [V]		
			ATF Pressure Switch Status	= OFF	Engine Speed	<= 32.0 [V]		
			Engine Speed	> 500 [rpm]	Engine Speed Signal Validity	> 400 [RPM]		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Time since Engine Speed exceeded threshold above Output Speed Engine Torque without Acceleration Input Speed	> 1000 [msec] >= 60 [rpm] >= 80 [Nm] <= 6000 [rpm]	U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) P2801 (Internal Control Module M... Range Selector Position Switch Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously ATF Temperature P0713 (Transmission Fluid Temperature Sensor "A" Circuit High) P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low) The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously Gear Ratio Failure Status (P0731, P0732, P0733, P0734, P0735, P0729, P076F, P07D9) The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED = D Range T_GarageFin (*1) T_ShiftFin (*1) >= OT_Sw_det (*14) = NOT DETECTED = NOT DETECTED = TRUE = TRUE = FALSE tmr_inh_GE (*1) ALL = NOT DETECTED = TRUE		
Manual Mode Switch	P085F	Up and Down Shift Switch Circuit Stuck in Range	Manual Mode Switch Signal Level (*) (*) The Manual Mode Switch signal level is determined as a percentage of Ignition Voltage (= Manual Mode Switch Voltage / Ignition Voltage	10.4 [%] < Manual Switch < 14.8 [%]	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM]	30 sec	No MIL "Special C"

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			[%])		U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Ignition Voltage P2534 (Ignition Voltage Low Supply) P2535 (Ignition Switch Run/Start Position Circuit High)	= VALID = NOT DETECTED 9 [V] <= IG <= 32 [V] = NOT DETECTED = NOT DETECTED		
Manual Mode Switch	P085F	Up and Down Shift Switch Circuit Stuck in Range	Manual Mode Switch Signal Level **(*)** (*) The Manual Mode Switch signal level is determined as a percentage of Ignition Voltage (= Manual Mode Switch Voltage / Ignition Voltage [%]) The time period is based on the Gear Selector Position: - for 4 sec continuously in P,R, or N range **AND** - for 30 sec continuously in D range	14.8 [%] <= Manual Switch < 25.5 [%]	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Ignition Voltage P2534 (Ignition Voltage Low Supply) P2535 (Ignition Switch Run/Start Position Circuit High) P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED 9 [V] <= IG <= 32 [V] = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED	34 sec (cumulative between P/R/N and D range tests)	No MIL "Special C"
Pressure Control Solenoid "A" Control Circuit (SLT Solenoid)	P0962	Pressure Control Solenoid "A" Control Circuit Low	Linear Solenoid Feedback Current	< 20mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Solenoid Cut Condition (*Note 3) P0963 (Pressure Control Solenoid "A" Control Circuit High)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT ACTIVE = NOT DETECTED for [1 sec]	500 msec	1
Pressure Control Solenoid "A" Control Circuit (SLT Solenoid)	P0963	Pressure Control Solenoid "A" Control Circuit High	Linear Solenoid Feedback Current	>= 1358mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory P0962 (Pressure Control Solenoid "A" Control Circuit Low)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT DETECTED for [1 sec]	500 msec	1
Pressure Control Solenoid "B" Control Circuit (SL1 Solenoid)	P0966	Pressure Control Solenoid "B" Control Circuit Low	Linear Solenoid Feedback Current	< 20mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Solenoid Cut Condition (*Note 3) P0967 (Pressure Control Solenoid "B" Control Circuit High)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT ACTIVE = NOT DETECTED for [1 sec]	500 msec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid "B" Control Circuit (SL1 Solenoid)	P0967	Pressure Control Solenoid "B" Control Circuit High	Linear Solenoid Feedback Current	>= 1358mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory P0966 (Pressure Control Solenoid "B" Control Circuit Low)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT DETECTED for [1 sec]	500 msec	1
Pressure Control Solenoid "C" Control Circuit (SL2 Solenoid)	P0970	Pressure Control Solenoid "C" Control Circuit Low	Linear Solenoid Feedback Current	< 20mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Solenoid Cut Condition (*Note 3) P0971 (Pressure Control Solenoid "C" Control Circuit High)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT ACTIVE = NOT DETECTED for [1 sec]	500 msec	1
Pressure Control Solenoid "C" Control Circuit (SL2 Solenoid)	P0971	Pressure Control Solenoid "C" Control Circuit High	Linear Solenoid Feedback Current	>= 1358mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory P0970 (Pressure Control Solenoid "C" Control Circuit Low)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT DETECTED for [1 sec]	500 msec	1
Shift Solenoid "A" Control Circuit (SR solenoid)	P0973	Shift Solenoid "A" Control Circuit Low	Comparison of SR solenoid Commanded State to Actual State (*) The TCM software does not directly determine the Actual State of the solenoid. This is done by the solenoid driver hardware. The software just reads the state as ON or OFF. The solenoid driver determines the state is ON at Battery Voltage - 1 [V]	Actual State is "OFF" when Commanded State is "ON"	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory SR Solenoid Command Time elapsed since last solenoid state change	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = ON > 10 msec	500 msec	1
Shift Solenoid "A" Control Circuit (SR solenoid)	P0974	Shift Solenoid "A" Control Circuit High	Comparison of SR solenoid Commanded State to Actual State (*) The TCM software does not directly determine the Actual State of the solenoid. This is done by the solenoid driver hardware. The software just reads the state as ON or OFF. The solenoid driver determines the state is ON at Battery Voltage - 1 [V]	Actual State is "ON" when Commanded State is "OFF"	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory SR Solenoid Command Time elapsed since last solenoid state change	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = OFF > 10 msec	500 msec	1
Transmission Control Module (TCM)	P16F3	Control Module Redundant Memory Performance	Downshift commanded (*) (*) The solenoid patterns for the currently engaged gear, target gear, and minimum allowed gear (which is dependent on the vehicle speed) are compared, and the downshift to be commanded would cause unintended vehicle deceleration.	< Minimum Safe Gear (*)	P0606 (Control Module Processor) - Solenoid Cut Malfunction Solenoid Cut Request	= NOT DETECTED = INACTIVE	150 msec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Un-usual shifting with Max Pressure Pressure Control Solenoid "B" Control Circuit (SL1 Solenoid) Pressure Control Solenoid "C" Control Circuit (SL2 Solenoid) Pressure Control Solenoid "D" Control Circuit (SL3 Solenoid) Pressure Control Solenoid "E" Control Circuit (SL4 Solenoid) Pressure Control Solenoid "F" Control Circuit (SL5 Solenoid)	P170A P170B P170C P170D P170E	Pressure Control Solenoid Valve "2" Max Pressure Not Achieved Pressure Control Solenoid Valve "3" Max Pressure Not Achieved Pressure Control Solenoid Valve "4" Max Pressure Not Achieved Pressure Control Solenoid Valve "5" Max Pressure Not Achieved Pressure Control Solenoid Valve "6" Max Pressure Not Achieved	Each component (C1, C2, C3, C4, and B1) diagnosed has its own unique error counter, which will diagnose the failed component if the malfunction is detected. These counters are shared between all of the algorithms. If any one of those counters becomes equal to a calibrated total value, the malfunction will be confirmed and a DTC will be stored. There are (7) unique algorithms which run simultaneously in order to attempt to detect a MAX pressure malfunction. These algorithms are fairly complex; therefore they have been described in detail in section 5. count_fail_SLC1MAX_usft (*) count_fail_SLC2MAX_usft (*) count_fail_SLC3MAX_usft (*) count_fail_SLC4MAX_usft (*) count_fail_SLB1MAX_usft (*) (*):refer to conditions A-1 to E below	 >= 5 >= 5 >= 5 >= 5 >= 5	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) Garage Shift Control has been INACTIVE for this amount of time continuously Range Selector Position Switch Wheel Spin Detected Output Speed ATF temperature The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor Safe Gear Control has been INACTIVE for this amount of time continuously	> 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously) = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED T_GarageFin (*1) = D Range = FALSE >= 300 [rpm] >= -100 [degC] = TRUE = TRUE tmr_inh_GE (*1)	(Shift time dependent) 300 msec to 2 sec, 5 times cumulatively.	1
			Unusual Shifting Test A-1: Up-shift with Tie-up (C1, C3, C4, or B1 not released)					
			If a pressure control malfunction exists during an up-shift, it may be impossible to release the element commanded to disengage. Such a malfunction is possible to detect when the transmission takes an excessively long time to start the up-shift (Input					

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Speed change from current gear to target gear) while the engagement pressure is					
			When the following conditions are ALL satisfied, then the criteria is considered to be met. Based on the Upshift that was occurring, the associated counter is incremented					
			for up-shifts (2-8, 3-7, 4-6, 5-6, 5-7, 5-8)	count_fail_SLC1MAX_usft				
			for up-shifts (3-4, 3-5, 7-8)	count_fail_SLC3MAX_usft				
			for up-shifts (4-5, 6-7, 6-8)	count_fail_SLC4MAX_usft				
			for up-shifts (2-3, 2-4, 2-5)	count_fail_SLB1MAX_usft				
			During any of the following Up-Shifts	(2-8, 3-7, 4-6, 5-6, 5-7, 5-8, 3-4, 3-5, 7-8, 4-5, 6-7, 6-8, 2-3, 2-4, 2-5)				
			Shift Control for Torque Phase B has begun	= TRUE				
			Time since beginning of Torque Phase B	>= TimeTrp_B (*10)				
			Applied Element Command Pressure	> 2.5 [kg/cm^2]				
			Shifting does not begin despite of shifting commanded. (No change in inRpm eventhough the shift command is made)	= TRUE				
			Max of engine flare ratio	<= 50 [rpm]				
			The gear ratio before shift control began is normal (*A) OR The gear ratio at the beginning of the shift is normal (*B)	= TRUE				
			Input Torque	>= 50 [Nm] OR <= -50 [Nm]				
			(*A) This condition is met if the following is true:					
			Difference between actual Gear Ratio and expected Gear Ratio	< 4 [%]				
			(*B) This condition is met if the following is true:					
			Difference between actual Gear Ratio and expected Gear Ratio	< 8 [%]				
			Unusual Shifting Test A-2: Down-shift with Tie-up (C1, C3, C4, or B1 not released)					
			If a pressure control malfunction exists during a down-shift, it may be impossible to release an element which is supposed to disengage. Such a malfunction is possible to detect when the transmission takes an excessively long time to start a down-shift (Input Speed change from current gear to target gear) while the engagement pressure is					
			When the following conditions are ALL satisfied, then the criteria is considered to be met. Based on the Down-shift that was occurring, the associated counter is					
			for down-shifts (5-2, 5-3, 5-4, 6-4,7-3, 8-2)	count_fail_SLC2MAX_usft				
			for down-shifts (3-2, 7-5, 7-6)	count_fail_SLC3MAX_usft				
			for down-shifts (4-2, 4-3, 6-5)	count_fail_SLC4MAX_usft				
			for down-shifts (8-5, 8-6, 8-7)	count_fail_SLB1MAX_usft				
			During any of the following Down-Shifts	(3-2, 4-2, 4-3, 5-2, 5-3, 5-4, 6-4, 6-5, 7-3, 7-5, 7-6, 8-2, 8-5, 8-6, 8-7)				
			After "Start of initial release pressure control phase"	= TRUE				
			Release Pressure Control Phase Duration	>= Time_failA_down1 (*10) AND >= Time_failA_down2 (*10)				
			Applied Element Command Pressure	> 3.0 [kg/cm^2] when Input Torque with No Acceleration < 100 [Nm]				

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Shifting does not begin despite of shifting commanded. (No change in inRpm eventhough the shift command is made)	= TRUE				
			Min of engine flare ratio	>= -50 [rpm]				
			The gear ratio before shift control began is normal (*A)	= TRUE				
			OR					
			The gear ratio at the beginning of the shift is normal (*B)					
			Input Torque	>= 50 [Nm] OR <= -50 [Nm]				
			(*A) This condition is met if the following is true:					
			Difference between actual Gear Ratio and expected Gear Ratio	< 4%				
			(*B) This condition is met if the following is true:					
			Difference between actual Gear Ratio and expected Gear Ratio	< 8 [%]				
			Unusual Shifting Test B-1: Up-shift with Engine Flare (C1, C4, or B1 not released)					
			The TL80SN 8-Speed transmission is equipped with failsafe valves to mitigate any effects of falsely engaged brakes or clutches. However, during some shift types if an element is falsely engaged, the torque transfer from the expected clutches and/or brakes will be disrupted.					
			When ALL of the conditions of a state are satisfied, the function then moves to the next state. Based on the Up-shift that was occurring, the associated counter is incremented					
			for up-shifts (6-7, 6-8)	count_fail_SLC1MAX_usft				
			for up-shifts (7-8)	count_fail_SLC4MAX_usft				
			for up-shifts (3-4, 3-5, 4-5)	count_fail_SLB1MAX_usft				
			State 1 (Start Detection due to Deviation from Expected Transmission Input Speed)					
			If ALL conditions are met:					
			During any of the following single clutch to clutch Up-shifts	(6-7, 6-8, 7-8, 3-4, 3-5, 4-5)				
			Input Speed - (Output Speed x Gear Ratio of current gear before shifting)	>= **flare_fail_up** (*11)				
			NOT in multiplex shifting	= TRUE				
			State 2 (Determine the Fault Type or check for Input Speed Deviation Correction)					
			Criteria 2-1: if ALL conditions are met:					
			Input Speed - (Output Speed x Gear Ratio of current gear before shifting)	<= **flare_fail_up** (*11) - 200 [rpm]				
			TCM currently commanding a Clutch-to-Clutch Up-shift	= FALSE				
			Criteria 2-2: if ALL conditions are met:					
			The TCM is commanding a (3-4, 3-5, or 4-5 up-shift)	= TRUE				
			"Time Since State 1" timer	> Time324 (*10) [sec]				
			Input Speed Acceleration	> 5000 [rpm/sec] for 0.03 [sec]				
			Time since the start of the apply pressure control	< 1.0 [sec]				
			Criteria 2-3: if ALL conditions are met:					

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			The TCM is commanding a (6-7 or 6-8 up-shift)	= TRUE				
			"Time Since State 1" timer	> Time324 (*10) [sec]				
			Input Speed Acceleration	> 5000 [rpm/sec]				
				for 0.03 [sec]				
			Time since the start of the apply pressure control	< 1.0 [sec]				
			Criteria 2-4: if ALL conditions are met:					
			The TCM is commanding a (7-8 up-shift)	= TRUE				
			"Time Since State 1" timer	> **Time324 (*X)** [sec]				
			Input Speed Acceleration	> 5000 [rpm/sec]				
				for 0.03 [sec]				
			Time since the start of the apply pressure control	< 1.0 [sec]				
			Criteria 2-5: if condition (A) AND (condition (B) OR (C)) are met:					
			(A) "Time Since State 1" timer	> TimeFailB (*10) [sec]				
			(B) "Release Element Pressure at Flare Start"	> 2.0 [kg/cm^2]				
			(C) Applied Element Commanded Pressure	> 2.0 [kg/cm^2]				
			State 3 (Conclude Malfunction Detection and Resume Normal Operations) if ALL conditions are met:					
			"Exit Unusual Shifting Test B-1" timer	> TimeFailB (*10) [sec]				
			Unusual Shifting Test B-2: Down-shift with Engine Flare (B1 not released)					
			The TL80SN 8-Speed transmission is equipped with failsafe valves to mitigate any effects of falsely engaged brakes or clutches. However, during some shift types if an element is falsely engaged, the torque transfer from the expected clutches and/or brakes will be disrupted. A symptom of such a malfunction is a large Input Speed					
			State 1 (Start Detection due to Deviation from Expected Transmission Input Speed)					
			Criteria 1-1: if ALL conditions are met:					
			During the following Down-shift	(4-3)				
			Time since the start of the apply pressure control	< 1.0 [sec]				
			NOT in multiplex shifting	= TRUE				
			Input Speed - (Output Speed x Gear Ratio of gear expected after the shift)	>= 500 [rpm]				
			Input Speed Acceleration	> 5000 [rpm/sec]				
				for 0.03 [sec]				
			The gear ratio before shift control began is normal **(*A)** OR The gear ratio at the beginning of the shift is normal **(*B)**	= TRUE				
			(*A) This condition is met if the following is true:					
			Difference between actual Gear Ratio and expected Gear Ratio	< 4%				
			(*B) This condition is met if the following is true:					
			Difference between actual Gear Ratio and expected Gear Ratio	< 8 [%]				
			Criteria 1-2: if ALL conditions are met:					
			During the following Down-shift	(5-4, 5-3)				
			Time since the start of the apply pressure control	< 1.0 [sec]				
			NOT in multiplex shifting	= TRUE				

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Input Speed - (Output Speed x Gear Ratio of gear expected after the shift)	>= 500 [rpm]				
			Input Speed Acceleration	> 5000 [rpm/sec] for 0.03 [sec]				
			The gear ratio at the beginning of the shift indicates 8th gear	= TRUE				
			State 2 (Increment the malfunction counter or wait for the shift to complete)					
			Criteria 2-1: if ALL conditions are met:					
			"Time Since State 1" timer	> Time324 (*10) [sec]				
			Criteria 2-2: if condition (A) AND (condition (B) OR (C)) are met:					
			(A) During the following Down-shift	(4-3)				
			(B) The shift has completed	= TRUE				
			(C) Input Speed - (Output Speed x Gear Ratio of gear expected after the shift)	< 500 [rpm]				
			Criteria 2-3: if condition (A) AND (condition (B) OR (C)) are met:					
			(A) During the following Down-shift	(5-4, 5-3)				
			(B) The shift has completed	= TRUE				
			(C) Input Speed - (Output Speed x Gear Ratio of gear expected after the shift)	< 500 [rpm]				
			State 3 (Conclude Malfunction Detection and Resume Normal Operations) if ALL conditions are met:					
			"Exit Unusual Shifting Test B-2" timer	> Time423B (*10) [sec]				
			Unusual Shifting Test B-3: Down-shift with Engine Flare (C1 not released)					
			The TL80SN 8-Speed transmission is equipped with failsafe valves to mitigate any effects of falsely engaged brakes or clutches. However, during some shift types if an element is falsely engaged, the torque transfer from the expected clutches and/or brakes will be disrupted. A symptom of such a malfunction is a large Input Speed					
			State 1 (Start Detection due to Deviation from Expected Transmission Input Speed)					
			Criteria 1-1: if ALL conditions are met:					
			During the following Down-shift	(8-7, 8-6, 7-6)				
			Time since the start of the apply pressure control	< 1.0 [sec]				
			NOT in multiplex shifting	= TRUE				
			Input Speed - (Output Speed x Gear Ratio of gear expected after the shift)	>= 300 [rpm]				
			Input Speed Acceleration	> 5000 [rpm/sec] for 0.03 [sec]				
			The gear ratio before shift control began is normal (*A) OR The gear ratio at the beginning of the shift is normal (*B)	= TRUE				
			(*A) This condition is met if the following is true:					
			Difference between actual Gear Ratio and expected Gear Ratio	< 4 [%]				
			(*B) This condition is met if the following is true:					
			Difference between actual Gear Ratio and expected Gear Ratio	< 8 [%]				
			State 2 (Increment the malfunction counter or wait for the shift to complete)					
			Criteria 2-1: if ALL conditions are met:					
			"Time Since State 1" timer	> Time857a (*10) [sec]				

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Criteria 2-2: if condition (A) AND (condition (B) OR (C)) are met:					
			(A) During the following Down-shift	(8-7, 8-6, 7-6)				
			(B) The shift has completed	= TRUE				
			(C) Input Speed - (Output Speed x Gear Ratio of gear expected after the shift)	< 300 [rpm]				
			State 3 (Conclude Malfunction Detection and Resume Normal Operations) if ALL conditions are met:					
			"Exit Unusual Shifting Test B-3" timer	> **Time857b (*X)** [sec]				
			Unusual Shifting Test B-4: Down-shift with Engine Flare (C3 not released)					
			The TL80SN 8-Speed transmission is equipped with failsafe valves to mitigate any effects of falsely engaged brakes or clutches. However, during some shift types if an element is falsely engaged, the torque transfer from the expected clutches and/or brakes will be disrupted. A symptom of such a malfunction is a large Input Speed					
			State 1 (Start Detection due to Deviation from Expected Transmission Input Speed)					
			Criteria 1-1: if ALL conditions are met:					
			During the following Down-shift	(5-4)				
			Time since the start of the apply pressure control	< 1.0 [sec]				
			NOT in multiplex shifting	= TRUE				
			Input Speed - (Output Speed x Gear Ratio of gear expected after the shift)	>= 300 [rpm]				
			Input Speed Acceleration	> 5000 [rpm/sec] for 0.03 [sec]				
			The gear ratio at the beginning of the shift is 7th gear	= TRUE				
			State 2 (Increment the malfunction counter or wait for the shift to complete)					
			Criteria 2-1: if ALL conditions are met:					
			"Time Since State 1" timer	> Time54a (*10) [sec]				
			Criteria 2-2: if condition (A) AND (condition (B) OR (C)) are met:					
			During the following Down-shift	(5-4)				
			(B) The shift has completed	= TRUE				
			(C) Input Speed - (Output Speed x Gear Ratio of gear expected after the shift)	< 300 [rpm]				
			State 3 (Conclude Malfunction Detection and Resume Normal Operations) if ALL conditions are met:					
			"Exit Unusual Shifting Test B-4" timer	> **Time54b (*X)** [sec]				
			Unusual Shifting Test E: Gear Ratio Malfunction during Shifting					
			Note: To confirm if a shift ratio is fulfilled, the following criteria is used:					
			If all of the following conditions are met:					
			During the following shifts	(1-2, 1-3, 1-4, 1-5)				
			5th gear ratio fulfilled at the beginning of the shift for 1.0 sec	= TRUE				
			Input Torque	<= -50 [Nm] OR >= 50 [Nm]				
			Applied Element Command Pressure	> 2.5 [kg/cm^2]				
			If all of the following conditions are met:					
			During the following shifts	(2-8)				
			8th gear ratio fulfilled at the beginning of the shift for 1.0 sec	= TRUE				
			Input Torque	<= -50 [Nm] OR >= 50 [Nm]				
			If all of the following conditions are met:					

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			During the following shifts	(3-7)				
			7th gear ratio fulfilled at the beginning of the shift for 1.0 sec	= TRUE				
			Input Torque	<= -50 [Nm] OR >= 50 [Nm]				
			If all of the following conditions are met:					
			During the following shifts	(4-6)				
			6th gear ratio fulfilled at the beginning of the shift for 1.0 sec	= TRUE				
			Input Torque	<= -50 [Nm] OR >= 50 [Nm]				
			If all of the following conditions are met:					
			During the following shifts	(1-2, 1-3, 1-4, 1-5, 2-3, 2-4, 2-5, 4-5, 4-3, 4-2, 4-1, 2-1, 2-1EB, 1EB-1, 1-1EB)				
			3rd gear ratio fulfilled at the beginning of the shift for 1.0 sec	= TRUE				
			Input Torque	<= -50 [Nm] OR >= 50 [Nm]				
			Applied Element Command Pressure (this condition only applies to the following shifts (1-2, 1-3, 1-4, 1-5)	> 2.5 [kg/cm^2]				
			If all of the following conditions are met:					
			During the following shifts	(5-6, 5-7, 5-8, 6-5, 6-7, 6-8, 8-7, 8-6, 8-5, 8-2)				
			7th gear ratio fulfilled at the beginning of the shift for 1.0 sec	= TRUE				
			Input Torque	<= -50 [Nm] OR >= 50 [Nm]				
			If all of the following conditions are met:					
			During the following shifts	(1-2, 1-3, 1-4, 1-5, 2-3, 2-4, 2-5, 2-1, 2-1EB, 1EB-1, 1-1EB)				
			4th gear ratio fulfilled at the beginning of the shift for 1.0 sec	= TRUE				
			Input Torque	<= -50 [Nm] OR >= 50 [Nm]				
			Applied Element Command Pressure (this condition only applies to the following shifts (1-2, 1-3, 1-4, 1-5)	> 2.5 [kg/cm^2]				
			If all of the following conditions are met:					
			During the following shifts	(5-6, 5-7, 5-8, 8-7, 8-6, 8-5)				
			6th gear ratio fulfilled at the beginning of the shift for 1.0 sec	= TRUE				
			Input Torque	<= -50 [Nm] OR >= 50 [Nm]				
			If all of the following conditions are met:					
			During the following shifts	(1-2, 1-3, 1-4, 1-5, 1EB-1, 1-1EB)				
			2nd gear ratio fulfilled at the beginning of the shift for 1.0 sec	= TRUE				

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Input Torque Applied Element Command Pressure (this condition only applies to the following shifts (1-2, 1-3, 1-4, 1-5)	<= -50 [Nm] OR >= 50 [Nm] > 2.5 [kg/cm^2]				
			If all of the following conditions are met:					
			During the following shifts 8th gear ratio fulfilled at the beginning of the shift for 1.0 sec Input Torque	(5-6, 5-7, 5-8) = TRUE <= -50 [Nm] OR >= 50 [Nm]				
Lateral Acceleration Sensor Signal (Rolling Count)	P175F	Acceleration Sensor Signal message Counter Incorrect	The "Longitude/Latitude Acceleration Sensor Value Alive Rolling Count" CAN signal is not updated for a calibratable number of counts consecutively.	= 5 counts	Ignition Voltage Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Diagnostic Service Request to Disable Normal Communication U0140 (Lost Communication with Body Control Module)	> 9000 [mV] for 3 sec continuously > 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT PRESENT = NOT DETECTED	250 msec	No MIL "Special C"
Tap Up/Down Switch (Rolling Count)	P1761	Up and Down Shift Switch Signal Circuit	The "Platform Transmission Tap Up/Down Switch Status Alive Rolling Count" CAN signal is not updated for a calibratable number of counts consecutively.	= 5 counts	Ignition Voltage Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Diagnostic Service Request to Disable Normal Communication U0140 (Lost Communication with Body Control Module)	> 9000 [mV] for 3 sec continuously > 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT PRESENT = NOT DETECTED	150 msec	No MIL "Special C"
Ignition Switch Run/Start Position Circuit	P2534	Ignition Switch Run/Start Position Circuit Low	Ignition Voltage	< 9 [V]	Battery Voltage The TCM is not operating out of a service mode The TCM has completed the read operation of its non-volatile memory CAN Based Engine Controller Run Crank Terminal Status CAN Based Engine Running Signal U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM "A") BUS OFF State from CAN controller Receiving ECM CAN frame	>= 9 [V] = Active = TRUE = NOT DETECTED = NOT DETECTED = Not Received = TRUE	20 sec	1
Ignition Switch Run/Start Position Circuit	P2535	Ignition Switch Run/Start Position Circuit High	Ignition Voltage	> 9 [V]	Battery Voltage The TCM is not operating out of a service mode The TCM has completed the read operation of its non-volatile memory CAN Based Engine Controller Run Crank Terminal Status CAN Based Engine Running Signal	>= 9 [V] = Inactive = FALSE	3 sec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					BUS OFF State from CAN controller Receiving ECM CAN frame	= Not Received = TRUE		
Pressure Control Solenoid "D" Control Circuit (SL3 Solenoid)	P2716	Pressure Control Solenoid "D" Electrical	sum_ie (*) (*) The first algorithm checks the cumulative sum of the difference of the linear solenoid feedback current and commanded current. This sum, named "sum_ie", will be updated on every clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed. ie: Difference of "commanded current" and "feedback current" ie added to "sum_ie" every 10 msec sum_ie is cleared if at least one of the following conditions are satisfied 1) Enable conditions are not satisfied 2) -50mA =< ie =< 50mA" 3) Sign of ie is changed	> 60000 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P2720 (Pressure Control Solenoid "D" Control Circuit Low) P2721 (Pressure Control Solenoid "D" Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE	1 to 3 sec cumulatively	1
			OR					
			| ie | (*) (*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over time. If the absolute value of the difference of the linear solenoid feedback current and commanded current exceeds a calibrated threshold for a calibrated period of time continuously, a malfunction will be detected. | ie |: Absolute value of ie ie: Difference between "commanded current" and "feedback current"	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P2720 (Pressure Control Solenoid "D" Control Circuit Low) P2721 (Pressure Control Solenoid "D" Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE	2 sec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid "D" Control Circuit (SL3 Solenoid)	P2720	Pressure Control Solenoid "D" Control Circuit Low	Linear Solenoid Feedback Current	< 20mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Solenoid Cut Condition (*Note 3) P2721 (Pressure Control Solenoid "D" Control Circuit High)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT ACTIVE = NOT DETECTED for [1 sec]	500 msec	1
Pressure Control Solenoid "D" Control Circuit (SL3 Solenoid)	P2721	Pressure Control Solenoid "D" Control Circuit High	Linear Solenoid Feedback Current	>= 1358mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory P2720 (Pressure Control Solenoid "D" Control Circuit Low)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT DETECTED for [1 sec]	500 msec	1
Pressure Control Solenoid "E" Control Circuit (SL4 Solenoid)	P2725	Pressure Control Solenoid "E" Electrical	sum_ie (*) (*) The first algorithm checks the cumulative sum of the difference of the linear solenoid feedback current and commanded current. This sum, named "sum_ie", will be updated on every clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed. ie: Difference of "commanded current" and "feedback current" ie added to "sum_ie" every 10 msec sum_ie is cleared if at least one of the following conditions are satisfied 1) Enable conditions are not satisfied 2) -50mA =< ie =< 50mA" 3) Sign of ie is changed	> 60000 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P2729 (Pressure Control Solenoid "E" Control Circuit Low) P2730 (Pressure Control Solenoid "E" Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE	1 to 3 sec cumulatively	1
			OR					
			| ie | (*) (*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over time. If the absolute value of the difference of the linear solenoid feedback current and	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P2729 (Pressure Control Solenoid "E" Control Circuit Low)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED	2 sec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			commanded current exceeds a calibrated threshold for a calibrated period of time continuously, a malfunction will be detected. | ie |: Absolute value of ie ie: Difference between "commanded current" and "feedback current"		P2730 (Pressure Control Solenoid "E" Control Circuit High) Emergency Mode (*4)	= NOT DETECTED = NOT ACTIVE		
Pressure Control Solenoid "E" Control Circuit (SL4 Solenoid)	P2729	Pressure Control Solenoid "E" Control Circuit Low	Linear Solenoid Feedback Current	< 20mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Solenoid Cut Condition (*Note 3) P2730 (Pressure Control Solenoid "E" Control Circuit High)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT ACTIVE = NOT DETECTED for [1 sec]	500 msec	1
Pressure Control Solenoid "E" Control Circuit (SL4 Solenoid)	P2730	Pressure Control Solenoid "E" Control Circuit High	Linear Solenoid Feedback Current	>= 1358mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory P2729 (Pressure Control Solenoid "E" Control Circuit Low)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT DETECTED for [1 sec]	500 msec	1
Pressure Control Solenoid "F" Control Circuit (SL5 Solenoid)	P2734	Pressure Control Solenoid "F" Electrical	sum_ie (*) (*) The first algorithm checks the cumulative sum of the difference of the linear solenoid feedback current and commanded current. This sum, named "sum_ie", will be updated on every clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed. ie: Difference of "commanded current" and "feedback current" ie added to "sum_ie" every 10 msec sum_ie is cleared if at least one of the following conditions are satisfied 1) Enable conditions are not satisfied 2) -50mA =< ie =< 50mA" 3) Sign of ie is changed OR	> 60000 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P2738 (Pressure Control Solenoid "F" Control Circuit Low) P2739 (Pressure Control Solenoid "F" Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE	1 to 3 sec cumulatively	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			| ie | (*)	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory (all 4 criteria for 2 [sec] continuously)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	2 sec	1
			(*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over time. If the absolute value of the difference of the linear solenoid feedback current and commanded current exceeds a calibrated threshold for a calibrated period of time continuously, a malfunction will be detected. | ie |: Absolute value of ie ie: Difference between "commanded current" and "feedback current"		Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P2738 (Pressure Control Solenoid "F" Control Circuit Low) P2739 (Pressure Control Solenoid "F" Control Circuit High) Emergency Mode (*4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
Pressure Control Solenoid "F" Control Circuit (SL5 Solenoid)	P2738	Pressure Control Solenoid "F" Control Circuit Low	Linear Solenoid Feedback Current	< 20mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory (all 4 criteria for 2 [sec] continuously) Solenoid Cut Condition (*Note 3) P2739 (Pressure Control Solenoid "F" Control Circuit High)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT ACTIVE = NOT DETECTED for [1 sec]	500 msec	1
Pressure Control Solenoid "F" Control Circuit (SL5 Solenoid)	P2739	Pressure Control Solenoid "F" Control Circuit High	Linear Solenoid Feedback Current	>= 1358mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory (all 4 criteria for 2 [sec] continuously) P2738 (Pressure Control Solenoid "F" Control Circuit Low)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT DETECTED for [1 sec]	500 msec	1
Torque Converter Clutch Pressure Control Solenoid Control Circuit (SLU Solenoid)	P2761	Torque Converter Clutch Pressure Control Solenoid Control Circuit/Open	sum_ie (*) (*) The first algorithm checks the cumulative sum of the difference of the linear solenoid feedback current and commanded current. This sum, named "sum_ie", will be updated on every clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed. ie: Difference of "commanded current" and "feedback current" ie added to "sum_ie" every 10 msec	> 60000 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory (all 4 criteria for 2 [sec] continuously) Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P2764 (Torque Converter Clutch Pressure Control Solenoid Control Circuit Low) P2763 (Torque Converter Clutch Pressure Control Solenoid Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE	1 to 3 sec cumulatively	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			sum_ie is cleared if at least one of the following conditions are satisfied 1) Enable conditions are not satisfied 2) -50mA =< ie =< 50mA 3) Sign of ie is changed					
			OR					
			| ie | (*)	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	2 sec	1
			(*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over time. If the absolute value of the difference of the linear solenoid feedback current and commanded current exceeds a calibrated threshold for a calibrated period of time continuously, a malfunction will be detected. | ie |: Absolute value of ie ie: Difference between "commanded current" and "feedback current"		Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P2764 (Torque Converter Clutch Pressure Control Solenoid Control Circuit Low) P2763 (Torque Converter Clutch Pressure Control Solenoid Control Circuit High) Emergency Mode (*4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
Torque Converter Clutch Pressure Control Solenoid Control Circuit (SLU Solenoid)	P2763	Torque Converter Clutch Pressure Control Solenoid Control Circuit High	Linear Solenoid Feedback Current	>= 1358mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory P2764 (Torque Converter Clutch Pressure Control Solenoid Control Circuit Low)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT DETECTED for [1 sec]	500 msec	1
Torque Converter Clutch Pressure Control Solenoid Control Circuit (SLU Solenoid)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	Linear Solenoid Feedback Current	< 20mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Solenoid Cut Condition (*Note 3) P2763 (Torque Converter Clutch Pressure Control Solenoid Control Circuit High)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT ACTIVE = NOT DETECTED for [1 sec]	500 msec	1
Torque Converter Clutch (TCC) Enable Solenoid (SL solenoid)	P2769	Torque Converter Clutch Circuit Low	Comparison of SL solenoid Commanded State to Actual State (*) The TCM software does not directly determine the Actual State of the solenoid. This is done by the solenoid driver hardware. The software just reads the state as ON or OFF. The solenoid driver determines the state is ON at Battery Voltage - 1 [V]	Actual State is "OFF" when Commanded State is "ON"	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory SL Solenoid Command Time elapsed since last solenoid state change	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = ON > 10 msec	500 msec	2

17 OBDG03 TCM RWD/AWD 8 Speed T51 Summary Tables

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Torque Converter Clutch (TCC) Enable Solenoid (SL solenoid)	P2770	Torque Converter Clutch Circuit High	Comparison of SL solenoid Commanded State to Actual State (*) The TCM software does not directly determine the Actual State of the solenoid. This is done by the solenoid driver hardware. The software just reads the state as ON or OFF. The solenoid driver determines the state is ON at Battery Voltage - 1 [V]	Actual State is "ON" when Commanded State is "OFF"	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory SL Solenoid Command Time elapsed since last solenoid state change	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = OFF > 10 msec	500 msec	2
CAN Bus-Off	U0073	CAN Bus-OFF	Bus Off malfunction is received from the CAN controller	11 times continuously	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	10 sec	1
Engine Control Module (ECM)	U0100	Lost Communication with ECM/PCM "A"	CAN frame: "PTEI_Engine_Torque_Status"	= NOT RECEIVED	Ignition Voltage Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory U0073 (CAN Bus-OFF) Diagnostic Service Request to Disable Normal Communication	> 9000 [mV] for 5 sec continuously > 9000 [mV] > 10.2 [V] <= 32.0 [V] (all 4 criteria for 5 [sec] continuously) = NOT DETECTED = NOT PRESENT	4 sec	1
Anti-Lock Brake System (ABS) Module	U0121	Lost Communication with Anti-Lock Brake System (ABS) Control Module	CAN frame: "PPEI_Chassis_General_Status_1"	= NOT RECEIVED	Ignition Voltage Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory U0073 (CAN Bus-OFF) Diagnostic Service Request to Disable Normal Communication	> 9000 [mV] for 5 sec continuously > 9000 [mV] > 10.2 [V] <= 32.0 [V] (all 4 criteria for 5 [sec] continuously) = NOT DETECTED = NOT PRESENT	4 sec	No MIL "Special C"
Body Control Module (BCM)	U0140	Lost Communication with Body Control Module	CAN frame: "PPEI_Platform_Trans_Requests"	= NOT RECEIVED	Ignition Voltage Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory U0073 (CAN Bus-OFF) Diagnostic Service Request to Disable Normal Communication	> 9000 [mV] for 5 sec continuously > 9000 [mV] > 10.2 [V] <= 32.0 [V] (all 4 criteria for 5 [sec] continuously) = NOT DETECTED = NOT PRESENT	4 sec	No MIL "Special C"

Tables

				< -20 degC	>= -20 degC > -10 degC	>= -10 degC < 20 degC	>= 20 degC	
						ATF Temperature		
(*1)	T_GarageFin	Delay Time after Garage Shift Control		50000	8000	2000	1000	[msec]
	T_ShiftFin	Delay Time after Shifting Control		50000	2000	1000	500	[msec]
	T_C1ctrlFin	Delay Time after C1 OFF control		8000	8000	2000	1000	[msec]
	T_C3ctrlFin	Delay Time after C3 OFF control		8000	8000	2000	1000	[msec]
	tmr_inh_GE	Delay Time after Gear Hold function has been activated		50000	2000	1000	500	[msec]

			ATF Temperature		
			< 40 degC	>= 40 degC	
(*2)	Time_SwOFFfailw	All Window conditions must be met for the following time, continuously	4000	2000	[msec]
	Time_SwONfailw	All Window conditions must be met for the following time, continuously	4000	2000	[msec]
	Time_SwDNFin	Delay Time after shifting to P, R, or N position	7000	3000	[msec]

(*3) otcal_map — Calibrated threshold for the calculated heat load sum. Value is determined through linear interpolation of the initial ATF Temperature at Power On..

(*4) **Emergency Mode** — Indicates that a serious malfunction has occurred and the transmission has stopped operating normally. In order to allow continued driving, the transmission will default to a safe operational state which is designed to prevent damage to the powertrain and vehicle occupants. As this condition will affect emissions, the MIL will always be illuminated when emergency mode is active. Also referred to as a failure induced "Limp home" or "Limp in" mode by some manufacturers.

The following tables lists all malfunctions in which an Emergency Mode is entered upon their detection.

DTC	Monitor Description	Emergency Mode (*)
P0563	System Voltage High	3
P0601	Internal Control Module Memory Checksum Error	3
P0602	Control Module Programming Error	3
P0604	Internal Control Module Random Access Memory (RAM) Error	3
P0717	Input/Turbine Speed Sensor "A" Circuit No Signal	3
P0722	Output Speed Sensor Circuit No Signal	2
P0729	Gear 6 Incorrect Ratio	2
P0731	Gear 1 Incorrect Ratio	2
P0732	Gear 2 Incorrect Ratio	2
P0733	Gear 3 Incorrect Ratio	2
P0734	Gear 4 Incorrect Ratio	2
P0735	Gear 5 Incorrect Ratio	2
P0748	Pressure Control Solenoid "A" Electrical	1
P076F	Gear 7 Incorrect Ratio	2
P0776	Pressure Control Solenoid "B" Stuck OFF	2
P0777	Pressure Control Solenoid "B" Stuck ON	2
P0778	Pressure Control Solenoid "B" Electrical	1
P077C	Output Speed Sensor Circuit High	3
P077D	Output Speed Sensor Circuit Low	3
P0798	Pressure Control Solenoid "C" Electrical	1
P07BF	Input/Turbine Speed Sensor "A" Circuit High	3

P07C0	Input/Turbine Speed Sensor "A" Circuit Low	3
P07D9	Gear 8 Incorrect Ratio	2
P0962	Pressure Control Solenoid "A" Control Circuit Low	1
P0963	Pressure Control Solenoid "A" Control Circuit High	1
P0966	Pressure Control Solenoid "B" Control Circuit Low	1
P0967	Pressure Control Solenoid "B" Control Circuit High	1
P0970	Pressure Control Solenoid "C" Control Circuit Low	1
P0971	Pressure Control Solenoid "C" Control Circuit High	1
P0973	Shift Solenoid "A" Control Circuit Low	3
P0974	Shift Solenoid "A" Control Circuit High	3
P170A	Unusual Shifting - SL1 MAX Pressure Failure	2
P170B	Unusual Shifting - SL2 MAX Pressure Failure	2
P170C	Unusual Shifting - SL3 MAX Pressure Failure	2
P170D	Unusual Shifting - SL4 MAX Pressure Failure	2
P170E	Unusual Shifting - SL5 MAX Pressure Failure	2
P2534	Ignition Switch Run/Start Position Circuit Low	3
P2716	Pressure Control Solenoid "D" Electrical	1
P2720	Pressure Control Solenoid "D" Control Circuit Low	1
P2721	Pressure Control Solenoid "D" Control Circuit High	1
P2725	Pressure Control Solenoid "E" Electrical	1
P2729	Pressure Control Solenoid "E" Control Circuit Low	1
P2730	Pressure Control Solenoid "E" Control Circuit High	1
P2734	Pressure Control Solenoid "F" Electrical	1
P2738	Pressure Control Solenoid "F" Control Circuit Low	1
P2739	Pressure Control Solenoid "F" Control Circuit High	1
P2761	Torque Converter Clutch Pressure Control Solenoid Control Circuit/Open	3
P2763	Torque Converter Clutch Pressure Control Solenoid Control Circuit High	3
P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	3
U0073	CAN Bus-OFF	3
U0100	Lost Communication with ECM/PCM "A"	3

(*) Emergency Mode	Final Gear State
1	3rd or 6th Gear (one might not be possible due to failed component)
2	4th Gear
3	3rd Gear

*5	PLUP_CLOSE_FAIL	= Minimum of the following values:		[gf/cm^2]
		1	6290	
			= Maximum of the following values:	
		2	1	P_RelayV_Keep (*)
			2	0.8 * 0.576 * P_secLC + 688

(*) P_RelayV_Keep	LF3	LFX
	900	750

			ATF Temperature		
			< 20 degC	>= 20 degC	
*6	T_SLUFull	Time since SLU Pressure met PLUP_CLOSE_FAIL (*5) criteria	10	3	[sec]

*7	I_gear	1st Gear Ratio at RANGE D

*8	gearRpm	= Input Speed - Output Speed x I_gear (*9)

*9	TimeTrp_B	This timer is calculated based on input torque

			OilTemp [degC]				
			~-20	-19 ~ -1	0 ~ 19	20-64	65 ~
*10		< -10	5000	3000	2000	1000	800
	Time_failA_up1 [msec]	-10 ~ 40	5000	3000	3000	1900	1000
	Input Torque [Nm]	40 ~ 100	5000	3000	1000	800	600
		100 ~ 250	5000	3000	1000	500	300
		> 250	5000	3000	1000	500	300
		< -10	5000	1400	1200	1000	800
	Time_failA_down1 [msec]	-10 ~ 40	5000	1600	1400	1200	1100
	Input Torque [Nm]	40 ~ 100	5000	1600	1400	1200	1100
		100 ~ 250	5000	1600	1400	1200	1100
		> 250	5000	1600	1400	1200	1000
		NO_S0 (*)	5000	1600	1400	1200	1000
	Time_failA_down2 [msec]	NO_S1	5000	1600	1400	1200	1000
	Output Speed [rpm]	NO_S2	5000	1600	1400	1200	1000
		NO_S3	5000	1400	1200	1000	800
		NO_S4	5000	1400	1200	1000	800
		NO_S0 (*)	3000	2800	2500	2200	2000
	Time_failA_down2 C [msec]	NO_S1	3000	2800	2500	2200	2000
	Output Speed [rpm]	NO_S2	3000	2800	2500	2200	2000
		NO_S3	3000	2800	2500	2200	2000
		NO_S4	3000	2800	2500	2200	2000
	Time54a [msec]	msec	-	5000	500	200	100	100
	Time857a [msec]	msec	-	5000	500	200	100	100
	Time423a [msec]	msec	-	5000	500	200	100	100
	Time324 [msec]	msec	-	5000	500	200	100	100
	Time fail B [msec]	msec	-	5000	2000	500	500	500
	Time324b [msec]	msec	-	2000	2000	1000	1000	1000
	Time423b [msec]	msec	-	2000	2000	1000	1000	1000
	Time857b [msec]	msec	-	2000	2000	1000	1000	1000
	Time54b [msec]	msec	-	2000	2000	1000	1000	1000

(*) During Upshifts [rpm]

NO_S0	NO_S1	NO_S2	NO_S3	NO_S4
1200	2400	3600	4800	6000

During Downshifts [rpm]

NO_S0	NO_S1	NO_S2	NO_S3	NO_S4
750	1500	2500	3750	5250

During the following Up-shifts

*11	flare_fail_up [rpm]	6-7	6-8	3-4	3-5	4-5	7-8	All others	remarks
		300	300	500	500	500	300	500	for LFX
		500	500	1000	1000	1000	500	1000	for LF3

*12	Time_PSLdrain [msec]	LF3	LFX
		1500	500

*13	Difference_Temp_Map	Engine Off Time [hrs]	0	1	2	3	4	5	6	7+

	Temp Difference [degC]	43	43	43	43	43	43	43	43

*14 **OT_Sw_det** [degC]

LF3	LFX
-10	40

Notes

Note 1 CARB has given approval for the diagnostic algorithm P0592 (System Voltage Low Supply 2) (*Note 1) to be detected and confirmed by the vehicle electrical charging system. The TCM treats this as a Type C diagnostic and stores a service DTC when this malfunction is confirmed. Additionally, the TCM has an algorithm to detect when the System Voltage is critically low (< 9 [V]), and is no longer capable of functioning normally. Below this critically low voltage threshold, it is necessary to disable some diagnostics based on this algorithm, due to the effect a low voltage condition has on the ability of the TCM to control the transmission. Therefore, the TCM relies on the vehicle charging system to illuminate the MIL and alert the driver to this low voltage condition.

Note 2 These malfunctions relate to invalid CAN signals, which are transmitted by the ECM. The components from which these signals are derived are diagnosed by the ECM, which will store an emissions related DTC code, and illuminate the MIL, as necessary when a malfunction related

Note 3 **Solenoid Cut Condition** | When an ISO26262 Functional Safety related malfunction occurs, the TCM performs a Solenoid Cut, which cuts all current to the solenoids as a safe state reaction, putting the transmission into a default state (3rd or 7th gear, depending on vehicle speed).

Note 4 **Quick Stop Detection Flag** | This flag is intended to prevent misdetection of any malfunctions which could be caused by air in the ATF pick-up due to high gravitational forces. This flag will be set to TRUE if the conditions necessary for Quick Stop Detection are met. It is sufficient to say this flag will only become TRUE if the driver is braking heavily and the vehicle is rapidly decelerating. At all other times the value of this flag will be FALSE.

17 OBDG03 TCM Common 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	=	TRUE	Boolean			>=	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	=	TRUE	Boolean				Runs Continuously		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)	=	TRUE	Boolean			>=	5	Fail Counts	One Trip
									=	16	Sample Counts	
				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	=	TRUE	Boolean				Runs Continuously		One Trip
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: P062F 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
									out of	6	Sample Counts	
							P0658 Status is not	= Test Failed This Key On or Fault Active				
							High Side Driver 1 On	= True Boolean				
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: None ECM: None				
Transmission Control Module (TCM)	P0667	TCM Internal Temp (substrate) Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	>	Refer to Table 19 in supporting documents	ºC						Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			If TCM substrate temp to power up temp Δ	>	Refer to Table 20 in supporting documents ºC								
			Both conditions above required to increment fail counter Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.						>= Out of	3000 3750	Fail Counts (100ms loop) Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>= Out of	700 875	Pass Counts (100ms loop) 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	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Brake torque active	=	FALSE					
					Below describes the brake torque entry criteria							
					Engine Torque	>=	90	N*m				
					Throttle	>=	30.000305	Pct				
					Transmission Input Speed	<=	200	RPM				
					Vehicle Speed	<=	8	Kph				
					Transmission Range	≠	Park					
					Transmission Range	≠	Neutral					
					PTO	=	Not Active					
					Set Brake Torque Active TRUE if above conditions are met for:	>=	7	sec				
					Below describes the brake torque exit criteria							
					Brake torque entry criteria	=	Not Met					
					Clutch hydraulic pressure	≠	Clutch Hydraulic Air Purge Event					
					Clutch used to exit brake torque active	=	CeTFTD_e _C3_RatlE nbl					
					The above clutch pressure is greater than this value for one loop	>=	600	kpa				
					Set Brake Torque Active FALSE if above conditions are met for:	>=	20	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P0667 Status is	≠	Test Failed This Key On or Fault Active		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Control Module (TCM)	P0668	TCM internal temperature (substrate) thermistor failed at a low voltge	Type of Sensor Used	= CeTFTI_e_VoltageDirectProp				Two Trips
			If TCM Substrate Temperature Sensor = Direct Proportional and Temp	<= -249 ℃				
			If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	>= -249 ℃				
			Either condition above will satisfy the fail conditions				>= 60 Fail Timer (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 allowable limits for	>= 5 Sec		
					P0668 Status is	≠ Test Failed This Key On or Fault Active		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
Transmission Control Module (TCM)	P0669	TCM internal temperature (substrate) thermistor failed at a high voltage	Type of Sensor Used	= CeTFTI_e_VoltageDirectProp				Two Trips
			If TCM Substrate Temperature Sensor = Direct Proportional and Temp	>= 249 ℃				
			If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	<= 249 ℃				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Either condition above will satisfy the fail conditions						>=	60	Fail Timer (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 allowable limits for	>=	5	Sec				
					P0669 Status is	≠	Test Failed This Key On or Fault Active					
					For Hybrids, below conditions must also be met							
					Estimated Motor Power Loss	>=	0	kW				
					Estimated Motor Power Loss greater than limit for time	>=	0	Sec				
					Lost Communication with Hybrid Processor Control Module	=	FALSE					
					Estimated Motor Power Loss Fault	=	FALSE					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723 ECM: None						
Transmission Control Module (TCM)	P06AC	TCM Power-up Temp Sensor Circuit Range/Performance	If TCM power-up temp to substrate temp Δ >	Refer to Table 20 in supporting documents ℃									Two Trips
			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 temp.						>=	3000	Fail Counts (100ms loop)	
									Out of	3750	Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>=	700	Pass Counts (100ms loop)	
									Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Accelerator Position Signal Valid	=	TRUE	Boolean				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Brake torque active	=	FALSE					
					Below describes the brake torque entry criteria							
					Engine Torque	>=	90	N*m				
					Throttle	>=	30.000305	Pct				
					Transmission Input Speed	<=	200	RPM				
					Vehicle Speed	<=	8	Kph				
					Transmission Range	≠	Park					
					Transmission Range	≠	Neutral					
					PTO	=	Not Active					
					Set Brake Torque Active TRUE if above conditions are met for:	>=	7	sec				
					Below describes the brake torque exit criteria							
					Brake torque entry criteria	=	Not Met					
					Clutch hydraulic pressure	≠	Clutch Hydraulic Air Purge Event					
					Clutch used to exit brake torque active	=	CeTFTD_e _C3_RatlE nbl					
					The above clutch pressure is greater than this value for one loop	>=	600	kpa				
					Set Brake Torque Active FALSE if above conditions are met for:	>=	20	Sec				
					P06AC Status is	≠	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Transmission Control Module (TCM)	P06AD	TCM power-up thermistor circuit voltage low	Power Up Temp <= -59 ºC						>=	60	Fail Time (Sec)	Two Trips
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	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.
					P06AD Status is	≠	Test Failed This Key On or Fault Active					
					For Hybrids, below conditions must also be met							
					Estimated Motor Power Loss	>=	0	kW				
					Estimated Motor Power Loss greater than limit for time	>=	0	Sec				
					Lost Communication with Hybrid Processor Control Module	=	FALSE					
					Estimated Motor Power Loss Fault	=	FALSE					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723						
						ECM: None						
Transmission Control Module (TCM)	P06AE	TCM power-up thermistor circuit voltage high	Power Up Temp	>= 164 ℃					>=	60	Fail Time (Sec)	Two Trips
					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 allowable limits for	>=	5	Sec				
					P06AE Status is	≠	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
						ECM: None						
Transmission Fluid Temperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	> Refer to Table 19 in supporting documents ℃								Two Trips
			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 temp.						>=	3000	Fail Counts (100ms loop)	
									Out of	3750	Sample Counts (100ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>=	700	Pass Counts (100ms loop)	
									Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Accelerator Position Signal Valid	=	TRUE	Boolean				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Brake torque active	=	FALSE					
					Below describes the brake torque entry criteria							
					Engine Torque	>=	90	N*m				
					Throttle	>=	30.000305	Pct				
					Transmission Input Speed	<=	200	RPM				
					Vehicle Speed	<=	8	Kph				
					Transmission Range	≠	Park					
					Transmission Range	≠	Neutral					
					PTO	=	Not Active					
					Set Brake Torque Active TRUE if above conditions are met for:	>=	7	sec				
					Below describes the brake torque exit criteria							
					Brake torque entry criteria	=	Not Met					
					Clutch hydraulic pressure	≠	Clutch Hydraulic Air Purge Event					
					Clutch used to exit brake torque active	=	CeTFTD_e _C3_RatlE nbl					
					The above clutch pressure is greater than this value for one loop	>=	600	kpa				
					Set Brake Torque Active FALSE if above conditions are met for:	>=	20	Sec				
					P0711 Status is	≠	Test Failed This Key On or Fault Active					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730						
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Transmission Fluid Temperature Sensor (TFT)	P0712	Transmission fluid temperature thermistor failed at a low voltage	Type of Sensor Used	=	CeTFTI_e_VoltageDirectProp									Two Trips
			If Transmission Fluid Temperature Sensor = Direct Proportional and Temp	<=	-74	℃								
			If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	>=	-74	℃								
			Either condition above will satisfy 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 allowable limits for	>=	5	Sec				
							P0712 Status is	≠	Test Failed This Key On or Fault Active					
							For Hybrids, below conditions must also be met							
							Estimated Motor Power Loss	>=	0	kW				
							Estimated Motor Power Loss greater than limit for time	>=	0	Sec				
							Lost Communication with Hybrid Processor Control Module	=	FALSE					
							Estimated Motor Power Loss Fault	=	FALSE					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723						
								ECM: None						
Transmission Fluid Temperature Sensor (TFT)	P0713	Transmission fluid temperature thermistor failed at a high voltage	Type of Sensor Used	=	CeTFTI_e_VoltageDirectProp									Two Trips
			If Transmission Fluid Temperature Sensor = Direct Proportional and Temp	>=	174	℃								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	<=	174	ºC								
			Either condition above will satisfy the fail conditions								>=	60	Fail Time (Sec)	
							Ignition Voltage Lo	>=	8.5996094	Volts				
							Ignition Voltage Hi	<=	31.990234	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							P0713 Status is	≠	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0713, P0716, P0717, P0722, P0723 ECM: None						
Variable Bleed Solenoid (VBS)	P0961	Pressure Control (PC) Solenoid A Control Circuit Rationality Test (Line Pressure VBS)	The HWIO reports an invalid voltage (out of range) error flag	=	TRUE	Boolean					>=	4.4	Fail Time (Sec)	Two Trips
											out of	5	Sample Time (Sec)	
							Ignition Voltage	>=	8.5996094	Volts				
							Ignition Voltage	<=	31.990234	Volts				
							Engine Speed	>=	400	RPM				
							Engine Speed	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0962	Pressure Control (PC) Solenoid A Control Circuit Low Voltage (Line Pressure VBS)	The HWIO reports a low voltage (ground short) error flag	=	TRUE	Boolean					>=	1.5	Fail Time (Sec)	One Trip
											out of	1.875	Sample Time (Sec)	
							Ignition Voltage	>=	8.5996094	Volts				
							Ignition Voltage	<=	31.990234	Volts				
							Engine Speed	>=	400	RPM				
							Engine Speed	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0963	Pressure Control (PC) Solenoid A Control Circuit High Voltage (Line Pressure VBS)	The HWIO reports a high voltage (open or power short) error flag	=	TRUE	Boolean					>=	4.4	Fail Time (Sec)	Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
									out of	5	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				
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean					>= out of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for P0966 Status is not	>= <= >= <= >= =	8.5996094 31.990234 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec				
			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 of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for P0967 Status is not	>= <= >= <= >= =	8.5996094 31.990234 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec				
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Variable Bleed Solenoid (VBS)	P0970	Pressure Control (PC) Solenoid C Control Circuit Low Voltage (C456/CBR1 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec)	One Trip
							out of 0.375 Sample Time (Sec)	
					P0970 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 8.5996094 Volts		
					Ignition Voltage	<= 31.990234 Volts		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None		
						ECM: None		
Variable Bleed Solenoid (VBS)	P0971	Pressure Control (PC) Solenoid C Control Circuit High Voltage (C456/CBR1 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec)	One Trip
							out of 0.375 Sample Time (Sec)	
					P0971 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 8.5996094 Volts		
					Ignition Voltage	<= 31.990234 Volts		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None		
						ECM: None		
Shift Solenoid	P0973	Shift Solenoid A Control Circuit Low (Mode 2 Solenoid)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 1.2 Fail Time (Sec)	One Trip
							out of 1.5 Sample Time (Sec)	
					P0973 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 8.5996094 Volts		
					Ignition Voltage	<= 31.990234 Volts		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 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						
Shift Solenoid	P0974	Shift Solenoid A Control Circuit High (Mode 2 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	=	TRUE	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	>=	8.5996094	Volts				
							Ignition Voltage	<=	31.990234	Volts				
							Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >=	400 7500 5	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 of	1.2 1.5	Sec Sec	One Trip
							P0977 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						
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	PRNDL State is	≠	Park or Neutral	Enumeration								One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			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	<=	480	RPM					>=	0.06875	Enable Time (Sec)	
			Then Final Engine Speed	>=	525	RPM								
			Final Transmission Input Speed	>=	100	RPM					>=	1.25	Fail Time (Sec)	
							DTC has Ran this Key Cycle?	=	FALSE	Boolean				
							Ignition Voltage Lo	>=	6	V				
							Ignition Voltage Hi	<=	31.999023	V				
							Ignition Voltage Hyst High (enables above this value)	>=	5	V				
							Ignition Voltage Hyst Low (disabled below this value)	<=	2	V				
							Transmission Output Speed	<=	90	rpm				
							P1915 Status is	≠	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, P0723 ECM: None						
Transmission Control Module (TCM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below)	=	FALSE	Boolean								One Trip
			Ignition Voltage High Hyst (run crank goes true when above this value)		5	Volts					>=	280	Fail Counts (25ms loop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)		2	Volts					Out of	280	Sample Counts (25ms loop)	
							ECM run/crank active status available	=	TRUE	Boolean				
							ECM run/crank active status	=	TRUE	Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P2535	Ignition Switch Run/Start Position Circuit High	TCM Run crank active (based on voltage thresholds below)	=	TRUE	Boolean								One Trip
			Ignition Voltage High Hyst (run crank goes true when above this value)		5	Volts					>=	280	Fail Counts (25ms loop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)		2	Volts					Out of	280	Sample Counts (25ms loop)	
							ECM run/crank active status available	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					ECM run/crank active status	= FALSE Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
Variable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D Stuck Off [CB26]	Fail Case 1 Case: Steady State 2nd Gear					One Trip
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 3rd gear					
			If attained Gear = 3rd for Time	>= Table Based Time Please see Table 2 in Supporting Documents Enable Time (Sec)				
			If Above Conditions have been met					
			Increment 2nd gear fail count				>= 3 2nd Gear Fail Count or	
			and CB26 Fail Count				>= 14 CB26 Fail Count	
			Fail Case 2 Case: Steady State 6th Gear					
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear					
			If attained Gear = 5th For Time	>= Table Based Time Please see Table 2 in Supporting Documents Enable Time (Sec)				
			If Above Conditions have been met, Increment 5th gear fail counter				>= 3 5th Gear Fail Count or	
			and CB26 Fail Count				>= 14 CB26 Fail Count	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for RVT	>= 0 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 Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required		Mil Illum.
					Engine Speed Hi	<=	7500 RPM			
					Engine Speed is within the allowable limits for	>=	5 Sec			
					Throttle Position Signal valid	=	TRUE Boolean			
					HSD Enabled	=	TRUE Boolean			
					Transmission Fluid Temperature	>=	-6.65625 ℃			
					Input Speed Sensor fault	=	FALSE Boolean			
					Output Speed Sensor fault	=	FALSE Boolean			
					Default Gear Option is not present	=	TRUE			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E				
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P2720	Pressure Control (PC) Solenoid D Control Circuit Low (CB26 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean				>= 0.3	Fail Time (Sec)	One Trip
								out of 0.375	Sample Time (Sec)	
					P2770 Status is not	=	Test Failed This Key On or Fault Active			
					Ignition Voltage	>=	8.5996094 Volts			
					Ignition Voltage	<=	31.990234 Volts			
					Engine Speed	>=	400 RPM			
					Engine Speed	<=	7500 RPM			
					Engine Speed is within the allowable limits for	>=	5 Sec			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None				
						ECM: None				
Variable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean				>= 0.3	Fail Time (Sec)	One Trip
								out of 0.375	Sample Time (Sec)	
					P2721 Status is not	=	Test Failed This Key On or Fault Active			
					Ignition Voltage	>=	8.5996094 Volts			
					Ignition Voltage	<=	31.990234 Volts			
					Engine Speed	>=	400 RPM			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Engine Speed Engine Speed is within the allowable limits for	<= 7500 RPM >= 5 Sec		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
Variable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1 Case: Steady State 1st Gear Gear slip >= 400 RPM Intrusive test: commanded 2nd gear If attained Gear ≠ 2nd for Time >= If Above Conditions have been met, Increment 1st gear fail counter and C1234 fail counter	 400 RPM Please refer to Table 3 in Supporting Documents Shift Time (Sec)			Please See Table 5 For Neutral Time Cal >= Neutral Timer (Sec) >= 3 1st Gear Fail Count or >= 14 C1234 Clutch Fail Count	One Trip
			Fail Case 2 Case: Steady State 2nd Gear Gear slip >= 400 RPM Intrusive test: commanded 3rd gear If attained Gear ≠ 3rd for Time >= If Above Conditions have been met, Increment 2nd gear fail counter and C1234 fail counter	 400 RPM Please refer to Table 3 in Supporting Documents Shift Time (Sec)			Please See Table 5 For Neutral Time Cal >= Neutral Timer (Sec) >= 3 2nd Gear Fail Count or >= 14 C1234 Clutch Fail Count	
			Fail Case 3 Case: Steady State 3rd Gear Gear slip >= 400 RPM Intrusive test: commanded 4th gear If attained Gear ≠ 4th for time >= If Above Conditions have been met, Increment 3rd gear fail counter	 400 RPM Please refer to Table 3 in Supporting Documents Shift Time (Sec)			Please See Table 5 For Neutral Time Cal >= Neutral Timer (Sec) >= 3 3rd Gear Fail Count or	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required		Mil Illum.
			and C1234 fail counter				>=	14	C1234 Clutch Fail Count	
			Fail Case 4 Case: Steady State 4th Gear						
			Gear slip	>= 400 RPM			>=	Please See Table 5 For Neutral Time Cal	Neutral Timer (Sec)
			Intrusive test: commanded 5th gear						
			If attained Gear = 5th For Time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)					
			If Above Conditions have been met, Increment 4th gear fail counter				>=	3	4th Gear Fail Count
								or	
			and C1234 fail counter				>=	14	C1234 Clutch Fail Count
					PRNDL State defaulted	= FALSE Boolean			
					inhibit RVT	= FALSE Boolean			
					IMS fault pending indication	= FALSE Boolean			
					TPS validity flag	= TRUE Boolean			
					Hydraulic System Pressurized	= TRUE Boolean			
					Minimum output speed for RVT	>= 0 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 Hi	<= 31.990234 Volts			
					Engine Speed Lo	>= 400 RPM			
					Engine Speed Hi	<= 7500 RPM			
					Engine Speed is within the allowable limits for	>= 5 Sec			
					Throttle Position Signal valid	= TRUE Boolean			
					HSD Enabled	= TRUE Boolean			
					Transmission Fluid Temperature	>= -6.65625 °C			
					Input Speed Sensor fault	= FALSE Boolean			
					Output Speed Sensor fault	= FALSE Boolean			
					Default Gear Option is not present	= TRUE			
					Disable Conditions:	MIL not Illuminated for DTC's: TCM: P0716, P0717, P0722, P0723, P182E			
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers)	=	TRUE Boolean								One Trip
			Primary Oncoming Clutch Pressure Command Status	=	Maximum pressurized								
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command								
			Range Shift Status	≠	Initial Clutch Control								
			Attained Gear Slip	<=	40 RPM								
			If the above conditions are true increment appropriate Fail 1 Timers Below:										
			fail timer 1 (2-6 shifting with throttle)	>=	0.5 sec								
			fail timer 1 (2-6 shifting without throttle)	>=	0.5 sec								
			fail timer 1 (3-5 shifting with throttle)	>=	0.5 sec								
			fail timer 1 (3-5 shifting without throttle)	>=	0.5 sec								
			fail timer 1 (4-5 shifting with throttle)	>=	0.5 sec								
			fail timer 1 (4-5 shifting without throttle)	>=	0.5 sec								
			fail timer 1 (4-6 shifting with throttle)	>=	0.5 sec								
			fail timer 1 (4-6 shifting without throttle)	>=	0.5 sec								
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers							Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	>=	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter										
			2nd gear fail counter							Fail Counter From 2nd Gear	>=	3	
			3rd gear fail counter							Fail Counter From 3rd Gear	>=	3	
			4th gear fail counter							Fail Counter From 4th Gear	>=	3	
			total fail counter							Total Fail Counter	>=	5	
						TUT Enable temperature	>=	-6.65625 ℃					
						Input Speed Sensor fault	=	FALSE Boolean					
						Output Speed Sensor fault	=	FALSE Boolean					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					Command / Attained Gear	≠	1st	Boolean				
					High Side Driver ON	=	TRUE	Boolean				
					output speed limit for TUT	>=	100	RPM				
					input speed limit for TUT	>=	200	RPM				
					PRNDL state defaulted	=	FALSE	Boolean				
					IMS Fault Pending	=	FALSE	Boolean				
					Service Fast Learn Mode	=	FALSE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear Max Delta Output Speed Hysteresis >= Min Delta Output Speed Hysteresis >= If the Above is True for Time >= Intrusive test: (C35R clutch exhausted) Gear Ratio <= Gear Ratio >= If the above parameters are true	 Table Based value Please Refer to Table 22 in supporting documents rpm/sec Table Based value Please Refer to Table 23 in supporting documents rpm/sec Table Based Time Please Refer to Table 17 in supporting documents Sec 1.484985352 1.343017578					>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 5th Gear OR >= 3 Total Fail Counts			One Trip
			Fail Case 2 Case: 6th Gear									

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Max Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 22 in supporting documents	rpm/sec						
			Min Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 23 in supporting documents	rpm/sec						
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 17 in supporting documents	Sec						
			Intrusive test: (CB26 clutch exhausted) Gear Ratio	<=	1.484985352							
			Gear Ratio	>=	1.343017578							
			If the above parameters are true							>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear OR	
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	36	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					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 allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct				
					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	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required		Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P2729	Pressure Control (PC) Solenoid E Control Circuit Low (C1234 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)		One Trip
					P2729 Status is not	= Test Failed This Key On or Fault Active			
					Ignition Voltage	>= 8.5996094 Volt			
					Ignition Voltage	<= 31.990234 Volt			
					Engine Speed	>= 400 RPM			
					Engine Speed	<= 7500 RPM			
					Engine Speed is within the allowable limits for	>= 5 Sec			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None			
Variable Bleed Solenoid (VBS)	P2730	Pressure Control (PC) Solenoid E Control Circuit High (C1234 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)		One Trip
					P2730 Status is not	= Test Failed This Key On or Fault Active			
					Ignition Voltage	>= 8.5996094 Volt			
					Ignition Voltage	<= 31.990234 Volt			
					Engine Speed	>= 400 RPM			
					Engine Speed	<= 7500 RPM			
					Engine Speed is within the allowable limits for	>= 5 Sec			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction		Enable Conditions			Time Required			Mil Illum.
Variable Bleed Solenoid (VBS)	P2763	Torque Converter Clutch Pressure High	The HWIO reports a low pressure/high voltage (open or power short) error flag	=	TRUE	Boolean						>=	4.4	Fail Time (Sec)	Two Trips
												out of	5	Sample Time (Sec)	
							P2763 Status is not	=	Test Failed This Key On or Fault Active						
							Ignition Voltage	>=	8.5996094	Volt					
							Ignition Voltage	<=	31.990234	Volt					
							Engine Speed	>=	400	RPM					
							Engine Speed	<=	7500	RPM					
							Engine Speed is within the allowable limits for	>=	5	Sec					
							High Side Driver Enabled	=	TRUE	Boolean					
						Disable Conditions:	MIL not Illuminated for DTC's:		TCM: P0658, P0659 ECM: None						
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)	One Trip
												out of	5	Sample Time (Sec)	
							P2764 Status is not	=	Test Failed This Key On or Fault Active						
							Ignition Voltage	>=	8.5996094	Volt					
							Ignition Voltage	<=	31.990234	Volt					
							Engine Speed	>=	400	RPM					
							Engine Speed	<=	7500	RPM					
							Engine Speed is within the allowable limits for	>=	5	Sec					
							High Side Driver Enabled	=	TRUE	Boolean					
						Disable Conditions:	MIL not Illuminated for DTC's:		TCM: P0658, P0659 ECM: None						
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error	=	TRUE	Boolean						>=	62	Fail counts (≈ 10 seconds)	One Trip
			Delay timer	>=	0.1125	sec						Out of	70	Sample Counts (≈ 11 seconds)	
							Stabilization delay	>=	3	sec					
							Ignition Voltage	>=	8.5996094	Volt					
							Ignition Voltage	<=	31.990234	Volt					
							Power Mode	=	Run						

17 OBDG03 TCM Common 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: None						
								ECM: None						
Communication	U0100	Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	=	TRUE	Boolean					>=	12	sec	One Trip
							Stabilization delay	>=	3	sec				
							Ignition Voltage	>=	8.5996094	Volt				
							Ignition Voltage	<=	31.990234	Volt				
							Power Mode	=	Run					
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: U0073						
								ECM: None						

<u>Supporting Documents</u>

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	ºC
Curve	409.59	2.00	2.00	Sec

Table 3

Axis	-6.67	-6.66	40.00	ºC
Curve	409.59	4.00	4.00	Sec

Table 4

Axis	-6.67	-6.66	40.00	ºC
Curve	409.59	2.00	2.00	Sec

Table 5

Axis	-6.67	-6.66	40.00	ºC
Curve	409.59	3.00	3.00	Sec

Table 6

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

Table 9

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

Table 10

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	3.10	1.90	1.10	0.80	0.60	Sec

Table 11

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	1.80	1.20	0.60	0.40	0.30	Sec

Table 12

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	2.20	1.40	0.90	0.70	0.40	Sec

Table 13

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
Curve	2.60	1.00	0.50	0.30	0.20	Sec

Table 14

Axis	-40.00	-20.00	0.00	30.00	110.00	ºC
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	ºC
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	ºC
Curve	409.59	2.50	2.50	Sec

Table 17

Axis	-6.67	-6.66	40.00	ºC
Curve	0.40	0.35	0.30	Sec

Table 18

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

Table 19

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

Table 20

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

Table 21

Axis	-40.00	-20.00	40.00	ºC
Curve	5.00	3.00	1.00	Sec

Table 22

Axis	-6.67	-6.66	40.00	ºC
Curve	8191.75	8191.75	8191.75	RPM/Sec

Table 23

Axis	-6.67	-6.66	40.00	ºC
Curve	8191.75	8191.75	8191.75	RPM/Sec

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM) -- Acceleration Sensor	C124F	The lateral accleration signal is stuck at a low magnitude out of range because of a low circuit	Lateral accleration magnitude	>=	-3.85	g's					>=	105	seconds	Special No MIL
			Lateral accleration magnitude is within the range above for	>=	120	Sec					out of	120	sample	
							Lateral accleration magnitude	>=	-3.85	g's				
							Lateral accleration magnitude is within the range above for	>=	105	Sec				
							Sensor Type	=	Voltage Directional Proportionate					
							Transmission Type	=	Clutch to Clutch Transmission					
							Lateral acceleration sensor circuit low diagnostic enable	=	TRUE	Boolean				
							Battery Voltage	<=	31.99902	Volts				
							Battery Voltage	>=	9	Volts				
							Battery voltage is within the allowable limits for	>=	0.1	Sec				
							Ignition Voltage	<=	31.99902	Volts				
							Ignition Voltage	>=	9	Volts				
							Service Fast Learn (SFL) Mode	=	FALSE	Boolean				
							Ignition voltage and SFL conditions met for	>=	0.1	Sec				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: If calibrated to illuminate the MIL (U0073, U0100) ECM: None						
Transmission Control Module (TCM) -- Acceleration Sensor	C1250	The lateral accleration signal is stuck at a high magnitude out of range because of a high circuit	Lateral accleration magnitude	>=	3.85	g's					>=	105	seconds	Special No MIL
			Lateral accleration magnitude is within the range above for	>=	120	Sec					out of	120	sample	
							Lateral accleration magnitude	>=	3.85	g's				
							Lateral accleration magnitude is within the range above for	>=	105	Sec				
							Sensor Type	=	Voltage Directional Proportionate					
							Transmission Type	=	Clutch to Clutch Transmission					
							Lateral acceleration sensor circuit high diagnostic enable	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
							Battery Voltage	<=	31.99902	Volts		
							Battery Voltage	>=	9	Volts		
							Battery voltage is within the allowable limits for	>=	0.1	Sec		
							Ignition Voltage	<=	31.99902	Volts		
							Ignition Voltage	>=	9	Volts		
							Service Fast Learn (SFL) Mode	=	FALSE	Boolean		
							Ignition voltage and SFL conditions met for	>=	0.1	Sec		
					Disable Conditions:		MIL not Illuminated for DTC's:	TCM: If calibrated to illuminate the MIL (U0073, U0100) ECM: None				
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude	<=	3.85	g's						Special No MIL
			Lateral accleration magnitude	>=	0.53	g's						
			Lateral accleration magnitude is within the range above for	>=	120	Sec						
							Lateral accleration magnitude	<=	3.85	g's		
							Lateral accleration magnitude	>=	0.53	g's		
							Lateral accleration magnitude is within the range above for	>=	90	Sec		
							Diagnostic shifting override command	=	FALSE	Boolean		
							Attained Gear State	=	1st through 6th			
							Attained Gear Slip	<=	100	RPM		
							Transmission Type	=	Clutch to Clutch Transmission			
							High Side Driver 1 On	=	TRUE	Boolean		
							Vehicle Speed	>=	15	kph		
							Lateral acceleration stuck in range diagnostic enable	=	TRUE	Boolean		
							Battery Voltage	<=	31.999023	Volts		
							Battery Voltage	>=	9	Volts		
							Battery voltage is within the allowable limits for	>=	0.1	Sec		
							Ignition Voltage	<=	31.999023	Volts		
							Ignition Voltage	>=	9	Volts		
							Service Fast Learn (SFL) Mode	=	FALSE	Boolean		
							Ignition voltage and SFL conditions met for	>=	0.1	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: If calibrated to illuminate the MIL (P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073) ECM: None						
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>=	146.296875	ºC							>=	5	Fail Time (Sec)	One Trip
			Fail Case 2 Substrate Temperature	>=	50	ºC							>=	2	Fail Time (Sec)	
			Ignition Voltage	>=	18	Volts										
			Note: either fail case can set the DTC													
								Ignition Voltage Lo	>=	8.5996094	Volts					
								Ignition Voltage Hi	<=	31.990234	Volts					
								Substrate Temp Lo	>=	0	ºC					
								Substrate Temp Hi	<=	170	ºC					
								Substrate Temp Between Temp Range for Time	>=	0.25	Sec					
								P0634 Status is	≠	Test Failed This Key On or Fault Active						
			Disable Conditions:					MIL not Illuminated for DTC's:		TCM: None ECM: None						
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops	>=	1350	RPM							>=	0.8	Fail Time (Sec)	One Trip
								Engine Torque is	>=	0	N*m					
								Engine Torque is	<=	8191.875	N*m					
								Engine Speed	>=	400	RPM					
								Engine Speed	<=	7500	RPM					
								Engine Speed is within the allowable limits for	>=	5	Sec					
								Vehicle Speed is	>=	10	Kph					
								Throttle Position is	>=	0	Pct					

								Transmission Input Speed is	>=	0	RPM					
								The previous requirement has been satisfied for	>=	0	Sec					

								The change (loop to loop) in transmission input speed is	<	8191.875	RPM/Loop					
								The previous requirement has been satisfied for	>=	0	Sec					
								Throttle Position Signal Valid	=	TRUE	Boolean					
								Engine Torque Signal Valid	=	TRUE	Boolean					
								Ignition Voltage	>=	8.5996094	Volts					
								Ignition Voltage	<=	31.990234	Volts					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
								P0716 Status is not	=	Test Failed This Key On or Fault Active					
				Disable Conditions:				MIL not Illuminated for DTC's:	TCM: P0717, P0752, P0973, P0974 ECM: P0101, P0102, P0103, P0121, P0122, P0123						
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is		<	33	RPM					>=	4.5	Fail Time (Sec)	One Trip
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is		<	1000	RPM	Controller uses a single power supply for the speed sensors	=	1	Boolean				
								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 allowable limits for	>=	5	Sec				
								P0717 Status is not	=	Test Failed This Key On or Fault Active					
				Disable Conditions:				MIL not Illuminated for DTC's:	TCM: P0722, P0723 ECM: P0101, P0102, P0103						
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	=	TRUE	Boolean				
								Throttle Position	>=	8.0001831	Pct				
								Transmission Fluid Temperature	>=	-40	ºC				
								Disable this DTC if the PTO is active	=	1	Boolean				
								Engine Torque Signal Valid	=	TRUE	Boolean				
								Throttle Position Signal Valid	=	TRUE	Boolean				
								Ignition Voltage is	>=	8.5996094	Volts				
								Ignition Voltage is	<=	31.990234	Volts				
								Engine Speed is	>=	400	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
							Engine Speed is	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							Enable_Flags Defined Below							
							The Engine Torque Check is TRUE, if either of the two following conditions are TRUE							
							Engine Torque Condition 1							
							Range Shift Status	≠	Range shift completed	ENUM				
							OR							
							Transmission Range is	=	Park or Neutral					
							Engine Torque is	>=	8191.75	N*m				
							Engine Torque is	<=	8191.75	N*m				
							Engine Torque Condition 2							
							Engine Torque is	>=	35	N*m				
							Engine Torque is	<=	8191.75	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	>=	1000	RPM				
							Transmission Input Speed is	<=	8191	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				
					Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0723 ECM: P0101, P0102, P0103, P0121, P0122, P0123						
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>=	105	RPM					>=	0.2	Enable Time (Sec)	One Trip
			Output Speed Delta	<=	8191	RPM					>=	0	Enable Time (Sec)	
			Output Speed Drop	>	650	RPM					>=	1.5	Output Speed Drop Recovery Fail Time (Sec)	
			AND											

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
			Transmission Range is	=	Driven range (R,D)					
					--------------------- Range_Disable OR	=	FALSE	See Below		
					--------------------- Neutral_Range_Enable And	=	TRUE	See Below		
					Neutral_Speed_Enable are TRUE concurrently ---------------------	=	TRUE	See Below		
					Transmission_Range_Enable	=	TRUE	See Below		
					Transmission_Input_Speed_Enable	=	TRUE	See Below		
					No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds		
					P0723 Status is not	=	Test Failed This Key On or Fault Active			
					Disable this DTC if the PTO is active	=	1	Boolean		
					Ignition Voltage is	>=	8.5996094	Volts		
					Ignition Voltage is	<=	31.990234	Volts		
					Engine Speed is	>=	400	RPM		
					Engine Speed is	<=	7500	RPM		
					Engine Speed is within the allowable limits for	>=	5	Sec		
					Enable_Flags Defined Below					
					Transmission_Input_Speed_Enable is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:					
					TIS Condition 1 is TRUE when both of the following conditions are satsified for	>=	0	Enable Time (Sec)		
					Input Speed Delta	<=	4095	RPM		
					Raw Input Speed	>=	500	RPM		
					TIS Condition 2 is TRUE when ALL of the next two conditions are satisfied					
					Input Speed	=	0	RPM		
					A Single Power Supply is used for all speed sensors ---------------------	=	TRUE	Boolean		
					Neutral_Range_Enable is TRUE when any of the next 3 conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
					Transmission Range is	=	Reverse/Neutral Transitonal	ENUM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					Transmission Range is	=	Neutral/Drive Transitional ENUM		
					And when a drop occurs Loop to Loop Drop of Transmission Output Speed is ---------------------	>	650 RPM		
					Range_Disable is TRUE when any of the next three conditions are TRUE Transmission Range is	=	Park ENUM		
					Transmission Range is	=	Park/Reverse Transitonal ENUM		
					Input Clutch is not ---------------------	=	ON (Fully Applied) ENUM		
					Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified for	>	1.5 Seconds		
					Transmission Output Speed	>	130 RPM		
					The loop to loop change of the Transmission Output Speed is	<	20 RPM		
					The loop to loop change of the Transmission Output Speed is ---------------------	>	-10 RPM		
					Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE Transmission Range is	=	Neutral ENUM		
					Transmission Range is	=	Reverse/Neutral Transitional ENUM		
					Transmission Range is	=	Neutral/Drive Transitional ENUM		
					Time since a driven range (R,D) has been selected	>=	Table Based Time Please Refer to Table 21 in supporting documents Sec		
					Transmission Output Speed Sensor Raw Speed	>=	500 RPM		
					Output Speed when a fault was detected	>=	500 RPM		

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: P0973, P0974, P0976, P0977 ECM: P0101, P0102, P0103, P0121, P0122, P0123						
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure	>=	750	Kpa					>=	2	Enable Time (Sec)	Two Trips
			Either Condition (A) or (B) Must be Met											
			(A) TCC Slip Error @ TCC On Mode	>=	Refer to Table 1 in Supporting Documents	RPM					>=	5	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode	>=	130	RPM					>=	5	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter								>=	2	TCC Stuck Off Fail Counter	
							TCC Mode	=	On or Lock					
							Ignition Voltage Lo	>=	8.5996094	Volts				
							Ignition Voltage Hi	<=	31.990234	Volts				
							Engine Speed	>=	400	RPM				
							Engine Speed	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							Engine Torque Lo	>=	50	N*m				
							Engine Torque Hi	<=	8191.875	N*m				
							Throttle Position Lo	>=	8.0001831	Pct				
							Throttle Position Hi	<=	99.998474	Pct				
							2nd Gear Ratio Lo	>=	2.6710205	Ratio				
							2nd Gear Ratio High	<=	3.072998	Ratio				
							3rd Gear Ratio Lo	>=	1.7130127	Ratio				
							3rd Gear Ratio High	<=	1.9709473	Ratio				
							4th Gear Ratio Lo	>=	1.3150635	Ratio				
							4th Gear Ratio High	<=	1.5129395	Ratio				
							5th Gear Ratio Lo	>=	0.9300537	Ratio				
							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	ºC				
							Transmission Fluid Temperature Hi	<=	130	ºC				
							PTO Not Active	=	TRUE	Boolean				
							Engine Torque Signal Valid	=	TRUE	Boolean				
							Throttle Position Signal Valid	=	TRUE	Boolean				
							Dynamic Mode	=	FALSE	Boolean				
							P0741 Status is	≠	Test Failed This Key On or Fault Active					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Disable Conditions:				MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0742, P2763, P2764						
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>=	-50	RPM								One Trip
			TCC Slip Speed	<=	13	RPM								
											>=	2	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter								>=	6	Fail Counter	
							TCC Mode	=	Off					
							Enable test if Cmnd Gear = 1stFW and value true	=	1	Boolean				
							Enable test if Cmnd Gear = 2nd and value true	=	0	Boolean				
							Engine Speed Hi	<=	6000	RPM				
							Engine Speed Lo	>=	500	RPM				
							Vehicle Speed HI	<=	511	KPH				
							Vehicle Speed Lo	>=	1	KPH				
							Engine Torque Hi	<=	8191.875	Nm				
							Engine Torque Lo	>=	80	Nm				
							Current Range	≠	Neutral	Range				
							Current Range	≠	Reverse	Range				
							Transmission Sump Temperature	<=	130	ºC				
							Transmission Sump Temperature	>=	18	ºC				
							Throttle Position Hyst High AND	>=	5.0003052	Pct				
							Max Vehicle Speed to Meet Throttle Enable	<=	8	KPH				
							Once Hyst High has been met, the enable will remain while Throttle Position	>=	2.0004272	Pct				
							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 value false	=	0	Boolean				
							RVT Diagnostic Active	=	FALSE	Boolean				
							Ignition Voltage	>=	8.5996094	V				
							Ignition Voltage	<=	31.990234	V				
							Vehicle Speed	<=	511	KPH				

17 OBDG03 TCM Unique Passenger Car LFX FWD 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					Engine Speed	>=	400	RPM				
					Engine Speed	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Throttle Position Signal Valid	=	TRUE	Boolean				
					P0742 Status is	≠	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0741, P2763, P2764						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400 RPM								Two Trips
			Commanded Gear	= 1st Lock rpm								
			Gear Ratio	<= 1.484985352					>=	0.3	Fail Tmr	
			Gear Ratio	>= 1.343017578					=	5	Fail Counts	
			If the above parameters are true						≠	0	Neutral Timer (Sec)	
									>=	0.3	Fail Timer (Sec)	
									>=	8	Counts	
					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 allowable limits for	>=	5	Sec				
					Transmission Fluid Temperature	>=	-6.65625	°C				
					Range Shift State	=	Range Shift Completed	ENUM				
					TPS	>=	0.5004883	%				
					OR							
					Output Speed	>=	36	RPM				
					Throttle Position Signal Valid from ECM	=	TRUE	Boolean				
					Engine Torque Signal Valid from ECM, High side driver is enabled	=	TRUE	Boolean				
					High-Side Driver is Enabled	=	TRUE	Boolean				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
							Default Gear Option is not present	=	TRUE				
					Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E					
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E					
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>=	400	RPM							One Trip
			Commanded Gear	=	3rd	Gear					Please Refer to Table 16 in Supporting Documents	Neutral Timer (Sec)	
			Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On	=	TRUE	Boolean					>=		
			If the above parameters are true										
			Command 4th Gear once Output Shaft Speed	<=	800	RPM							
			If Gear Ratio	>=	4.259765625						>=	1.5 Fail Timer (Sec)	
			And Gear Ratio	<=	4.708251953						>=	5 Counts	
							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 allowable limits for	>=	5	Sec			
							High-Side Driver is Enabled	=	TRUE	Boolean			
							Throttle Position Signal Valid from ECM	=	TRUE	Boolean			
							Output Speed	>=	36	RPM			
							OR						
							TPS	>=	0.5004883	%			
							Range Shift State	=	Range Shift Completed	ENUM			
							Transmission Fluid Temperature	>=	-6.65625	ºC			
							Input Speed Sensor fault	=	FALSE	Boolean			
							Output Speed Sensor fault	=	FALSE	Boolean			
							Default Gear Option is not present	=	TRUE				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gear	= 1st Locked			Please Refer to Table 5 in Supporting Documents	One Trip
			Gear Box Slip	>= 400 RPM			>= Neutral Timer (Sec)	
			Intrusive Shift to 2nd Commanded Gear Previous	= 1st Locked Gear				
			Gear Ratio	<= 3.015991211				
			Gear Ratio	>= 2.728027344				
			If the above parameters are true				>= 1 sec	
							>= 3 counts	
					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 allowable limits for	>= 5 Sec		
					Output Speed	>= 36 RPM		
					OR			
					TPS	>= 0.5004883 %		
					Range Shift State	= Range Shift Completed ENUM		
					Transmission Fluid Temperature	>= -6.65625 °C		
					High-Side Driver is Enabled	= TRUE Boolean		
					Throttle Position Signal Valid from ECM	= TRUE Boolean		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1 Case: Steady State 3rd Gear					One Trip
			Commanded Gear	= 3rd Gear				
			Gearbox Slip	>= 400 RPM			>= Please Refer to Table 16 in Supporting Documents Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed	<= 800 RPM				
			If Gear Ratio	>= 1.343261719				
			And Gear Ratio	<= 1.484741211				
							>= 3 Fail Timer (Sec)	
			It the above condiations are true, Increment 3rd gear fail counter				>= 3 3rd Gear Fail Counts or	
			and C35R Fail counter				>= 14 3-5R Clutch Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear					
			Commanded Gear	= 5th Gear				
			Gearbox Slip	>= 400 Rpm			>= Please Refer to Table 5 in Supporting Documents Neutral Timer (Sec)	
			Intrusive Test: Command 6th Gear					
			If attained Gear=6th gear Time	>= Please refer to Table 3 in supporting documents Shift Time (Sec)				
			It the above condiations are true, Increment 5th gear fail counter				>= 3 5th Gear Fail Counts or	
			and C35R Fail counter				>= 14 3-5R Clutch Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for RVT	>= 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 Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Throttle Position Signal valid	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Transmission Fluid Temperature	>= -6.65625 ºC		
					Input Speed Sensor fault	= FALSE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Output Speed Sensor fault Default Gear Option is not present	= FALSE Boolean = TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip >= 400 RPM If the Above is True for Time >= Intrusive test: (CBR1 clutch exhausted) Gear Ratio <= Gear Ratio >= If the above parameters are true	400 RPM Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec) 1.933959961 1.75			>= 1.1 Fail Timer (Sec) >= 2 Fail Count in 1st Gear or >= 3 Total Fail Counts	One Trip
			Fail Case 2 Case: Steady State 2nd gear Max Delta Output Speed Hysteresis >= Min Delta Output Speed Hysteresis >= If the Above is True for Time >= Intrusive test: (CB26 clutch exhausted) Gear Ratio <= Gear Ratio >=	Table Based value Please Refer to Table 22 in supporting documents rpm/sec Table Based value Please Refer to Table 23 in supporting documents rpm/sec Table Based Time Please Refer to Table 17 in supporting documents Sec 1.933959961 1.75				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 2nd Gear or	
							>=	3	Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear							
			Max Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 22 in supporting documents	rpm/sec				
			Min Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 23 in supporting documents	rpm/sec				
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 17 in supporting documents	Sec				
			Intrusive test: (C1234 clutch exhausted)							
			Gear Ratio	<=	1.050048828					
			Gear Ratio	>=	0.949951172					
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 4th Gear or	
							>=	3	Total Fail Counts	
			Fail Case 4 Case: Steady State 6th gear							
			Max Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 22 in supporting documents	rpm/sec				
			Min Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 23 in supporting documents	rpm/sec				
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 17 in supporting documents	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Intrusive test: (CB26 clutch exhausted)									
			Gear Ratio	<= 1.050048828					>=	1.1	Fail Timer (Sec)	
			Gear Ratio	>= 0.949951172					>=	3	counts	
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear or	
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	36	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					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 allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct				
					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	℃				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean								One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command								
			Range Shift Status	≠	Initial Clutch Control								
			Attained Gear Slip	<=	40	RPM								
			If the above conditions are true run appropriate Fail 1 Timers Below:											
			fail timer 1 (3-1 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-2 shifting with Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-2 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-4 shifting with Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-4shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-5 shifting with Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-5 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-3 shifting with Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-3 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-4 shifting with Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-4 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-6 shifting with Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-6 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers								Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	>=	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter											
			3rd gear fail counter								>=	3	3rd gear fail counts OR	
			5th gear fail counter								>=	5	5th gear fail counts OR	
			Total fail counter								>=	5	total fail counts	
							TUT Enable temperature	>=	-6.65625	ºC				
							Input Speed Sensor fault	=	FALSE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 200 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear					One Trip
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear					
			If attained Gear ≠5th for time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 4th Gear Fail Counter				>= 3 4th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear					
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 6th gear					
			If attained Gear ≠ 6th for time	>= Please Refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 5th Gear Fail Counter				>= 3 5th Gear Fail Count OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gear					
			Gear slip >= 400 RPM				>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear					
			If attained Gear ≠ 5th for time >=	Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 6th Gear Fail Counter and C456 Fail Counter				>= 3 6th Gear Fail Count OR	
			and C456 Fail Counter				>= 14 C456 Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for RVT	>= 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 Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Throttle Position Signal valid	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Transmission Fluid Temperature	>= -6.65625 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					OutputSpeed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st					One Trip
			Attained Gear slip	>= 400 RPM				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 4 in supporting documents / Enable Time (Sec)				
			Intrusive test: (CBR1 clutch exhausted)					
			Gear Ratio	<= 1.484985352				
			Gear Ratio	>= 1.343017578				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)	
							>= 2 Fail Count in 1st Gear	
							or	
							>= 3 Total Fail Counts	
			Fail Case 2 Case Steady State 2nd					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents / rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents / rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents / Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.484985352				
			Gear Ratio	>= 1.343017578				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 2nd Gear	
							or	
							>= 3 Total fail counts	
			Fail Case 3 Case Steady State 3rd					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents / rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Min Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 23 in supporting documents	rpm/sec						
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 17 in supporting documents	Sec						
			Intrusive test: (C35R clutch exhausted) Gear Ratio	<=	1.484985352							
			Gear Ratio	>=	1.343017578							
			If the above parameters are true							>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 3rd Gear	
										OR		
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	36	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					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 allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct				
					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	℃				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
							ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 11 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean					One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized					
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command					
			Range Shift Status	≠ Initial Clutch Control					
			Attained Gear Slip	<= 40 RPM					
			If the above conditions are true increment appropriate Fail 1 Timers Below:						
			fail timer 1 (4-1 shifting with throttle)	>= 0.5 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)					
			fail timer 1 (4-2 shifting without throttle)	>= 0.5 Fail Time (Sec)					
			fail timer 1 (4-3 shifting with throttle)	>= 0.5 Fail Time (Sec)					
			fail timer 1 (4-3 shifting without throttle)	>= 0.5 Fail Time (Sec)					
			fail timer 1 (5-3 shifting with throttle)	>= 0.5 Fail Time (Sec)					
			fail timer 1 (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 Supporting Table 15 for Fail Timer 2 >= sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter													
			4th gear fail counter										>=	3	Fail Counter From 4th Gear OR	
			5th gear fail counter										>=	3	Fail Counter From 5th Gear OR	
			6th gear fail counter										>=	3	Fail Counter From 6th Gear OR	
			Total fail counter										>=	5	Total Fail Counter	
									TUT Enable temperature	>=	-6.65625	ºC				
									Input Speed Sensor fault	=	FALSE	Boolean				
									Output Speed Sensor fault	=	FALSE	Boolean				
									Command / Attained Gear	≠	1st	Boolean				
									High Side Driver ON	=	TRUE	Boolean				
									output speed limit for TUT	>=	100	RPM				
									input speed limit for TUT	>=	200	RPM				
									PRNDL state defaulted	=	FALSE	Boolean				
									IMS Fault Pending	=	FALSE	Boolean				
									Service Fast Learn Mode	=	FALSE	Boolean				
									HSD Enabled	=	TRUE	Boolean				
						Disable Conditions:			MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Case 1	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	=	0	Boolean									Special No MIL
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	=	0	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	=	0	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	=	0	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	=	0	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	=	0	Boolean									
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Park Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean									
				Tap Up Switch ON	=	TRUE	Boolean					>=	1	Fail Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			Threshold Value		Secondary Malfunction		Enable Conditions			Time Required			Mil Illum.
			Fail Case 2	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	=	1	Boolean									
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	=	0	Boolean									
				Tap Up Switch Stuck in the Up Position in Park Enabled	=	0	Boolean									
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean									
				Tap Up Switch ON	=	TRUE	Boolean									
				NOTE: Both Failcase1 and Failcase 2 Must Be Met									>=	600	Fail Time (Sec)	
								Time Since Last Range Change		>=	1	Enable Time (Sec)				
								Ignition Voltage Lo		>=	8.5996094	Volts				
								Ignition Voltage Hi		<=	31.990234	Volts				
								Engine Speed Lo		>=	400	RPM				
								Engine Speed Hi		<=	7500	RPM				
								Engine Speed is within the allowable limits for		>=	5	Sec				
								P0815 Status is		≠	Test Failed This Key On or Fault Active					
							Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0816, P0826, P182E, P1876, P1877, P1915, P1761							
										ECM: None						
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1	Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	0	Boolean									Special No MIL
				Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	0	Boolean									

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 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						
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	=	1 Boolean						
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	=	0 Boolean						
			Tap Down Switch ON	=	TRUE Boolean			>=	1	sec	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1 Boolean						
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	1 Boolean						
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	1 Boolean						
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	1 Boolean						
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	1 Boolean						
			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/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
								Time Since Last Range Change	>=	1	Enable 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 allowable limits for	>=	5	Sec				
								P0816 Status is	≠		Test Failed This Key On or Fault Active				
					Disable Conditions:	MIL not Illuminated for DTC's:		TCM: P0815, P0826, P182E, P1876, P1877, P1915, P1761							
								ECM: None							
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	=	TRUE	Boolean						>=	60	Fail Time (Sec)	Special No MIL
								Ignition Voltage Lo	>=	8.5996094	Volts				
								Ignition Voltage Hi	<=	31.990234	Volts				
								Engine Speed Lo	>=	400	RPM				
								Engine Speed Hi	<=	7500	RPM				
								Engine Speed is within the allowable limits for	>=	5	Sec				
								P0826 Status is	≠		Test Failed This Key On or Fault Active				
					Disable Conditions:	MIL not Illuminated for DTC's:		TCM: P1761							
								ECM: None							
Acceleration Sensor Signal Message Counter Incorrect	P175F	$1FC Rolling Count and CheckSum	Fail Case 1 CheckSum value received from EBCM does not match expected value	=	TRUE	Boolean						>=	54	Sec	Special No MIL
			Fail Case 2 Rolling count value received from EBCM does not match expected value	=	TRUE	Boolean						>=	9	Fail Counter (sliding window of 10 counts)	
								Lateral/Longitudinal accleration serial data message State Of Health	=	TRUE	Boolean	>	54	Fail Timer (Sec)	
			P175F will report test fail when either fail case 1 or fail case 2 are met					Engine Speed Lo	>=	400	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Ignition Voltage	>=	9	Volts				
					Ignition Voltage	<=	31.99023	Volts				
				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	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
				Disable Conditions:	**MIL not Illuminated for DTC's:**	TCM: None						
						ECM: None						
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1	Transition 1								One Trip
			Current range	= (bit state 1110) Range								
			Previous range	≠ CeTRGR_e_PRNDL_Drive6 Range								
			Previous range	≠ CeTRGR_e_PRNDL_Drive4 Range								
			Range Shift State	= Range Shift Completed ENUM								
			Absolute Attained Gear Slip	<= 50 rpm								
			Attained Gear	<= Sixth								
			Attained Gear	>= First								
			Throttle Position Available	= TRUE								
			Throttle Position	>= 8.000183105 pct								
			Output Speed	>= 200 rpm								
			Engine Torque	>= 50 Nm								
			Engine Torque	<= 8191.75 Nm								
			If the above conditions are met then Increment Fail Timer						>=	1	Fail Seconds	
			If Fail Timer has Expired then Increment Fail Counter						>=	5	Fail Counts	
			Fail Case 2 Output Speed	<= 70 rpm								
			The following PRNDL sequence events occur in this exact order:									
			PRNDL state	= Drive 6 (bit state 0110) Range								
			PRNDL state = Drive 6 for	>= 1 Sec								
			PRNDL state	= Transition 8 (bit state 0111) Range								
			PRNDL state	= Drive 6 (bit state 0110) Range								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			PRNDL state =	Transition 1 (bit state 1110) Range				
			Above sequencing occurs in <=	1 Sec				
			Neutral Idle Mode =	Inactive				
			If all conditions above are met Increment delay Timer					
			If the below two conditions are met Increment Fail Timer				>= 3 Fail Seconds	
			delay timer >=	1 Sec				
			Input Speed >=	400 Sec				
			If Fail Timer has Expired then Increment Fail Counter				>= 2 Fail Counts	
			Fail Case 3					
			Current range =	Transition 13 (bit state 0010) Range	Previous range ≠	CeTRGR_ e_PRNDL _Drive4		
			Engine Torque >=	-8192 Nm	Previous range ≠	CeTRGR_ e_PRNDL _Drive1		
			Engine Torque <=	8191.75 Nm	IMS is 7 position configuration =	0 Boolean		
			If the above conditions are met then, Increment Fail Timer		If the "IMS 7 Position config" = 1 then the "previous range" criteria above must also be satsified when the "current range" = "Transition 13"		>= 0.225 Seconds	
			If Fail Timer has Expired then Increment Fail Counter				>= 15 Fail Counts	
			Fail Case 4		Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8			
			Current range =	Transition 8 (bit state 0111) Range				
			Inhibit bit (see definition) =	FALSE	Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)			
			Steady State Engine Torque >=	100 Nm				
			Steady State Engine Torque <=	8191.75 Nm				
			If the above conditions are met then Increment Fail Timer				>= 0.225 Seconds	
			If the above Condtions have been met, Increment Fail Counter				>= 15 Fail Counts	
			Fail Case 5 Throttle Position Available =	TRUE Boolean				
			The following PRNDL sequence events occur in this exact order:					
			PRNDL State =	Reverse (bit state 1100) Range				
			PRNDL State =	Transition 11 (bit state 0100) Range				
			PRNDL State =	Neutral (bit state 0101) Range				
			PRNDL State =	Transition 11 (bit state 0100) Range				
			Above sequencing occurs in <=	1 Sec				
			Then delay timer increments					
			Delay timer >=	5 sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Range Shift State =	Range Shift Complete				
			Absolute Attained Gear Slip <=	50 rpm				
			Attained Gear <=	Sixth				
			Attained Gear >=	First				
			Throttle Position >=	8.000183105 pct				
			Output Speed >=	200 rpm				
			If the above conditions are met Increment Fail Timer				>= 20 Seconds	
			Fail Case 6		A Open Circuit Definition (flag set false if the following conditions are met):			
			Current range =	Illegal (bit state 0000 or 1000 or 0001)				
			and		Current Range ≠	Transition 11 (bit state 0100)		
			A Open Circuit (See Definition) =	FALSE Boolean	or			
					Last positive state ≠	Neutral (bit state 0101)		
					or			
					Previous transition state ≠	Transition 8 (bit state 0111)		
					Fail case 5 delay timer =	0 sec		
			If the above Condtions are met then, Increment Fail timer				>= 6.25 Seconds	
			Fail Case 7					
			Current PRNDL State =	PRNDL circuit ABCP = 1101 Range				
			and					
			Previous PRNDL state =	PRNDL circuit ABCP =1111 Range				
			Input Speed >=	150 RPM				
			Reverse Trans Ratio <=	2.678344727 ratio				
			Reverse Trans Ratio >=	3.081542969 ratio				
			If the above Condtions are met then, Increment Fail timer				>= 6.25 Seconds	
			P182E will report test fail when any of the above 7 fail cases are met					
					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 allowable limits for >=	5 Sec		
					Engine Torque Signal Valid =	TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers)	= TRUE	Boolean				One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized					
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command					
			Range Shift Status	≠ Initial Clutch Control					
			Attained Gear Slip	<= 40	RPM				
			If above coditons are true, increment appropriate Fail 1 Timers Below:						
			fail timer 1 (2-1 shifting with throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (2-1 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (2-3 shifting with throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (2-3 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (2-4 shifting with throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (2-4 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (6-4 shifting with throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (6-4 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (6-5 shifting with throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (6-5 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers					Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 >= sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			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	>= -6.65625 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 200 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st					One Trip
			Attained Gear slip	>= 400 RPM				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 4 in supporting documents	Enable Time (Sec)			
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio	<= 3.015991211				
			Gear Ratio	>= 2.728027344				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 5 Fail Count in 1st Gear or	
							>= 5 Total Fail Counts	
			Fail Case 2 Case: Steady State 3rd Gear					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
			Max Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 22 in supporting documents	rpm/sec				
			Min Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 23 in supporting documents	rpm/sec				
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 17 in supporting documents	Sec				
			Intrusive test: (C35R clutch exhausted)							
			Gear Ratio	<=	3.015991211					
			Gear Ratio	>=	2.728027344					
			If the above parameters are true							
								>=	1.1	Fail Timer (Sec)
								>=	3	Fail Count in 3rd Gear or
								>=	5	Total Fail Counts
			Fail Case 3 Case: Steady State 4rd Gear							
			Max Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 22 in supporting documents	rpm/sec				
			Min Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 23 in supporting documents	rpm/sec				
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 17 in supporting documents	Sec				
			Intrusive test: (C1234 clutch exhausted)							
			Gear Ratio	<=	0.779052734					
			Gear Ratio	>=	0.704956055					
			If the above parameters are true							
								>=	1.1	Fail Timer (Sec)
								>=	3	Fail Count in 4th Gear or

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
									>=	5	Total Fail Counts	
			Fail Case 4 Case: Steady State 5th Gear									
			Max Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 22 in supporting documents	rpm/sec						
			Min Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 23 in supporting documents	rpm/sec						
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 17 in supporting documents	Sec						
			Intrusive test: (C35R clutch exhausted)									
			Gear Ratio	<=	0.779052734							
			Gear Ratio	>=	0.704956055							
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 5th Gear or	
									>=	5	Total Fail Counts	
						PRNDL State defaulted	=	FALSE	Boolean			
						inhibit RVT	=	FALSE	Boolean			
						IMS fault pending indication	=	FALSE	Boolean			
						output speed	>=	0	RPM			
						TPS validity flag	=	TRUE	Boolean			
						HSD Enabled	=	TRUE	Boolean			
						Hydraulic_System_Pressurized	=	TRUE	Boolean			
						A OR B						
						(A) Output speed enable	>=	36	Nm			
						(B) Accelerator Pedal enable	>=	0.5004883	Nm			
						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 allowable limits for	>=	5	Sec			
						if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct			
						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			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
						Output Speed Sensor fault Default Gear Option is not present	= FALSE Boolean = TRUE		
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean					One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized					
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command					
			Range Shift Status	≠ Initial Clutch Control					
			Attained Gear Slip	<= 40 RPM					
			If the above conditions are true increment appropriate Fail 1 Timers Below:						
			fail timer 1 (2-6 shifting with throttle)	>= 0.5 sec					
			fail timer 1 (2-6 shifting without throttle)	>= 0.5 sec					
			fail timer 1 (3-5 shifting with throttle)	>= 0.5 sec					
			fail timer 1 (3-5 shifting without throttle)	>= 0.5 sec					
			fail timer 1 (4-5 shifting with throttle)	>= 0.5 sec					
			fail timer 1 (4-5 shifting without throttle)	>= 0.5 sec					
			fail timer 1 (4-6 shifting with throttle)	>= 0.5 sec					
			fail timer 1 (4-6 shifting without throttle)	>= 0.5 sec					
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers					Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 >= sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter									
			2nd gear fail counter						>=	3	Fail Counter From 2nd Gear	
			3rd gear fail counter						>=	3	Fail Counter From 3rd Gear	
			4th gear fail counter						>=	3	Fail Counter From 4th Gear	
			total fail counter						>=	5	Total Fail Counter	
					TUT Enable temperature	>=	-6.65625	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Command / Attained Gear	≠	1st	Boolean				
					High Side Driver ON	=	TRUE	Boolean				
					output speed limit for TUT	>=	100	RPM				
					input speed limit for TUT	>=	200	RPM				
					PRNDL state defaulted	=	FALSE	Boolean				
					IMS Fault Pending	=	FALSE	Boolean				
					Service Fast Learn Mode	=	FALSE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1									One Trip
			Case: 5th Gear									
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec								
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec								
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Intrusive test: (C35R clutch exhausted)									
			Gear Ratio	<= 1.484985352								
			Gear Ratio	>= 1.343017578								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 5th Gear OR	
									>=	3	Total Fail Counts	
			Fail Case 2 Case: 6th Gear									
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec								
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec								
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec								
			Intrusive test: (CB26 clutch exhausted)									
			Gear Ratio	<= 1.484985352								
			Gear Ratio	>= 1.343017578								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear OR	
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	36	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					Engine Speed is within the allowable limits for	>=	5	Sec		
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct		
					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 present	=	TRUE			
			Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E					
					ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1														One Trip
				Substrate Temperature	>=	146.296875	ºC						>=	5	Fail Time (Sec)	
			Fail Case 2	Substrate Temperature	>=	50	ºC						>=	2	Fail Time (Sec)	
				Ignition Voltage	>=	18	Volts									
			Note: either fail case can set the DTC													
									Ignition Voltage Lo	>=	8.5996094	Volts				
									Ignition Voltage Hi	<=	31.990234	Volts				
									Substrate Temp Lo	>=	0	ºC				
									Substrate Temp Hi	<=	170	ºC				
									Substrate Temp Between Temp Range for Time	>=	0.25	Sec				
									P0634 Status is	≠	Test Failed This Key On or Fault Active					
							Disable Conditions:		MIL not Illuminated for DTC's:	TCM: None						
										ECM: None						
Mode Switch	P071A	Transmission Mode Switch A Circuit		Tow Haul Mode Switch state	=	TRUE	Boolean						>=	600	Fail Time (Sec)	Special No MIL
									Ignition Voltage Lo	>=	8.5996094	Volts				
									Ignition Voltage Hi	<=	31.990234	Volts				
									Engine Speed Lo	>=	400	RPM				
									Engine Speed Hi	<=	7500	RPM				
									Engine Speed is within the allowable limits for	>=	5	Sec				
							Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P1762						
										ECM: None						
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance		Transmission Input Speed Sensor Drops	>=	1350	RPM						>=	0.8	Fail Time (Sec)	One Trip
									Engine Torque is	>=	0	N*m				
									Engine Torque is	<=	8191.875	N*m				
									Engine Speed	>=	400	RPM				
									Engine Speed	<=	7500	RPM				
									Engine Speed is within the allowable limits for	>=	5	Sec				
									Vehicle Speed is	>=	10	Kph				
									Throttle Position is	>=	0	Pct				

									Transmission Input Speed is	>=	0	RPM				
									The previous requirement has been satisfied for	>=	0	Sec				

									The change (loop to loop) in transmission input speed is	<	8191.875	RPM/Loop				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1												One Trip
				Substrate Temperature	>=	146.296875	ºC					>=	5	Fail Time (Sec)	
								The previous requirement has been satisfied for	>=	0	Sec				
								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:	TCM: P0717, P0752, P0973, P0974						
									ECM: P0101, P0102, P0103, P0121, P0122, P0123						
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1												One Trip
				Transmission Input Speed is	<	33	RPM					>=	4.5	Fail Time (Sec)	
			Fail Case 2	When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	<	1000	RPM	Controller uses a single power supply for the speed sensors	=	1	Boolean				
								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 allowable limits for	>=	5	Sec				
								P0717 Status is not	=	Test Failed This Key On or Fault Active					
						Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0722, P0723						
									ECM: P0101, P0102, P0103						
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	=	TRUE	Boolean				
								Throttle Position	>=	8.0001831	Pct				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 146.296875 ºC					>=	5	Fail Time (Sec)	One Trip
					Transmission Fluid Temperature	>=	-40	ºC				
					Disable this DTC if the PTO is active	=	1	Boolean				
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Throttle Position Signal Valid	=	TRUE	Boolean				
					Ignition Voltage is	>=	8.5996094	Volts				
					Ignition Voltage is	<=	31.990234	Volts				
					Engine Speed is	>=	400	RPM				
					Engine Speed is	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Enable_Flags Defined Below							
					The Engine Torque Check is TRUE, if either of the two following conditions are TRUE							
					Engine Torque Condition 1							
					Range Shift Status	≠	Range shift completed	ENUM				
					OR							
					Transmission Range is	=	Park or Neutral					
					Engine Torque is	>=	8191.75	N*m				
					Engine Torque is	<=	8191.75	N*m				
					Engine Torque Condition 2							
					Engine Torque is	>=	35	N*m				
					Engine Torque is	<=	8191.75	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	>=	1000	RPM				
					Transmission Input Speed is	<=	8191	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				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value			Secondary Malfunction		Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1														One Trip
			Substrate Temperature	>=	146.296875	ºC							>=	5	Fail Time (Sec)	
							Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0723							
									ECM: P0101, P0102, P0103, P0121, P0122, P0123							
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>=	105	RPM							>=	0.2	Enable Time (Sec)	One Trip
			Output Speed Delta	<=	8191	RPM							>=	0	Enable Time (Sec)	
			Output Speed Drop	>	650	RPM							>=	1.5	Output Speed Drop Recovery Fail Time (Sec)	
			AND													
			Transmission Range is	=	Driven range (R,D)											
								Range_Disable OR		=	FALSE	See Below				
								Neutral_Range_Enable And		=	TRUE	See Below				
								Neutral_Speed_Enable are TRUE concurrently		=	TRUE	See Below				
								Transmission_Range_Enable		=	TRUE	See Below				
								Transmission_Input_Speed_Enable		=	TRUE	See Below				
								No Change in Transfer Case Range (High <-> Low) for		>=	5	Seconds				
								P0723 Status is not		=	Test Failed This Key On or Fault Active					
								Disable this DTC if the PTO is active		=	1	Boolean				
								Ignition Voltage is		>=	8.5996094	Volts				
								Ignition Voltage is		<=	31.990234	Volts				
								Engine Speed is		>=	400	RPM				
								Engine Speed is		<=	7500	RPM				
								Engine Speed is within the allowable limits for		>=	5	Sec				
								Enable_Flags Defined Below								
								Transmission_Input_Speed_Enable is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:								
								TIS Condition 1 is TRUE when both of the following conditions are satsified for		>=	0	Enable Time (Sec)				
								Input Speed Delta		<=	4095	RPM				
								Raw Input Speed		>=	500	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 146.296875 ºC				>=	5	Fail Time (Sec)	One Trip
					TIS Condition 2 is TRUE when ALL of the next two conditions are satisfied Input Speed A Single Power Supply is used for all speed sensors ----------------------	=	0	RPM				
						=	TRUE	Boolean				
					Neutral_Range_Enable is TRUE when any of the next 3 conditions are TRUE Transmission Range is	=	Neutral	ENUM				
					Transmission Range is	=	Reverse/N eutral Transitonal	ENUM				
					Transmission Range is	=	Neutral/Dri ve Transitiona l	ENUM				
					And when a drop occurs Loop to Loop Drop of Transmission Output Speed is	>	650	RPM				
					---------------------- Range_Disable is TRUE when any of the next three conditions are TRUE Transmission Range is	=	Park	ENUM				
					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 for	>	1.5	Seconds				
					Transmission Output Speed	>	130	RPM				
					The loop to loop change of the Transmission Output Speed is	<	20	RPM				
					The loop to loop change of the Transmission Output Speed is	>	-10	RPM				
					---------------------- Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE Transmission Range is	=	Neutral	ENUM				
					Transmission Range is	=	Reverse/N eutral Transitiona l	ENUM				
					Transmission Range is	=	Neutral/Dri ve Transitiona l	ENUM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 146.296875 ℃			>= 5 Fail Time (Sec)	One Trip
					Time since a driven range (R,D) has been selected	>= Table Based Time Please Refer to Table 21 in supporting documents Sec		
					Transmission Output Speed Sensor Raw Speed	>= 500 RPM		
					Output Speed when a fault was detected	>= 500 RPM		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0973, P0974, P0976, P0977 ECM: P0101, P0102, P0103, P0121, P0122, P0123		
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure	>= 750 Kpa			>= 2 Enable Time (Sec)	Two Trips
			Either Condition (A) or (B) Must be Met					
			(A) TCC Slip Error @ TCC On Mode	>= Refer to Table 1 in Supporting Documents RPM			>= 5 Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode	>= 130 RPM			>= 5 Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter				>= 2 TCC Stuck Off Fail Counter	
					TCC Mode	= On or Lock		
					Ignition Voltage Lo	>= 8.5996094 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Engine Torque Lo	>= 50 N*m		
					Engine Torque Hi	<= 8191.875 N*m		
					Throttle Position Lo	>= 8.0001831 Pct		
					Throttle Position Hi	<= 99.998474 Pct		
					2nd Gear Ratio Lo	>= 2.6710205 Ratio		
					2nd Gear Ratio High	<= 3.072998 Ratio		
					3rd Gear Ratio Lo	>= 1.7130127 Ratio		
					3rd Gear Ratio High	<= 1.9709473 Ratio		
					4th Gear Ratio Lo	>= 1.3150635 Ratio		
					4th Gear Ratio High	<= 1.5129395 Ratio		
					5th Gear Ratio Lo	>= 0.9300537 Ratio		
					5th Gear Ratio Hi	<= 1.0699463 Ratio		
					6th Gear Ratio Lo	>= 0.6900635 Ratio		
					6th Gear Ratio High	<= 0.7939453 Ratio		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1											One Trip
			Substrate Temperature	>=	146.296875	ºC					>=	5	Fail Time (Sec)	
							Transmission Fluid Temperature Lo	>=	-6.664063	ºC				
							Transmission Fluid Temperature Hi	<=	130	ºC				
							PTO Not Active	=	TRUE	Boolean				
							Engine Torque Signal Valid	=	TRUE	Boolean				
							Throttle Position Signal Valid	=	TRUE	Boolean				
							Dynamic Mode	=	FALSE	Boolean				
							P0741 Status is	≠	Test Failed This Key On or Fault Active					
							Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0742, P2763, P2764					
									ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E					
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>=	-50	RPM								One Trip
			TCC Slip Speed	<=	13	RPM								
											>=	2	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter								>=	6	Fail Counter	
							TCC Mode	=	Off					
							Enable test if Cmnd Gear = 1stFW and value true	=	1	Boolean				
							Enable test if Cmnd Gear = 2nd and value true	=	0	Boolean				
							Engine Speed Hi	<=	6000	RPM				
							Engine Speed Lo	>=	500	RPM				
							Vehicle Speed HI	<=	511	KPH				
							Vehicle Speed Lo	>=	1	KPH				
							Engine Torque Hi	<=	8191.875	Nm				
							Engine Torque Lo	>=	80	Nm				
							Current Range	≠	Neutral	Range				
							Current Range	≠	Reverse	Range				
							Transmission Sump Temperature	<=	130	ºC				
							Transmission Sump Temperature	>=	18	ºC				
							Throttle Position Hyst High	>=	5.0003052	Pct				
							AND							
							Max Vehicle Speed to Meet Throttle Enable	<=	8	KPH				
							Once Hyst High has been met, the enable will remain while Throttle Position	>=	2.0004272	Pct				
							Disable for Throttle Position	>=	75	Pct				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 146.296875 ℃					>=	5	Fail Time (Sec)	One Trip
					Disable if PTO active and value true	=	1	Boolean				
					Disable if in D1 and value true	=	1	Boolean				
					Disable if in D2 and value true	=	1	Boolean				
					Disable if in D3 and value true	=	1	Boolean				
					Disable if in D4 and value true	=	1	Boolean				
					Disable if in D5 and value true	=	1	Boolean				
					Disable if in MUMD and value true	=	1	Boolean				
					Disable if in TUTD and value true	=	1	Boolean				
					4 Wheel Drive Low Active	=	FALSE	Boolean				
					Disable if Air Purge active and value false	=	0	Boolean				
					RVT Diagnostic Active	=	FALSE	Boolean				
					Ignition Voltage	>=	8.5996094	V				
					Ignition Voltage	<=	31.990234	V				
					Vehicle Speed	<=	511	KPH				
					Engine Speed	>=	400	RPM				
					Engine Speed	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Throttle Position Signal Valid	=	TRUE	Boolean				
					P0742 Status is	≠	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0741, P2763, P2764						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400 RPM								Two Trips
			Commanded Gear	= 1st Lock rpm					>=	0.3	Fail Tmr	
			Gear Ratio	<= 1.484985352					=	5	Fail Counts	
			Gear Ratio	>= 1.343017578								
			If the above parameters are true						≠	0	Neutral Timer (Sec)	
									>=	0.3	Fail Timer (Sec)	
									>=	8	Counts	
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				

17 OBDG03 TCM Unique LLT FWD 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>=	146.296875	ºC					>=	5	Fail Time (Sec)	One Trip
							Engine Speed is within the allowable limits for Transmission Fluid Temperature	>=	5	Sec				
								>=	-6.65625	ºC				
							Range Shift State	=	Range Shift Completed	ENUM				
							TPS OR	>=	0.5004883	%				
							Output Speed	>=	36	RPM				
							Throttle Position Signal Valid from ECM	=	TRUE	Boolean				
							Engine Torque Signal Valid from ECM, High side driver is enabled	=	TRUE	Boolean				
							High-Side Driver is Enabled	=	TRUE	Boolean				
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault	=	FALSE	Boolean				
							Default Gear Option is not present	=	TRUE					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E						
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>=	400	RPM								One Trip
			Commanded Gear	=	3rd	Gear								
			Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On	=	TRUE	Boolean								
			If the above parameters are true								>=	Please Refer to Table 16 in Supporting Documents	Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed	<=	800	RPM								
			If Gear Ratio	>=	4.259765625									
			And Gear Ratio	<=	4.708251953						>=	1.5	Fail Timer (Sec)	
											>=	5	Counts	
							Ignition Voltage Lo	>=	8.5996094	Volts				
							Ignition Voltage Hi	<=	31.990234	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 146.296875 ºC					>=	5	Fail Time (Sec)	One Trip
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					High-Side Driver is Enabled	=	TRUE	Boolean				
					Throttle Position Signal Valid from ECM	=	TRUE	Boolean				
					Output Speed	>=	36	RPM				
					OR							
					TPS	>=	0.5004883	%				
					Range Shift State	=	Range Shift Completed	ENUM				
					Transmission Fluid Temperature	>=	-6.65625	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gear	= 1st Locked					>=	Please Refer to Table 5 in Supporting Documents	Neutral Timer (Sec)	One Trip
			Gear Box Slip	>= 400 RPM								
			Intrusive Shift to 2nd Commanded Gear Previous	= 1st Locked Gear								
			Gear Ratio	<= 3.015991211								
			Gear Ratio	>= 2.728027344								
			If the above parameters are true						>=	1	sec	
									>=	3	counts	
					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 allowable limits for	>=	5	Sec				
					Output Speed	>=	36	RPM				
					OR							
					TPS	>=	0.5004883	%				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction		Enable Conditions		Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1	Substrate Temperature	>=	146.296875 ºC					>=	5	Fail Time (Sec)	One Trip
							Range Shift State	=	Range Shift Completed	ENUM				
							Transmission Fluid Temperature	>=	-6.65625	ºC				
							High-Side Driver is Enabled	=	TRUE	Boolean				
							Throttle Position Signal Valid from ECM	=	TRUE	Boolean				
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault	=	FALSE	Boolean				
							Default Gear Option is not present	=	TRUE					
							Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E					
									ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E					
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1	Case: Steady State 3rd Gear										One Trip
				Commanded Gear	=	3rd Gear								
				Gearbox Slip	>=	400 RPM					>=	Please Refer to Table 16 in Supporting Documents	Neutral Timer (Sec)	
				Command 4th Gear once Output Shaft Speed	<=	800 RPM								
				If Gear Ratio	>=	1.343261719								
				And Gear Ratio	<=	1.484741211								
											>=	3	Fail Timer (Sec)	
				It the above condiations are true, Increment 3rd gear fail counter							>=	3	3rd Gear Fail Counts or	
				and C35R Fail counter							>=	14	3-5R Clutch Fail Counts	
			Fail Case 2	Case: Steady State 5th Gear										
				Commanded Gear	=	5th Gear								
				Gearbox Slip	>=	400 Rpm					>=	Please Refer to Table 5 in Supporting Documents	Neutral Timer (Sec)	
				Intrusive Test: Command 6th Gear										

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature >=	146.296875 ℃			>= 5 Fail Time (Sec)	One Trip
			If attained Gear=6th gear Time >=	Please refer to Table 3 in supporting documents Shift Time (Sec)				
			It the above condiations are true, Increment 5th gear fail counter				>= 3 5th Gear Fail Counts or	
			and C35R Fail counter				>= 14 3-5R Clutch Fail Counts	
					PRNDL State defaulted = FALSE Boolean			
					inhibit RVT = FALSE Boolean			
					IMS fault pending indication = FALSE Boolean			
					TPS validity flag = TRUE Boolean			
					Hydraulic System Pressurized = TRUE Boolean			
					Minimum output speed for RVT >= 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 Hi <= 31.990234 Volts			
					Engine Speed Lo >= 400 RPM			
					Engine Speed Hi <= 7500 RPM			
					Engine Speed is within the allowable limits for >= 5 Sec			
					Throttle Position Signal valid = TRUE Boolean			
					HSD Enabled = TRUE Boolean			
					Transmission Fluid Temperature >= -6.65625 ℃			
					Input Speed Sensor fault = FALSE Boolean			
					Output Speed Sensor fault = FALSE Boolean			
					Default Gear Option is not present = TRUE			
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip >=	400 RPM				One Trip
			If the Above is True for Time >=	Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	**Fail Case 1** Substrate Temperature	>= 146.296875 ℃			>= 5 Fail Time (Sec)	One Trip
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	<= 1.933959961 >= 1.75			>= 1.1 Fail Timer (Sec) >= 2 Fail Count in 1st Gear or >= 3 Total Fail Counts	
			Fail Case 2 Case: Steady State 2nd gear Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	<= 1.933959961 >= 1.75			>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 2nd Gear or >= 3 Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1												One Trip
			Substrate Temperature	>=	146.296875	°C					>=	5	Fail Time (Sec)	
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 17 in supporting documents	Sec								
			Intrusive test: (C1234 clutch exhausted)											
			Gear Ratio	<=	1.050048828									
			Gear Ratio	>=	0.949951172									
			If the above parameters are true											
											>=	1.1	Fail Timer (Sec)	
											>=	3	Fail Count in 4th Gear or	
											>=	3	Total Fail Counts	
			Fail Case 4	Case: Steady State 6th gear										
			Max Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 22 in supporting documents	rpm/sec								
			Min Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 23 in supporting documents	rpm/sec								
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 17 in supporting documents	Sec								
			Intrusive test: (CB26 clutch exhausted)											
			Gear Ratio	<=	1.050048828						>=	1.1	Fail Timer (Sec)	
			Gear Ratio	>=	0.949951172						>=	3	counts	
			If the above parameters are true											
											>=	1.1	Fail Timer (Sec)	
											>=	3	Fail Count in 6th Gear or	
											>=	3	Total Fail Counts	
							PRNDL State defaulted	=	FALSE	Boolean				
							inhibit RVT	=	FALSE	Boolean				
							IMS fault pending indication	=	FALSE	Boolean				
							output speed	>=	0	RPM				
							TPS validity flag	=	TRUE	Boolean				
							HSD Enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1													One Trip
			Substrate Temperature	>=	146.296875	℃						>=	5	Fail Time (Sec)	
								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				
								Ignition Voltage Hi	<=	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 Accelerator Pedal enable	>=	5.0003052	Pct				
								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	℃				
								Input Speed Sensor fault	=	FALSE	Boolean				
								Output Speed Sensor fault	=	FALSE	Boolean				
						Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E						
									ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E							
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers)	=	TRUE	Boolean									One Trip
			Primary Oncoming Clutch Pressure Command Status	=	Maximum pressurized										
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command										
			Range Shift Status	≠	Initial Clutch Control										
			Attained Gear Slip	<=	40	RPM									
			If the above conditions are true run appropriate Fail 1 Timers Below:												
			fail timer 1 (3-1 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)									
			fail timer 1 (3-2 shifting with Throttle)	>=	0.5	Fail Time (Sec)									
			fail timer 1 (3-2 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)									

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1											One Trip
			Substrate Temperature	>=	146.296875	ºC					>=	5	Fail Time (Sec)	
			fail timer 1 (3-4 shifting with Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-4shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-5 shifting with Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-5 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-3 shifting with Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-3 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-4 shifting with Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-4 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-6 shifting with Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-6 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers								>=	Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter											
			3rd gear fail counter								>=	3	3rd gear fail counts OR	
			5th gear fail counter								>=	5	5th gear fail counts OR	
			Total fail counter								>=	5	total fail counts	
							TUT Enable temperature	>=	-6.65625	ºC				
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault	=	FALSE	Boolean				
							Command / Attained Gear	≠	1st	Boolean				
							High Side Driver ON	=	TRUE	Boolean				
							output speed limit for TUT	>=	100	RPM				
							input speed limit for TUT	>=	200	RPM				
							PRNDL state defaulted	=	FALSE	Boolean				
							IMS Fault Pending	=	FALSE	Boolean				
							Service Fast Learn Mode	=	FALSE	Boolean				
							HSD Enabled	=	TRUE	Boolean				
							Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 146.296875 ℃			>= 5 Fail Time (Sec)	One Trip
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear					One Trip
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear					
			If attained Gear ≠5th for time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 4th Gear Fail Counter				>= 3 4th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear					
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 6th gear					
			If attained Gear ≠ 6th for time	>= Please Refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 5th Gear Fail Counter				>= 3 5th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gear					
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	**Fail Case 1** Substrate Temperature	>= 146.296875 ºC					>=	5	Fail Time (Sec)	One Trip
			If attained Gear ≠ 5th for time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)								
			if the above conditions have been met Increment 6th Gear Fail Counter and C456 Fail Counter						>=	3	6th Gear Fail Count OR	
			and C456 Fail Counter						>=	14	C456 Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					TPS validity flag	=	TRUE	Boolean				
					Hydraulic System Pressurized	=	TRUE	Boolean				
					Minimum output speed for RVT	>=	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 Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Throttle Position Signal valid	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Transmission Fluid Temperature	>=	-6.65625	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					OutputSpeed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					
					Disable Conditions: **MIL not Illuminated for DTC's:**	TCM: P0716, P0717, P0722, P0723, P182E						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	**Fail Case 1** Case: Steady State 1st Attained Gear slip	>= 400 RPM								One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1							One Trip
			Substrate Temperature	>= 146.296875 °C			>=	5	Fail Time (Sec)	
			If the Above is True for Time	>= Table Based Time Please Refer to Table 4 in supporting documents	Enable Time (Sec)					
			Intrusive test: (CBR1 clutch exhausted)							
			Gear Ratio	<= 1.484985352						
			Gear Ratio	>= 1.343017578						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	2	Fail Count in 1st Gear or	
							>=	3	Total Fail Counts	
			Fail Case 2 Case Steady State 2nd							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents	rpm/sec						
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents	rpm/sec						
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents	Sec						
			Intrusive test: (CB26 clutch exhausted)							
			Gear Ratio	<= 1.484985352						
			Gear Ratio	>= 1.343017578						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 2nd Gear or	
							>=	3	Total fail counts	
			Fail Case 3 Case Steady State 3rd							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents	rpm/sec						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1									One Trip
			Substrate Temperature	>= 146.296875 ºC					>=	5	Fail Time (Sec)	
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec								
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec								
			Intrusive test: (C35R clutch exhausted) Gear Ratio	<= 1.484985352								
			Gear Ratio	>= 1.343017578								
			If the above parameters are true						>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 3rd Gear	
									OR			
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	36	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					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 allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct				
					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	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature >= 146.296875 ℃ Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E	>= 5 Fail Time (Sec)	One Trip
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 11 in Supporting Documents for Exhaust Delay Timers) = TRUE Boolean Primary Oncoming Clutch Pressure Command Status = Maximum pressurized Primary Offgoing Clutch Pressure Command Status = Clutch exhaust command Range Shift Status ≠ Initial Clutch Control Attained Gear Slip <= 40 RPM If the above conditions are true increment appropriate Fail 1 Timers Below: fail timer 1 (4-1 shifting with throttle) >= 0.5 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) fail timer 1 (4-2 shifting without throttle) >= 0.5 Fail Time (Sec) fail timer 1 (4-3 shifting with throttle) >= 0.5 Fail Time (Sec) fail timer 1 (4-3 shifting without throttle) >= 0.5 Fail Time (Sec) fail timer 1 (5-3 shifting with throttle) >= 0.5 Fail Time (Sec) fail timer 1 (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)					One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 146.296875 °C			>= 5 Fail Time (Sec) Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and sec Reference Supporting Table 15 for Fail Timer 2	One Trip
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers					
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			4th gear fail counter				>= 3 Fail Counter From 4th Gear OR	
			5th gear fail counter				>= 3 Fail Counter From 5th Gear OR	
			6th gear fail counter				>= 3 Fail Counter From 6th Gear OR	
			Total fail counter				>= 5 Total Fail Counter	
					TUT Enable temperature	>= -6.65625 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 200 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
					Disable Conditions:			
					MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Case 1 Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 0 Boolean				Special No MIL
			Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 0 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 3 Enabled	= 0 Boolean				

17 OBDG03 TCM Unique LLT FWD 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction		Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1												One Trip
			Substrate Temperature	>=	146.296875	ºC						>=	5	Fail Time (Sec)	
			Tap Up Switch Stuck in the Up Position in Range 4 Enabled	=	0	Boolean									
			Tap Up Switch Stuck in the Up Position in Range 5 Enabled	=	0	Boolean									
			Tap Up Switch Stuck in the Up Position in Range 6 Enabled	=	0	Boolean									
			Tap Up Switch Stuck in the Up Position in Neutral Enabled	=	1	Boolean									
			Tap Up Switch Stuck in the Up Position in Park Enabled	=	1	Boolean									
			Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean									
			Tap Up Switch ON	=	TRUE	Boolean						>=	1	Fail Time (Sec)	
			Fail Case 2 Tap Up Switch Stuck in the Up Position in Range 1 Enabled	=	1	Boolean									
			Tap Up Switch Stuck in the Up Position in Range 2 Enabled	=	1	Boolean									
			Tap Up Switch Stuck in the Up Position in Range 3 Enabled	=	1	Boolean									
			Tap Up Switch Stuck in the Up Position in Range 4 Enabled	=	1	Boolean									
			Tap Up Switch Stuck in the Up Position in Range 5 Enabled	=	1	Boolean									
			Tap Up Switch Stuck in the Up Position in Range 6 Enabled	=	1	Boolean									
			Tap Up Switch Stuck in the Up Position in Neutral Enabled	=	0	Boolean									
			Tap Up Switch Stuck in the Up Position in Park Enabled	=	0	Boolean									
			Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean									
			Tap Up Switch ON	=	TRUE	Boolean									
			NOTE: Both Failcase1 and Failcase 2 Must Be Met									>=	600	Fail Time (Sec)	
							Time Since Last Range Change		>=	1	Enable Time (Sec)				
							Ignition Voltage Lo		>=	8.5996094	Volts				
							Ignition Voltage Hi		<=	31.990234	Volts				
							Engine Speed Lo		>=	400	RPM				
							Engine Speed Hi		<=	7500	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.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>=	146.296875	°C				>=	5	Fail Time (Sec)	One Trip
								P0815 Status is	≠ Test Failed This Key On or Fault Active				
						Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0816, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None				
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	0	Boolean							Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	0	Boolean							
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	0	Boolean							
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	0	Boolean							
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	0	Boolean							
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	0	Boolean							
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	=	1	Boolean							
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	=	1	Boolean							
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	=	0	Boolean							
			Tap Down Switch ON	=	TRUE	Boolean				>=	1	sec	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1	Boolean							
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	1	Boolean							
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	1	Boolean							
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	1	Boolean							
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	1	Boolean							

17 OBDG03 TCM Unique LLT FWD 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1											One Trip
			Substrate Temperature	>=	146.296875	℃					>=	5	Fail Time (Sec)	
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Neutral Enabled	=	0	Boolean								
			Tap Down Switch Stuck in the Down Position in Park Enabled	=	0	Boolean								
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	=	0	Boolean								
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	=	TRUE	Boolean					>=	600	sec	
							Time Since Last Range Change	>=	1	Enable 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 allowable limits for	>=	5	Sec				
							P0816 Status is	≠	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None						
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	=	TRUE	Boolean					>=	60	Fail Time (Sec)	Special No MIL
							Ignition Voltage Lo	>=	8.5996094	Volts				
							Ignition Voltage Hi	<=	31.990234	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature >=	146.296875 ℃			>= 5 Fail Time (Sec)	One Trip
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0826 Status is ≠	Test Failed This Key On or Fault Active		
					Disable Conditions: **MIL not Illuminated for DTC's:** TCM: P1761 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 >=	400 RPM		
					Engine Speed Hi <=	7500 RPM		
					Engine Speed is within the allowable limits for >=	5 Sec		
					Disable Conditions: **MIL not Illuminated for DTC's:** TCM: None ECM: None			
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1 Current range =	Transition 1 (bit state 1110) Range				One Trip
			Previous range ≠	CeTRGR_e_PRNDL_Drive6 Range				
			Previous range ≠	CeTRGR_e_PRNDL_Drive4 Range				
			Range Shift State =	Range Shift Completed ENUM				
			Absolute Attained Gear Slip <=	50 rpm				
			Attained Gear <=	Sixth				
			Attained Gear >=	First				
			Throttle Position Available =	TRUE				
			Throttle Position >=	8.000183105 pct				
			Output Speed >=	200 rpm				
			Engine Torque >=	50 Nm				
			Engine Torque <=	8191.75 Nm				
			If the above conditions are met then Increment Fail Timer				>= 1 Fail Seconds	
			If Fail Timer has Expired then Increment Fail Counter				>= 5 Fail Counts	
			Fail Case 2 Output Speed <=	70 rpm				
			The following PRNDL sequence events occur in this exact order: PRNDL state =	Drive 6 (bit state 0110) Range				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions		Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1										One Trip
			Substrate Temperature	>=	146.296875	ºC				>=	5	Fail Time (Sec)	
			PRNDL state = Drive 6 for	>=	1	Sec							
			PRNDL state	=	Transition 8 (bit state 0111)	Range							
			PRNDL state	=	Drive 6 (bit state 0110)	Range							
			PRNDL state	=	Transition 1 (bit state 1110)	Range							
			Above sequencing occurs in	<=	1	Sec							
			Neutral Idle Mode	=	Inactive								
			If all conditions above are met Increment delay Timer										
			If the below two conditions are met Increment Fail Timer							>=	3	Fail Seconds	
			delay timer	>=	1	Sec							
			Input Speed	>=	400	Sec							
			If Fail Timer has Expired then Increment Fail Counter							>=	2	Fail Counts	
			Fail Case 3										
			Current range	=	Transition 13 (bit state 0010)	Range	Previous range	≠	CeTRGR_ e_PRNDL _Drive4				
			Engine Torque	>=	-8192	Nm	Previous range	≠	CeTRGR_ e_PRNDL _Drive1				
			Engine Torque	<=	8191.75	Nm	IMS is 7 position configuration	=	0 Boolean				
			If the above conditions are met then, Increment Fail Timer					If the "IMS 7 Position config" = 1 then the "previous range" criteria above must also be satsified when the "current range" = "Transition 13"			>=	0.225	Seconds	
			If Fail Timer has Expired then Increment Fail Counter							>=	15	Fail Counts	
			Fail Case 4										
			Current range	=	Transition 8 (bit state 0111)	Range	Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8						
			Inhibit bit (see definition)	=	FALSE		Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)						
			Steady State Engine Torque	>=	100	Nm							
			Steady State Engine Torque	<=	8191.75	Nm							
			If the above conditions are met then Increment Fail Timer							>=	0.225	Seconds	
			If the above Condtions have been met, Increment Fail Counter							>=	15	Fail Counts	
			Fail Case 5										
			Throttle Position Available	=	TRUE	Boolean							
			The following PRNDL sequence events occur in this exact order:										
			PRNDL State	=	Reverse (bit state 1100)	Range							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions		Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	**Fail Case 1**										One Trip
			Substrate Temperature	>=	146.296875	ºC				>=	5	Fail Time (Sec)	
			PRNDL State	=	Transition 11 (bit state 0100)	Range							
			PRNDL State	=	Neutral (bit state 0101)	Range							
			PRNDL State	=	Transition 11 (bit state 0100)	Range							
			Above sequencing occurs in	<=	1	Sec							
			Then delay timer increments										
			Delay timer	>=	5	sec							
			Range Shift State	=	Range Shift Complete								
			Absolute Attained Gear Slip	<=	50	rpm							
			Attained Gear	<=	Sixth								
			Attained Gear	>=	First								
			Throttle Position	>=	8.000183105	pct							
			Output Speed	>=	200	rpm							
			If the above conditions are met Increment Fail Timer							>=	20	Seconds	
			Fail Case 6				A Open Circuit Definition (flag set false if the following conditions are met):						
			Current range	=	Illegal (bit state 0000 or 1000 or 0001)								
			and					Current Range	≠	Transition 11 (bit state 0100)			
			A Open Circuit (See Definition)	=	FALSE	Boolean		or					
								Last positive state	≠	Neutral (bit state 0101)			
								or					
								Previous transition state	≠	Transition 8 (bit state 0111)			
								Fail case 5 delay timer	=	0	sec		
			If the above Condtions are met then, Increment Fail timer							>=	6.25	Seconds	
			Fail Case 7										
			Current PRNDL State	=	PRNDL circuit ABCP = 1101	Range							
			and										
			Previous PRNDL state	=	PRNDL circuit ABCP =1111	Range							
			Input Speed	>=	150	RPM							
			Reverse Trans Ratio	<=	2.678344727	ratio							
			Reverse Trans Ratio	>=	3.081542969	ratio							
			If the above Condtions are met then, Increment Fail timer							>=	6.25	Seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1												One Trip
			Substrate Temperature	>=	146.296875	℃					>=	5	Fail Time (Sec)	
			P182E will report test fail when any of the above 7 fail cases are met											
								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 allowable limits for	>=	5 Sec				
								Engine Torque Signal Valid	=	TRUE Boolean				
						Disable Conditions:		MIL not Illuminated for DTC's:		TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D				
										ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers)	=	TRUE	Boolean								One Trip
			Primary Oncoming Clutch Pressure Command Status	=	Maximum pressurized									
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command									
			Range Shift Status	≠	Initial Clutch Control									
			Attained Gear Slip	<=	40	RPM								
			If above coditons are true, increment appropriate Fail 1 Timers Below:											
			fail timer 1 (2-1 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (2-1 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (2-3 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (2-3 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (2-4 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (2-4 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (6-4 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (6-4 shifting without throttle)	>=	0.5	Fail Time (Sec)								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>=	146.296875	°C			>=	5	Fail Time (Sec)	One Trip
			fail timer 1 (6-5 shifting with throttle)	>=	0.5	Fail Time (Sec)						
			fail timer 1 (6-5 shifting without throttle)	>=	0.5	Fail Time (Sec)						
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers						Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and Reference Supporting Table 15 for Fail Timer 2		sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter									
			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	>= -6.65625 °C				
							Input Speed Sensor fault	= FALSE Boolean				
							Output Speed Sensor fault	= FALSE Boolean				
							Command / Attained Gear	≠ 1st Boolean				
							High Side Driver ON	= TRUE Boolean				
							output speed limit for TUT	>= 100 RPM				
							input speed limit for TUT	>= 200 RPM				
							PRNDL state defaulted	= FALSE Boolean				
							IMS Fault Pending	= FALSE Boolean				
							Service Fast Learn Mode	= FALSE Boolean				
							HSD Enabled	= TRUE Boolean				
							Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E			
									ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st									One Trip
			Attained Gear slip	>=	400	RPM						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1									One Trip
			Substrate Temperature	>=	146.296875	ºC			>=	5	Fail Time (Sec)	
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 4 in supporting documents	Enable Time (Sec)						
			Intrusive test: (CBR1 clutch exhausted)									
			Gear Ratio	<=	3.015991211							
			Gear Ratio	>=	2.728027344							
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	5	Fail Count in 1st Gear or	
									>=	5	Total Fail Counts	
			Fail Case 2	Case: Steady State 3rd Gear								
			Max Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 22 in supporting documents	rpm/sec						
			Min Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 23 in supporting documents	rpm/sec						
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 17 in supporting documents	Sec						
			Intrusive test: (C35R clutch exhausted)									
			Gear Ratio	<=	3.015991211							
			Gear Ratio	>=	2.728027344							
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 3rd Gear or	
									>=	5	Total Fail Counts	
			Fail Case 3	Case: Steady State 4rd Gear								
			Max Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 22 in supporting documents	rpm/sec						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1							One Trip
			Substrate Temperature >=	146.296875 ℃			>=	5	Fail Time (Sec)	
			Min Delta Output Speed Hysteresis >=	Table Based value Please Refer to Table 23 in supporting documents rpm/sec						
			If the Above is True for Time >=	Table Based Time Please Refer to Table 17 in supporting documents Sec						
			Intrusive test: (C1234 clutch exhausted)							
			Gear Ratio <=	0.779052734						
			Gear Ratio >=	0.704956055						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 4th Gear	
									or	
							>=	5	Total Fail Counts	
			Fail Case 4 Case: Steady State 5th Gear							
			Max Delta Output Speed Hysteresis >=	Table Based value Please Refer to Table 22 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis >=	Table Based value Please Refer to Table 23 in supporting documents rpm/sec						
			If the Above is True for Time >=	Table Based Time Please Refer to Table 17 in supporting documents Sec						
			Intrusive test: (C35R clutch exhausted)							
			Gear Ratio <=	0.779052734						
			Gear Ratio >=	0.704956055						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 5th Gear	
									or	
							>=	5	Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature >= 146.296875 °C				>= 5 Fail Time (Sec)	One Trip
					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			
					Ignition Voltage Hi <= 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 Accelerator Pedal enable >= 5.0003052 Pct			
					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 present = TRUE			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers) = TRUE Boolean					One Trip
			Primary Oncoming Clutch Pressure Command Status = Maximum pressurized					
			Primary Offgoing Clutch Pressure Command Status = Clutch exhaust command					
			Range Shift Status ≠ Initial Clutch Control					
			Attained Gear Slip <= 40 RPM					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction				Enable Conditions				Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1															One Trip
			Substrate Temperature	>=	146.296875	ºC									>=	5	Fail Time (Sec)	
			If the above conditions are true increment appropriate Fail 1 Timers Below:															
			fail timer 1 (2-6 shifting with throttle)	>=	0.5	sec												
			fail timer 1 (2-6 shifting without throttle)	>=	0.5	sec												
			fail timer 1 (3-5 shifting with throttle)	>=	0.5	sec												
			fail timer 1 (3-5 shifting without throttle)	>=	0.5	sec												
			fail timer 1 (4-5 shifting with throttle)	>=	0.5	sec												
			fail timer 1 (4-5 shifting without throttle)	>=	0.5	sec												
			fail timer 1 (4-6 shifting with throttle)	>=	0.5	sec												
			fail timer 1 (4-6 shifting without throttle)	>=	0.5	sec												
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers													>=	Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter																
			2nd gear fail counter													>=	3	Fail Counter From 2nd Gear	
			3rd gear fail counter													>=	3	Fail Counter From 3rd Gear	
			4th gear fail counter													>=	3	Fail Counter From 4th Gear	
			total fail counter													>=	5	Total Fail Counter	
							TUT Enable temperature	>=	-6.65625	ºC									
							Input Speed Sensor fault	=	FALSE	Boolean									
							Output Speed Sensor fault	=	FALSE	Boolean									
							Command / Attained Gear	≠	1st	Boolean									
							High Side Driver ON	=	TRUE	Boolean									
							output speed limit for TUT	>=	100	RPM									
							input speed limit for TUT	>=	200	RPM									
							PRNDL state defaulted	=	FALSE	Boolean									
							IMS Fault Pending	=	FALSE	Boolean									
							Service Fast Learn Mode	=	FALSE	Boolean									
							HSD Enabled	=	TRUE	Boolean									

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 146.296875 °C			>=	5	Fail Time (Sec)	One Trip
			Disable Conditions:			MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear							One Trip
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec						
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec						
			Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	<= 1.484985352 >= 1.343017578						
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 5th Gear OR	
							>=	3	Total Fail Counts	
			Fail Case 2 Case: 6th Gear							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1									One Trip
			Substrate Temperature	>= 146.296875 ºC					>=	5	Fail Time (Sec)	
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec								
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec								
			Intrusive test: (CB26 clutch exhausted)									
			Gear Ratio	<= 1.484985352								
			Gear Ratio	>= 1.343017578								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear OR	
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	36	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					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 allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct				
					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	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					

17 OBDG03 TCM Unique LLT FWD 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature >= 146.296875 °C Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E	>= 5 Fail Time (Sec)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude	<=	3.85 g's								Special No MIL
			Lateral accleration magnitude	>=	0.53 g's								
			Lateral accleration magnitude is within the range above for	>=	120 Sec								
						Lateral accleration magnitude	<=	3.85	g's				
						Lateral accleration magnitude	>=	0.53	g's				
						Lateral accleration magnitude is within the range above for	>=	90	Sec				
						Diagnostic shifting override command	=	FALSE	Boolean				
						Attained Gear State	=	1st through 6th					
						Attained Gear Slip	<=	100	RPM				
						Transmission Type	=	Clutch to Clutch Transmission					
						High Side Driver 1 On	=	TRUE	Boolean				
						Vehicle Speed	>=	15	kph				
						Lateral acceleration stuck in range diagnostic enable	=	TRUE	Boolean				
						Battery Voltage	<=	31.999023	Volts				
						Battery Voltage	>=	9	Volts				
						Battery voltage is within the allowable limits for	>=	0.1	Sec				
						Ignition Voltage	<=	31.999023	Volts				
						Ignition Voltage	>=	9	Volts				
						Service Fast Learn (SFL) Mode	=	FALSE	Boolean				
						Ignition voltage and SFL conditions met for	>=	0.1	Sec				
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: If calibrated to illuminate the MIL (P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073) ECM: None						
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>=	146.296875 ºC					>=	5	Fail Time (Sec)	One Trip
			Fail Case 2 Substrate Temperature	>=	50 ºC					>=	2	Fail Time (Sec)	
			Ignition Voltage	>=	18 Volts								
			Note: either fail case can set the DTC											
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.990234	Volts				
						Substrate Temp Lo	>=	0	ºC				
						Substrate Temp Hi	<=	170	ºC				
						Substrate Temp Between Temp Range for Time	>=	0.25	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
								P0634 Status is	≠	Test Failed This Key On or Fault Active					
							Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
									ECM: None						
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops	>=	1350	RPM						>=	0.8	Fail Time (Sec)	One Trip
								Engine Torque is	>=	0	N*m				
								Engine Torque is	<=	8191.875	N*m				
								Engine Speed	>=	400	RPM				
								Engine Speed	<=	7500	RPM				
								Engine Speed is within the allowable limits for	>=	5	Sec				
								Vehicle Speed is	>=	10	Kph				
								Throttle Position is	>=	0	Pct				

								Transmission Input Speed is	>=	0	RPM				
								The previous requirement has been satisfied for	>=	0	Sec				

								The change (loop to loop) in transmission input speed is	<	8191.875	RPM/Loop				
								The previous requirement has been satisfied for	>=	0	Sec				
								Throttle Position Signal Valid	=	TRUE	Boolean				
								Engine Torque Signal Valid	=	TRUE	Boolean				
								Ignition Voltage	>=	8.5996094	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:	TCM: P0717, P0752, P0973, P0974						
									ECM: P0101, P0102, P0103, P0121, P0122, P0123						
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	<	33	RPM						>=	4.5	Fail Time (Sec)	One Trip
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	<	1000	RPM		Controller uses a single power supply for the speed sensors	=	1	Boolean				
								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				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					Ignition Voltage	<=	31.990234	Volts				
					Engine Speed	>=	400	RPM				
					Engine Speed	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					P0717 Status is not	=	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, P0723						
						ECM: P0101, P0102, P0103						
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	=	TRUE	Boolean				
					Throttle Position	>=	8.0001831	Pct				
					Transmission Fluid Temperature	>=	-40	ºC				
					Disable this DTC if the PTO is active	=	1	Boolean				
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Throttle Position Signal Valid	=	TRUE	Boolean				
					Ignition Voltage is	>=	8.5996094	Volts				
					Ignition Voltage is	<=	31.990234	Volts				
					Engine Speed is	>=	400	RPM				
					Engine Speed is	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Enable_Flags Defined Below							
					The Engine Torque Check is TRUE, if either of the two following conditions are TRUE							
					Engine Torque Condition 1							
					Range Shift Status	≠	Range shift completed	ENUM				
					OR							
					Transmission Range is	=	Park or Neutral					
					Engine Torque is	>=	8191.75	N*m				
					Engine Torque is	<=	8191.75	N*m				
					Engine Torque Condition 2							
					Engine Torque is	>=	35	N*m				
					Engine Torque is	<=	8191.75	N*m				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
							--------------------- 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				
					Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0723						
								ECM: P0101, P0102, P0103, P0121, P0122, P0123						
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>=	105	RPM					>=	0.2	Enable Time (Sec)	One Trip
			Output Speed Delta	<=	8191	RPM					>=	0	Enable Time (Sec)	
			Output Speed Drop	>	650	RPM					>=	1.5	Output Speed Drop Recovery Fail Time (Sec)	
			AND											
			Transmission Range is	=	Driven range (R,D)									
							--------------------- Range_Disable OR	=	FALSE	See Below				
							--------------------- Neutral_Range_Enable And	=	TRUE	See Below				
							Neutral_Speed_Enable are TRUE concurrently ---------------------	=	TRUE	See Below				
							Transmission_Range_Enable	=	TRUE	See Below				
							Transmission_Input_Speed_Enable	=	TRUE	See Below				
							No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds				
							P0723 Status is not	=	Test Failed This Key On or Fault Active					
							Disable this DTC if the PTO is active	=	1	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					Ignition Voltage is	>=	8.5996094 Volts		
					Ignition Voltage is	<=	31.990234 Volts		
					Engine Speed is	>=	400 RPM		
					Engine Speed is	<=	7500 RPM		
					Engine Speed is within the allowable limits for	>=	5 Sec		
					Enable_Flags Defined Below				
					Transmission_Input_Speed_Enable is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:				
					TIS Condition 1 is TRUE when both of the following conditions are satsified for	>=	0 Enable Time (Sec)		
					Input Speed Delta	<=	4095 RPM		
					Raw Input Speed	>=	500 RPM		
					TIS Condition 2 is TRUE when ALL of the next two conditions are satisfied				
					Input Speed	=	0 RPM		
					A Single Power Supply is used for all speed sensors	=	TRUE Boolean		
					Neutral_Range_Enable is TRUE when any of the next 3 conditions are TRUE				
					Transmission Range is	=	Neutral ENUM		
					Transmission Range is	=	Reverse/Neutral Transitonal ENUM		
					Transmission Range is	=	Neutral/Drive Transitional ENUM		
					And when a drop occurs Loop to Loop Drop of Transmission Output Speed is	>	650 RPM		
					Range_Disable is TRUE when any of the next three conditions are TRUE				
					Transmission Range is	=	Park ENUM		
					Transmission Range is	=	Park/Reverse Transitonal ENUM		
					Input Clutch is not	=	ON (Fully Applied) ENUM		
					Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified for	>	1.5 Seconds		
					Transmission Output Speed	>	130 RPM		
					The loop to loop change of the Transmission Output Speed is	<	20 RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
					The loop to loop change of the Transmission Output Speed is -----------------------	>	-10	RPM			
					Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE						
					Transmission Range is	=	Neutral	ENUM			
					Transmission Range is	=	Reverse/Neutral Transitional	ENUM			
					Transmission Range is	=	Neutral/Drive Transitional	ENUM			
					Time since a driven range (R,D) has been selected	>=	Table Based Time Please Refer to Table 21 in supporting documents	Sec			
					Transmission Output Speed Sensor Raw Speed	>=	500	RPM			
					Output Speed when a fault was detected	>=	500	RPM			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0973, P0974, P0976, P0977 ECM: P0101, P0102, P0103, P0121, P0122, P0123					
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure	>= 750 Kpa					>= 2	Enable Time (Sec)	Two Trips
			Either Condition (A) or (B) Must be Met								
			(A) TCC Slip Error @ TCC On Mode	>= Refer to Table 1 in Supporting Documents RPM					>= 5	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode	>= 130 RPM					>= 5	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter						>= 2	TCC Stuck Off Fail Counter	
					TCC Mode	=	On or Lock				
					Ignition Voltage Lo	>=	8.5996094	Volts			
					Ignition Voltage Hi	<=	31.990234	Volts			
					Engine Speed	>=	400	RPM			
					Engine Speed	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
					Engine Torque Lo	>=	50	N*m			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					Engine Torque Hi	<=	8191.875	N*m				
					Throttle Position Lo	>=	8.0001831	Pct				
					Throttle Position Hi	<=	99.998474	Pct				
					2nd Gear Ratio Lo	>=	2.6710205	Ratio				
					2nd Gear Ratio High	<=	3.072998	Ratio				
					3rd Gear Ratio Lo	>=	1.7130127	Ratio				
					3rd Gear Ratio High	<=	1.9709473	Ratio				
					4th Gear Ratio Lo	>=	1.3150635	Ratio				
					4th Gear Ratio High	<=	1.5129395	Ratio				
					5th Gear Ratio Lo	>=	0.9300537	Ratio				
					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				
					P0741 Status is	≠	Test Failed This Key On or Fault Active					
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0742, P2763, P2764						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>= -50 RPM								One Trip
			TCC Slip Speed	<= 13 RPM								
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter						>=	2	Fail Time (Sec)	
									>=	6	Fail Counter	
					TCC Mode	=	Off					
					Enable test if Cmnd Gear = 1stFW and value true	=	1	Boolean				
					Enable test if Cmnd Gear = 2nd and value true	=	0	Boolean				
					Engine Speed Hi	<=	6000	RPM				
					Engine Speed Lo	>=	500	RPM				
					Vehicle Speed HI	<=	511	KPH				
					Vehicle Speed Lo	>=	1	KPH				
					Engine Torque Hi	<=	8191.875	Nm				
					Engine Torque Lo	>=	80	Nm				
					Current Range	≠	Neutral	Range				
					Current Range	≠	Reverse	Range				
					Transmission Sump Temperature	<=	130	°C				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					Transmission Sump Temperature	>=	18	°C				
					Throttle Position Hyst High AND	>=	5.0003052	Pct				
					Max Vehicle Speed to Meet Throttle Enable	<=	8	KPH				
					Once Hyst High has been met, the enable will remain while Throttle Position	>=	2.0004272	Pct				
					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 value false	=	0	Boolean				
					RVT Diagnostic Active	=	FALSE	Boolean				
					Ignition Voltage	>=	8.5996094	V				
					Ignition Voltage	<=	31.990234	V				
					Vehicle Speed	<=	511	KPH				
					Engine Speed	>=	400	RPM				
					Engine Speed	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Throttle Position Signal Valid	=	TRUE	Boolean				
					P0742 Status is	≠	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0741, P2763, P2764						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>=	400	RPM						Two Trips
			Commanded Gear	=	1st Lock	rpm						
			Gear Ratio	<=	1.484985352							
			Gear Ratio	>=	1.343017578				>=	0.3	Fail Tmr	
			If the above parameters are true						=	5	Fail Counts	
									≠	0	Neutral Timer (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
											>=	0.3	Fail Timer (Sec)	
											>=	8	Counts	
							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 allowable limits for	>=	5	Sec				
							Transmission Fluid Temperature	>=	-6.65625	ºC				
							Range Shift State	=	Range Shift Completed	ENUM				
							TPS	>=	0.5004883	%				
							OR							
							Output Speed	>=	36	RPM				
							Throttle Position Signal Valid from ECM	=	TRUE	Boolean				
							Engine Torque Signal Valid from ECM, High side driver is enabled	=	TRUE	Boolean				
							High-Side Driver is Enabled	=	TRUE	Boolean				
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault	=	FALSE	Boolean				
							Default Gear Option is not present	=	TRUE					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E						
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>=	400	RPM								One Trip
			Commanded Gear	=	3rd	Gear								
			Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On	=	TRUE	Boolean								
			If the above parameters are true								>=	Please Refer to Table 16 in Supporting Documents	Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed	<=	800	RPM								
			If Gear Ratio	>=	4.259765625									
			And Gear Ratio	<=	4.708251953									

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
											>=	1.5	Fail Timer (Sec)	
											>=	5	Counts	
							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 allowable limits for	>=	5	Sec				
							High-Side Driver is Enabled	=	TRUE	Boolean				
							Throttle Position Signal Valid from ECM	=	TRUE	Boolean				
							Output Speed	>=	36	RPM				
							OR							
							TPS	>=	0.5004883	%				
							Range Shift State	=	Range Shift Completed	ENUM				
							Transmission Fluid Temperature	>=	-6.65625	ºC				
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault	=	FALSE	Boolean				
							Default Gear Option is not present	=	TRUE					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E						
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gear	=	1st Locked									One Trip
			Gear Box Slip	>=	400	RPM					>=	Please Refer to Table 5 in Supporting Documents	Neutral Timer (Sec)	
			Intrusive Shift to 2nd Commanded Gear Previous	=	1st Locked	Gear								
			Gear Ratio	<=	3.015991211									
			Gear Ratio	>=	2.728027344									
			If the above parameters are true								>=	1	sec	
											>=	3	counts	
							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 allowable limits for	>=	5	Sec				
							Output Speed	>=	36	RPM				
							OR							
							TPS	>=	0.5004883	%				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Range Shift State	= Range Shift Completed ENUM		
					Transmission Fluid Temperature	>= -6.65625 ºC		
					High-Side Driver is Enabled	= TRUE Boolean		
					Throttle Position Signal Valid from ECM	= TRUE Boolean		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
					Disable Conditions:	MIL not Illuminated for DTC's: TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1 Case: Steady State 3rd Gear					One Trip
			Commanded Gear	= 3rd Gear				
			Gearbox Slip	>= 400 RPM			>= Please Refer to Table 16 in Supporting Documents Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed	<= 800 RPM				
			If Gear Ratio	>= 1.343261719				
			And Gear Ratio	<= 1.484741211				
							>= 3 Fail Timer (Sec)	
			It the above condiations are true, Increment 3rd gear fail counter				>= 3 3rd Gear Fail Counts or	
			and C35R Fail counter				>= 14 3-5R Clutch Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear					
			Commanded Gear	= 5th Gear				
			Gearbox Slip	>= 400 Rpm			>= Please Refer to Table 5 in Supporting Documents Neutral Timer (Sec)	
			Intrusive Test: Command 6th Gear					
			If attained Gear=6th gear Time	>= Please refer to Table 3 in supporting documents Shift Time (Sec)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			It the above condiations are true, Increment 5th gear fail counter				>= 3 5th Gear Fail Counts	
							or	
			and C35R Fail counter				>= 14 3-5R Clutch Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for RVT	>= 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 Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Throttle Position Signal valid	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Transmission Fluid Temperature	>= -6.65625 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1					One Trip
			Case: Steady State 1st					
			Attained Gear slip	>= 400 RPM				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec)				
			Intrusive test: (CBR1 clutch exhausted)					
			Gear Ratio	<= 1.933959961				
			Gear Ratio	>= 1.75				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
							>=	2	Fail Count in 1st Gear	
									or	
							>=	3	Total Fail Counts	
			Fail Case 2 Case: Steady State 2nd gear							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec						
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec						
			Intrusive test: (CB26 clutch exhausted)							
			Gear Ratio	<= 1.933959961						
			Gear Ratio	>= 1.75						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 2nd Gear	
									or	
							>=	3	Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec						
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec						
			Intrusive test: (C1234 clutch exhausted)							
			Gear Ratio	<= 1.050048828						
			Gear Ratio	>= 0.949951172						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			If the above parameters are true						>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 4th Gear or	
									>=	3	Total Fail Counts	
			Fail Case 4 Case: Steady State 6th gear									
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec								
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec								
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec								
			Intrusive test: (CB26 clutch exhausted)									
			Gear Ratio	<= 1.050048828					>=	1.1	Fail Timer (Sec)	
			Gear Ratio	>= 0.949951172					>=	3	counts	
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear or	
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	36	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					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 allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
						if Attained Gear=1st FW Engine Torque Enable	>=	20	Nm		
						if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm		
						Transmission Fluid Temperature	>=	-6.65625	ºC		
						Input Speed Sensor fault	=	FALSE	Boolean		
						Output Speed Sensor fault	=	FALSE	Boolean		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E				
							ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers)	=	TRUE	Boolean					One Trip
			Primary Oncoming Clutch Pressure Command Status	=	Maximum pressurized						
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command						
			Range Shift Status	≠	Initial Clutch Control						
			Attained Gear Slip	<=	40	RPM					
			If the above conditions are true run appropriate Fail 1 Timers Below:								
			fail timer 1 (3-1 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (3-2 shifting with Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (3-2 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (3-4 shifting with Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (3-4shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (3-5 shifting with Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (3-5 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (5-3 shifting with Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (5-3 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (5-4 shifting with Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (5-4 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value			Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
			fail timer 1 (5-6 shifting with Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-6 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers									Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and Reference Supporting Table 15 for Fail Timer 2	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter											
			3rd gear fail counter									>= 3	3rd gear fail counts OR	
			5th gear fail counter									>= 5	5th gear fail counts OR	
			Total fail counter									>= 5	total fail counts	
								TUT Enable temperature	>=	-6.65625	ºC			
								Input Speed Sensor fault	=	FALSE	Boolean			
								Output Speed Sensor fault	=	FALSE	Boolean			
								Command / Attained Gear	≠	1st	Boolean			
								High Side Driver ON	=	TRUE	Boolean			
								output speed limit for TUT	>=	100	RPM			
								input speed limit for TUT	>=	200	RPM			
								PRNDL state defaulted	=	FALSE	Boolean			
								IMS Fault Pending	=	FALSE	Boolean			
								Service Fast Learn Mode	=	FALSE	Boolean			
								HSD Enabled	=	TRUE	Boolean			
								Default Gear Option is not present	=	TRUE				
							Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E					
									ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E					
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear											One Trip
			Gear slip	>=	400	RPM						Please See Table 5 For Neutral Time Cal >= Neutral Timer (Sec)		
			Intrusive test: commanded 5th gear											

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If attained Gear ≠5th for time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 4th Gear Fail Counter				>= 3 4th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			<u>Fail Case 2</u> Case: Steady State 5th Gear				Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Gear slip >= 400 RPM				>=	
			Intrusive test: commanded 6th gear					
			If attained Gear ≠ 6th for time	>= Please Refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 5th Gear Fail Counter				>= 3 5th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			<u>Fail Case 3</u> Case: Steady State 6th Gear				Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Gear slip >= 400 RPM				>=	
			Intrusive test: commanded 5th gear					
			If attained Gear ≠ 5th for time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met Increment 6th Gear Fail Counter and C456 Fail Counter				>= 3 6th Gear Fail Count OR	
			and C456 Fail Counter				>= 14 C456 Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for RVT	>= 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		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Throttle Position Signal valid	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Transmission Fluid Temperature	>=	-6.65625	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					OutputSpeed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st									One Trip
			Attained Gear slip	>= 400 RPM								
			If the Above is True for Time	>= Table Based Time Please Refer to Table 4 in supporting documents	Enable Time (Sec)							
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio	<= 1.484985352								
			Gear Ratio	>= 1.343017578								
			If the above parameters are true							>=	1.1	Fail Timer (Sec)	
										>=	2	Fail Count in 1st Gear or
										>=	3	Total Fail Counts
			Fail Case 2 Case Steady State 2nd									
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents	rpm/sec							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.484985352				
			Gear Ratio	>= 1.343017578				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 2nd Gear or	
							>= 3 Total fail counts	
			Fail Case 3 Case Steady State 3rd					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 1.484985352				
			Gear Ratio	>= 1.343017578				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 3rd Gear OR	
							>= 3 Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					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		
					Ignition Voltage Hi	<=	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 Accelerator Pedal enable	>=	5.0003052 Pct		
					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 ºC		
					Input Speed Sensor fault	=	FALSE Boolean		
					Output Speed Sensor fault	=	FALSE Boolean		
					Default Gear Option is not present	=	TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E			
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 11 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean					One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized					
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command					
			Range Shift Status	≠ Initial Clutch Control					
			Attained Gear Slip	<= 40 RPM					
			If the above conditions are true increment appropriate Fail 1 Timers Below:						
			fail timer 1 (4-1 shifting with throttle)	>= 0.5 Fail Time (Sec)					
			fail timer 1 (4-1 shifting without throttle)	>= 0.5 Fail Time (Sec)					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			fail timer 1 (4-2 shifting with throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (4-2 shifting without throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (4-3 shifting with throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (4-3 shifting without throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (5-3 shifting with throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (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 Supporting Table 15 for Fail Timer 2	>=	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter										
			4th gear fail counter							Fail Counter From 4th Gear OR	>=	3	
			5th gear fail counter							Fail Counter From 5th Gear OR	>=	3	
			6th gear fail counter							Fail Counter From 6th Gear OR	>=	3	
			Total fail counter							Total Fail Counter	>=	5	
						TUT Enable temperature	>=	-6.65625	°C				
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault	=	FALSE	Boolean				
						Command / Attained Gear	≠	1st	Boolean				
						High Side Driver ON	=	TRUE	Boolean				
						output speed limit for TUT	>=	100	RPM				
						input speed limit for TUT	>=	200	RPM				
						PRNDL state defaulted	=	FALSE	Boolean				
						IMS Fault Pending	=	FALSE	Boolean				
						Service Fast Learn Mode	=	FALSE	Boolean				
						HSD Enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			Threshold Value		Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
					Disable Conditions:			MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E				
									ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Case 1	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	=	0	Boolean						Special No MIL
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	=	0	Boolean						
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	=	0	Boolean						
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	=	0	Boolean						
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	=	0	Boolean						
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	=	0	Boolean						
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	=	1	Boolean						
				Tap Up Switch Stuck in the Up Position in Park Enabled	=	1	Boolean						
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean						
				Tap Up Switch ON	=	TRUE	Boolean			>=	1	Fail Time (Sec)	
			Fail Case 2	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	=	1	Boolean						
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	=	1	Boolean						
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	=	1	Boolean						
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	=	1	Boolean						
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	=	1	Boolean						
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	=	1	Boolean						
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	=	0	Boolean						
				Tap Up Switch Stuck in the Up Position in Park Enabled	=	0	Boolean						
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean						
				Tap Up Switch ON	=	TRUE	Boolean						
				NOTE: Both Failcase1 and Failcase 2 Must Be Met						>=	600	Fail Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
							Time Since Last Range Change	>=	1	Enable 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 allowable limits for	>=	5	Sec				
							P0815 Status is	≠		Test Failed This Key On or Fault Active				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0816, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None						
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	0	Boolean								Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	0	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	0	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	0	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	0	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	0	Boolean								
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	=	0	Boolean								
			Tap Down Switch ON	=	TRUE	Boolean					>=	1	sec	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	1	Boolean								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 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	
							Time Since Last Range Change	>=	1	Enable 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 allowable limits for	>=	5	Sec				
							P0816 Status is	≠	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	=	TRUE	Boolean					>=	60	Fail Time (Sec)	Special No MIL
							Ignition Voltage Lo	>=	8.5996094	Volts				
							Ignition Voltage Hi	<=	31.990234	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							P0826 Status is	≠	Test Failed This Key On or Fault Active					
							MIL not Illuminated for DTC's:	TCM: P1761						
			Disable Conditions:					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	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							MIL not Illuminated for DTC's:	TCM: None						
			Disable Conditions:					ECM: None						
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1											One Trip
			Current range	=	(bit state 1110)	Range								
			Previous range	≠	CeTRGR_e_PRNDL_Drive6	Range								
			Previous range	≠	CeTRGR_e_PRNDL_Drive4	Range								
			Range Shift State	=	Range Shift Completed	ENUM								
			Absolute Attained Gear Slip	<=	50	rpm								
			Attained Gear	<=	Sixth									
			Attained Gear	>=	First									
			Throttle Position Available	=	TRUE									
			Throttle Position	>=	8.000183105	pct								
			Output Speed	>=	200	rpm								
			Engine Torque	>=	50	Nm								
			Engine Torque	<=	8191.75	Nm								
			If the above conditions are met then Increment Fail Timer								>=	1	Fail Seconds	
			If Fail Timer has Expired then Increment Fail Counter								>=	5	Fail Counts	
			Fail Case 2 Output Speed	<=	70	rpm								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			The following PRNDL sequence events occur in this exact order:											
			PRNDL state	=	Drive 6 (bit state 0110)	Range								
			PRNDL state = Drive 6 for	>=	1	Sec								
			PRNDL state	=	Transition 8 (bit state 0111)	Range								
			PRNDL state	=	Drive 6 (bit state 0110)	Range								
			PRNDL state	=	Transition 1 (bit state 1110)	Range								
			Above sequencing occurs in	<=	1	Sec								
			Neutral Idle Mode	=	Inactive									
			If all conditions above are met Increment delay Timer											
			If the below two conditions are met Increment Fail Timer								>=	3	Fail Seconds	
			delay timer	>=	1	Sec								
			Input Speed	>=	400	Sec								
			If Fail Timer has Expired then Increment Fail Counter								>=	2	Fail Counts	
			Fail Case 3						CeTRGR_ e_PRNDL _Drive4					
			Current range	=	Transition 13 (bit state 0010)	Range	Previous range	≠						
			Engine Torque	>=	-8192	Nm	Previous range	≠	CeTRGR_ e_PRNDL _Drive1					
			Engine Torque	<=	8191.75	Nm	IMS is 7 position configuration	=	0	Boolean				
			If the above conditions are met then, Increment Fail Timer				If the "IMS 7 Position config" = 1 then the "previous range" criteria above must also be satsified when the "current range" = "Transition 13"				>=	0.225	Seconds	
			If Fail Timer has Expired then Increment Fail Counter								>=	15	Fail Counts	
			Fail Case 4				Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8							
			Current range	=	Transition 8 (bit state 0111)	Range								
			Inhibit bit (see definition)	=	FALSE		Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)							
			Steady State Engine Torque	>=	100	Nm								
			Steady State Engine Torque	<=	8191.75	Nm								
			If the above conditions are met then Increment Fail Timer								>=	0.225	Seconds	
			If the above Condtions have been met, Increment Fail Counter								>=	15	Fail Counts	
			Fail Case 5	Throttle Position Available	=	TRUE	Boolean							
			The following PRNDL sequence events occur in this exact order:											
			PRNDL State	=	Reverse (bit state 1100)	Range								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions		Time Required			Mil Illum.
			PRNDL State	=	Transition 11 (bit state 0100)	Range							
			PRNDL State	=	Neutral (bit state 0101)	Range							
			PRNDL State	=	Transition 11 (bit state 0100)	Range							
			Above sequencing occurs in	<=	1	Sec							
			Then delay timer increments Delay timer	>=	5	sec							
			Range Shift State	=	Range Shift Complete								
			Absolute Attained Gear Slip	<=	50	rpm							
			Attained Gear	<=	Sixth								
			Attained Gear	>=	First								
			Throttle Position	>=	8.000183105	pct							
			Output Speed	>=	200	rpm							
			If the above conditions are met Increment Fail Timer							>=	20	Seconds	
			Fail Case 6 Current range	=	Illegal (bit state 0000 or 1000 or 0001)		A Open Circuit Definition (flag set false if the following conditions are met):						
			and				Current Range	≠	Transition 11 (bit state 0100)				
			A Open Circuit (See Definition)	=	FALSE	Boolean	or						
							Last positive state	≠	Neutral (bit state 0101)				
							or						
							Previous transition state	≠	Transition 8 (bit state 0111)				
							Fail case 5 delay timer	=	0	sec			
			If the above Condtions are met then, Increment Fail timer							>=	6.25	Seconds	
			Fail Case 7 Current PRNDL State	=	PRNDL circuit ABCP = 1101	Range							
			and										
			Previous PRNDL state	=	PRNDL circuit ABCP =1111	Range							
			Input Speed	>=	150	RPM							
			Reverse Trans Ratio	<=	2.678344727	ratio							
			Reverse Trans Ratio	>=	3.081542969	ratio							
			If the above Condtions are met then, Increment Fail timer							>=	6.25	Seconds	
			P182E will report test fail when any of the above 7 fail cases are met										

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
						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 allowable limits for	>=	5 Sec		
						Engine Torque Signal Valid	=	TRUE Boolean		
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D			
							ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers)	=	TRUE Boolean					One Trip
			Primary Oncoming Clutch Pressure Command Status	=	Maximum pressurized					
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command					
			Range Shift Status	≠	Initial Clutch Control					
			Attained Gear Slip	<=	40 RPM					
			If above coditons are true, increment appropriate Fail 1 Timers Below:							
			fail timer 1 (2-1 shifting with throttle)	>=	0.5 Fail Time (Sec)					
			fail timer 1 (2-1 shifting without throttle)	>=	0.5 Fail Time (Sec)					
			fail timer 1 (2-3 shifting with throttle)	>=	0.5 Fail Time (Sec)					
			fail timer 1 (2-3 shifting without throttle)	>=	0.5 Fail Time (Sec)					
			fail timer 1 (2-4 shifting with throttle)	>=	0.5 Fail Time (Sec)					
			fail timer 1 (2-4 shifting without throttle)	>=	0.5 Fail Time (Sec)					
			fail timer 1 (6-4 shifting with throttle)	>=	0.5 Fail Time (Sec)					
			fail timer 1 (6-4 shifting without throttle)	>=	0.5 Fail Time (Sec)					
			fail timer 1 (6-5 shifting with throttle)	>=	0.5 Fail Time (Sec)					
			fail timer 1 (6-5 shifting without throttle)	>=	0.5 Fail Time (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: >= sec	
			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	>= -6.65625 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 200 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st					One Trip
			Attained Gear slip	>= 400 RPM				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec)				
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio	<= 3.015991211				
			Gear Ratio	>= 2.728027344				
			If the above parameters are true					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
							>=	1.1	Fail Timer (Sec)	
							>=	5	Fail Count in 1st Gear or	
							>=	5	Total Fail Counts	
			Fail Case 2 Case: Steady State 3rd Gear							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec						
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec						
			Intrusive test: (C35R clutch exhausted)							
			Gear Ratio	<= 3.015991211						
			Gear Ratio	>= 2.728027344						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 3rd Gear or	
							>=	5	Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gear							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec						
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec						
			Intrusive test: (C1234 clutch exhausted)							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required		Mil Illum.
			Gear Ratio <=	0.779052734						
			Gear Ratio >=	0.704956055						
			If the above parameters are true							
								>= 1.1	Fail Timer (Sec)	
								>= 3	Fail Count in 4th Gear	
									or	
								>= 5	Total Fail Counts	
			Fail Case 4 Case: Steady State 5th Gear							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec						
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec						
			Intrusive test: (C35R clutch exhausted)							
			Gear Ratio <=	0.779052734						
			Gear Ratio >=	0.704956055						
			If the above parameters are true							
								>= 1.1	Fail Timer (Sec)	
								>= 3	Fail Count in 5th Gear	
									or	
								>= 5	Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean				
					inhibit RVT	= FALSE Boolean				
					IMS fault pending indication	= FALSE Boolean				
					output speed	>= 0 RPM				
					TPS validity flag	= TRUE Boolean				
					HSD Enabled	= TRUE Boolean				
					Hydraulic_System_Pressurized	= TRUE Boolean				
					A OR B					
					(A) Output speed enable	>= 36 Nm				
					(B) Accelerator Pedal enable	>= 0.5004883 Nm				
					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 allowable limits for	>= 5 Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
						if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct		
						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	ºC		
						Input Speed Sensor fault	=	FALSE	Boolean		
						Output Speed Sensor fault	=	FALSE	Boolean		
						Default Gear Option is not present	=	TRUE			
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E				
							ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers)	=	TRUE Boolean						One Trip
			Primary Oncoming Clutch Pressure Command Status	=	Maximum pressurized						
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command						
			Range Shift Status	≠	Initial Clutch Control						
			Attained Gear Slip	<=	40 RPM						
			If the above conditions are true increment appropriate Fail 1 Timers Below:								
			fail timer 1 (2-6 shifting with throttle)	>=	0.5 sec						
			fail timer 1 (2-6 shifting without throttle)	>=	0.5 sec						
			fail timer 1 (3-5 shifting with throttle)	>=	0.5 sec						
			fail timer 1 (3-5 shifting without throttle)	>=	0.5 sec						
			fail timer 1 (4-5 shifting with throttle)	>=	0.5 sec						
			fail timer 1 (4-5 shifting without throttle)	>=	0.5 sec						
			fail timer 1 (4-6 shifting with throttle)	>=	0.5 sec						
			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 >= sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			2nd gear fail counter				>= 3 Fail Counter From 2nd Gear	
			3rd gear fail counter				>= 3 Fail Counter From 3rd Gear	
			4th gear fail counter				>= 3 Fail Counter From 4th Gear	
			total fail counter				>= 5 Total Fail Counter	
					TUT Enable temperature	>= -6.65625 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 200 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 — Case: 5th Gear					One Trip
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	<= 1.484985352 >= 1.343017578				
							>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 5th Gear OR	
							>= 3 Total Fail Counts	
			Fail Case 2 Case: 6th Gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	<= 1.484985352 >= 1.343017578				
							>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 6th Gear OR	
							>= 3 Total Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed	= FALSE Boolean = FALSE Boolean = FALSE Boolean >= 0 RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					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		
					Ignition Voltage Hi	<=	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 Accelerator Pedal enable	>=	5.0003052	Pct		
					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	ºC		
					Input Speed Sensor fault	=	FALSE	Boolean		
					Output Speed Sensor fault	=	FALSE	Boolean		
					Default Gear Option is not present	=	TRUE			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E				
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude	<=	3.85 g's								Special No MIL
			Lateral accleration magnitude	>=	0.53 g's								
			Lateral accleration magnitude is within the range above for	>=	120 Sec								
						Lateral accleration magnitude	<=	3.85	g's				
						Lateral accleration magnitude	>=	0.53	g's				
						Lateral accleration magnitude is within the range above for	>=	90	Sec				
						Diagnostic shifting override command	=	FALSE	Boolean				
						Attained Gear State	=	1st through 6th					
						Attained Gear Slip	<=	100	RPM				
						Transmission Type	=	Clutch to Clutch Transmission					
						High Side Driver 1 On	=	TRUE	Boolean				
						Vehicle Speed	>=	15	kph				
						Lateral acceleration stuck in range diagnostic enable	=	TRUE	Boolean				
						Battery Voltage	<=	31.999023	Volts				
						Battery Voltage	>=	9	Volts				
						Battery voltage is within the allowable limits for	>=	0.1	Sec				
						Ignition Voltage	<=	31.999023	Volts				
						Ignition Voltage	>=	9	Volts				
						Service Fast Learn (SFL) Mode	=	FALSE	Boolean				
						Ignition voltage and SFL conditions met for	>=	0.1	Sec				
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: If calibrated to illuminate the MIL (P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073) ECM: None						
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>=	146.296875 ºC					>=	5	Fail Time (Sec)	One Trip
			Fail Case 2 Substrate Temperature	>=	50 ºC					>=	2	Fail Time (Sec)	
			Ignition Voltage	>=	18 Volts								
			Note: either fail case can set the DTC										
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.990234	Volts				
						Substrate Temp Lo	>=	0	ºC				
						Substrate Temp Hi	<=	170	ºC				
						Substrate Temp Between Temp Range for Time	>=	0.25	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value			Secondary Malfunction		Enable Conditions			Time Required			Mil Illum.
								P0634 Status is	≠	Test Failed This Key On or Fault Active						
								Disable Conditions:								
								MIL not Illuminated for DTC's:	TCM: None ECM: None							
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops		>=	1350	RPM						>=	0.8	Fail Time (Sec)	One Trip
								Engine Torque is	>=	0	N*m					
								Engine Torque is	<=	8191.875	N*m					
								Engine Speed	>=	400	RPM					
								Engine Speed	<=	7500	RPM					
								Engine Speed is within the allowable limits for	>=	5	Sec					
								Vehicle Speed is	>=	10	Kph					
								Throttle Position is	>=	0	Pct					

								Transmission Input Speed is	>=	0	RPM					
								The previous requirement has been satisfied for	>=	0	Sec					

								The change (loop to loop) in transmission input speed is	<	8191.875	RPM/Loop					
								The previous requirement has been satisfied for	>=	0	Sec					
								Throttle Position Signal Valid	=	TRUE	Boolean					
								Engine Torque Signal Valid	=	TRUE	Boolean					
								Ignition Voltage	>=	8.5996094	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:	TCM: P0717, P0752, P0973, P0974 ECM: P0101, P0102, P0103, P0121, P0122, P0123							
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is		<	33	RPM						>=	4.5	Fail Time (Sec)	One Trip
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is		<	1000	RPM	Controller uses a single power supply for the speed sensors	=	1	Boolean					
								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					

17 OBDG03 TCM Unique SRX LFX FWD 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
					Ignition Voltage	<=	31.990234	Volts			
					Engine Speed	>=	400	RPM			
					Engine Speed	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
					P0717 Status is not	=	Test Failed This Key On or Fault Active				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, P0723 ECM: P0101, P0102, P0103					
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	=	TRUE	Boolean			
					Throttle Position	>=	8.0001831	Pct			
					Transmission Fluid Temperature	>=	-40	ºC			
					Disable this DTC if the PTO is active	=	1	Boolean			
					Engine Torque Signal Valid	=	TRUE	Boolean			
					Throttle Position Signal Valid	=	TRUE	Boolean			
					Ignition Voltage is	>=	8.5996094	Volts			
					Ignition Voltage is	<=	31.990234	Volts			
					Engine Speed is	>=	400	RPM			
					Engine Speed is	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
					Enable_Flags Defined Below						
					The Engine Torque Check is TRUE, if either of the two following conditions are TRUE						
					Engine Torque Condition 1						
					Range Shift Status	≠	Range shift completed	ENUM			
					OR						
					Transmission Range is	=	Park or Neutral				
					Engine Torque is	>=	8191.75	N*m			
					Engine Torque is	<=	8191.75	N*m			
					Engine Torque Condition 2						
					Engine Torque is	>=	35	N*m			
					Engine Torque is	<=	8191.75	N*m			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
							-------------------- 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				
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0723 ECM: P0101, P0102, P0103, P0121, P0122, P0123						
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>=	105	RPM					>=	0.2	Enable Time (Sec)	One Trip
			Output Speed Delta	<=	8191	RPM					>=	0	Enable Time (Sec)	
			Output Speed Drop	>	650	RPM					>=	1.5	Output Speed Drop Recovery Fail Time (Sec)	
			AND											
			Transmission Range is	=	Driven range (R,D)									
							-------------------- Range_Disable OR	=	FALSE	See Below				
							-------------------- Neutral_Range_Enable And	=	TRUE	See Below				
							Neutral_Speed_Enable are TRUE concurrently --------------------	=	TRUE	See Below				
							Transmission_Range_Enable	=	TRUE	See Below				
							Transmission_Input_Speed_Enable	=	TRUE	See Below				
							No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds				
							P0723 Status is not	=	Test Failed This Key On or Fault Active					
							Disable this DTC if the PTO is active	=	1	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					Ignition Voltage is	>=	8.5996094	Volts		
					Ignition Voltage is	<=	31.990234	Volts		
					Engine Speed is	>=	400	RPM		
					Engine Speed is	<=	7500	RPM		
					Engine Speed is within the allowable limits for	>=	5	Sec		
					Enable_Flags Defined Below					
					Transmission_Input_Speed_Enable is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:					
					TIS Condition 1 is TRUE when both of the following conditions are satsified for	>=	0	Enable Time (Sec)		
					Input Speed Delta	<=	4095	RPM		
					Raw Input Speed	>=	500	RPM		
					TIS Condition 2 is TRUE when ALL of the next two conditions are satisfied					
					Input Speed	=	0	RPM		
					A Single Power Supply is used for all speed sensors --------------------	=	TRUE	Boolean		
					Neutral_Range_Enable is TRUE when any of the next 3 conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
					Transmission Range is	=	Reverse/Neutral Transitonal	ENUM		
					Transmission Range is	=	Neutral/Drive Transitional	ENUM		
					And when a drop occurs Loop to Loop Drop of Transmission Output Speed is --------------------	>	650	RPM		
					Range_Disable is TRUE when any of the next three conditions are TRUE					
					Transmission Range is	=	Park	ENUM		
					Transmission Range is	=	Park/Reverse Transitonal	ENUM		
					Input Clutch is not --------------------	=	ON (Fully Applied)	ENUM		
					Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified for	>	1.5	Seconds		
					Transmission Output Speed	>	130	RPM		
					The loop to loop change of the Transmission Output Speed is	<	20	RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
					The loop to loop change of the Transmission Output Speed is --------------------	>	-10	RPM			
					Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE Transmission Range is	=	Neutral	ENUM			
					Transmission Range is	=	Reverse/Neutral Transitional	ENUM			
					Transmission Range is	=	Neutral/Drive Transitional	ENUM			
					Time since a driven range (R,D) has been selected	>=	Table Based Time Please Refer to Table 21 in supporting documents	Sec			
					Transmission Output Speed Sensor Raw Speed	>=	500	RPM			
					Output Speed when a fault was detected	>=	500	RPM			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0973, P0974, P0976, P0977 ECM: P0101, P0102, P0103, P0121, P0122, P0123					
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure	>= 750 Kpa					>=	2	Enable Time (Sec)	Two Trips
			Either Condition (A) or (B) Must be Met								
			(A) TCC Slip Error @ TCC On Mode	>= Refer to Table 1 in Supporting Documents RPM					>=	5	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode	>= 130 RPM					>=	5	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter						>=	2	TCC Stuck Off Fail Counter	
					TCC Mode	=	On or Lock				
					Ignition Voltage Lo	>=	8.5996094	Volts			
					Ignition Voltage Hi	<=	31.990234	Volts			
					Engine Speed	>=	400	RPM			
					Engine Speed	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
					Engine Torque Lo	>=	50	N*m			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					Engine Torque Hi	<=	8191.875	N*m				
					Throttle Position Lo	>=	8.0001831	Pct				
					Throttle Position Hi	<=	99.998474	Pct				
					2nd Gear Ratio Lo	>=	2.6710205	Ratio				
					2nd Gear Ratio High	<=	3.072998	Ratio				
					3rd Gear Ratio Lo	>=	1.7130127	Ratio				
					3rd Gear Ratio High	<=	1.9709473	Ratio				
					4th Gear Ratio Lo	>=	1.3150635	Ratio				
					4th Gear Ratio High	<=	1.5129395	Ratio				
					5th Gear Ratio Lo	>=	0.9300537	Ratio				
					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				
					P0741 Status is	≠	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0742, P2763, P2764						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>=	-50	RPM						One Trip
			TCC Slip Speed	<=	13	RPM						
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter						>=	2	Fail Time (Sec)	
									>=	6	Fail Counter	
					TCC Mode	=	Off					
					Enable test if Cmnd Gear = 1stFW and value true	=	1	Boolean				
					Enable test if Cmnd Gear = 2nd and value true	=	0	Boolean				
					Engine Speed Hi	<=	6000	RPM				
					Engine Speed Lo	>=	500	RPM				
					Vehicle Speed HI	<=	511	KPH				
					Vehicle Speed Lo	>=	1	KPH				
					Engine Torque Hi	<=	8191.875	Nm				
					Engine Torque Lo	>=	80	Nm				
					Current Range	≠	Neutral	Range				
					Current Range	≠	Reverse	Range				
					Transmission Sump Temperature	<=	130	°C				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					Transmission Sump Temperature	>=	18	°C				
					Throttle Position Hyst High AND	>=	5.0003052	Pct				
					Max Vehicle Speed to Meet Throttle Enable	<=	8	KPH				
					Once Hyst High has been met, the enable will remain while Throttle Position	>=	2.0004272	Pct				
					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 value false	=	0	Boolean				
					RVT Diagnostic Active	=	FALSE	Boolean				
					Ignition Voltage	>=	8.5996094	V				
					Ignition Voltage	<=	31.990234	V				
					Vehicle Speed	<=	511	KPH				
					Engine Speed	>=	400	RPM				
					Engine Speed	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Throttle Position Signal Valid	=	TRUE	Boolean				
					P0742 Status is	≠	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0741, P2763, P2764						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commanded Gear Slip	>= 400 RPM								Two Trips
			Commanded Gear	= 1st Lock rpm								
			Gear Ratio	<= 1.484985352					>=	0.3	Fail Tmr	
			Gear Ratio	>= 1.343017578					=	5	Fail Counts	
			If the above parameters are true									
									≠	0	Neutral Timer (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
											>=	0.3	Fail Timer (Sec)	
											>=	8	Counts	
							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 allowable limits for	>=	5	Sec				
							Transmission Fluid Temperature	>=	-6.65625	ºC				
							Range Shift State	=	Range Shift Completed	ENUM				
							TPS	>=	0.5004883	%				
							OR							
							Output Speed	>=	36	RPM				
							Throttle Position Signal Valid from ECM	=	TRUE	Boolean				
							Engine Torque Signal Valid from ECM, High side driver is enabled	=	TRUE	Boolean				
							High-Side Driver is Enabled	=	TRUE	Boolean				
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault	=	FALSE	Boolean				
							Default Gear Option is not present	=	TRUE					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E						
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>=	400	RPM								One Trip
			Commanded Gear	=	3rd	Gear								
			Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On	=	TRUE	Boolean								
			If the above parameters are true								>=	Please Refer to Table 16 in Supporting Documents	Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed	<=	800	RPM								
			If Gear Ratio	>=	4.259765625									
			And Gear Ratio	<=	4.708251953									

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
							>= 1.5 Fail Timer (Sec)	
							>= 5 Counts	
					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 allowable limits for	>= 5 Sec		
					High-Side Driver is Enabled	= TRUE Boolean		
					Throttle Position Signal Valid from ECM	= TRUE Boolean		
					Output Speed	>= 36 RPM		
					OR			
					TPS	>= 0.5004883 %		
					Range Shift State	= Range Shift Completed ENUM		
					Transmission Fluid Temperature	>= -6.65625 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gear	= 1st Locked			>= Please Refer to Table 5 in Supporting Documents Neutral Timer (Sec)	One Trip
			Gear Box Slip	>= 400 RPM				
			Intrusive Shift to 2nd Commanded Gear Previous	= 1st Locked Gear				
			Gear Ratio	<= 3.015991211				
			Gear Ratio	>= 2.728027344				
			If the above parameters are true					
							>= 1 sec	
							>= 3 counts	
					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 allowable limits for	>= 5 Sec		
					Output Speed	>= 36 RPM		
					OR			
					TPS	>= 0.5004883 %		

17 OBDG03 TCM Unique SRX LFX FWD 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Range Shift State	= Range Shift Completed ENUM		
					Transmission Fluid Temperature	>= -6.65625 ºC		
					High-Side Driver is Enabled	= TRUE Boolean		
					Throttle Position Signal Valid from ECM	= TRUE Boolean		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1 Case: Steady State 3rd Gear					One Trip
			Commanded Gear	= 3rd Gear				
			Gearbox Slip	>= 400 RPM			>= Please Refer to Table 16 in Supporting Documents Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed	<= 800 RPM				
			If Gear Ratio	>= 1.343261719				
			And Gear Ratio	<= 1.484741211				
							>= 3 Fail Timer (Sec)	
			It the above condiations are true, Increment 3rd gear fail counter				>= 3 3rd Gear Fail Counts or	
			and C35R Fail counter				>= 14 3-5R Clutch Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear					
			Commanded Gear	= 5th Gear				
			Gearbox Slip	>= 400 Rpm			>= Please Refer to Table 5 in Supporting Documents Neutral Timer (Sec)	
			Intrusive Test: Command 6th Gear					
			If attained Gear=6th gear Time	>= Please refer to Table 3 in supporting documents Shift Time (Sec)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			It the above condiations are true, Increment 5th gear fail counter						>=	3	5th Gear Fail Counts or	
			and C35R Fail counter						>=	14	3-5R Clutch Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					TPS validity flag	=	TRUE	Boolean				
					Hydraulic System Pressurized	=	TRUE	Boolean				
					Minimum output speed for RVT	>=	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 Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Throttle Position Signal valid	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Transmission Fluid Temperature	>=	-6.65625	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1									One Trip
			Case: Steady State 1st									
			Attained Gear slip	>= 400 RPM								
			If the Above is True for Time	>= Table Based Time Please Refer to Table 4 in supporting documents	Enable Time (Sec)							
			Intrusive test: (CBR1 clutch exhausted)									
			Gear Ratio	<= 1.933959961								
			Gear Ratio	>= 1.75								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required		Mil Illum.
							>= 2	Fail Count in 1st Gear	
							or		
							>= 3	Total Fail Counts	
			Fail Case 2 Case: Steady State 2nd gear						
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec					
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec					
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec					
			Intrusive test: (CB26 clutch exhausted)						
			Gear Ratio	<= 1.933959961					
			Gear Ratio	>= 1.75					
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec)	
							>= 3	Fail Count in 2nd Gear	
							or		
							>= 3	Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear						
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec					
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec					
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec					
			Intrusive test: (C1234 clutch exhausted)						
			Gear Ratio	<= 1.050048828					
			Gear Ratio	>= 0.949951172					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			If the above parameters are true						>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 4th Gear or	
									>=	3	Total Fail Counts	
			Fail Case 4 Case: Steady State 6th gear									
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec								
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec								
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec								
			Intrusive test: (CB26 clutch exhausted)									
			Gear Ratio	<= 1.050048828					>=	1.1	Fail Timer (Sec)	
			Gear Ratio	>= 0.949951172					>=	3	counts	
			If the above parameters are true						>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear or	
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	36	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					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 allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
						if Attained Gear=1st FW Engine Torque Enable	>=	20	Nm		
						if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm		
						Transmission Fluid Temperature	>=	-6.65625	ºC		
						Input Speed Sensor fault	=	FALSE	Boolean		
						Output Speed Sensor fault	=	FALSE	Boolean		
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E				
							ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers)	= TRUE	Boolean						One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized							
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command							
			Range Shift Status	≠ Initial Clutch Control							
			Attained Gear Slip	<= 40	RPM						
			If the above conditions are true run appropriate Fail 1 Timers Below:								
			fail timer 1 (3-1 shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)						
			fail timer 1 (3-2 shifting with Throttle)	>= 0.5	Fail Time (Sec)						
			fail timer 1 (3-2 shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)						
			fail timer 1 (3-4 shifting with Throttle)	>= 0.5	Fail Time (Sec)						
			fail timer 1 (3-4shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)						
			fail timer 1 (3-5 shifting with Throttle)	>= 0.5	Fail Time (Sec)						
			fail timer 1 (3-5 shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)						
			fail timer 1 (5-3 shifting with Throttle)	>= 0.5	Fail Time (Sec)						
			fail timer 1 (5-3 shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)						
			fail timer 1 (5-4 shifting with Throttle)	>= 0.5	Fail Time (Sec)						
			fail timer 1 (5-4 shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
			fail timer 1 (5-6 shifting with Throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (5-6 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)							
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers								Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	>= sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter										
			3rd gear fail counter								>= 3	3rd gear fail 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	Boolean			
							Output Speed Sensor fault	=	FALSE	Boolean			
							Command / Attained Gear	≠	1st	Boolean			
							High Side Driver ON	=	TRUE	Boolean			
							output speed limit for TUT	>=	100	RPM			
							input speed limit for TUT	>=	200	RPM			
							PRNDL state defaulted	=	FALSE	Boolean			
							IMS Fault Pending	=	FALSE	Boolean			
							Service Fast Learn Mode	=	FALSE	Boolean			
							HSD Enabled	=	TRUE	Boolean			
							Default Gear Option is not present	=	TRUE				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E					
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E					
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear										One Trip
			Gear slip	>=	400	RPM					>=	Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear										

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If attained Gear ≠5th for time >=	Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 4th Gear Fail Counter				>= 3 4th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear					
			Gear slip >=	400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 6th gear					
			If attained Gear ≠ 6th for time >=	Please Refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 5th Gear Fail Counter				>= 3 5th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gear					
			Gear slip >=	400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear					
			If attained Gear ≠ 5th for time >=	Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 6th Gear Fail Counter and C456 Fail Counter				>= 3 6th Gear Fail Count OR	
			and C456 Fail Counter				>= 14 C456 Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for RVT	>= 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		

17 OBDG03 TCM Unique SRX LFX FWD 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
					Ignition Voltage Hi	<=	31.990234	Volts			
					Engine Speed Lo	>=	400	RPM			
					Engine Speed Hi	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
					Throttle Position Signal valid	=	TRUE	Boolean			
					HSD Enabled	=	TRUE	Boolean			
					Transmission Fluid Temperature	>=	-6.65625	ºC			
					Input Speed Sensor fault	=	FALSE	Boolean			
					OutputSpeed Sensor fault	=	FALSE	Boolean			
					Default Gear Option is not present	=	TRUE				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E					
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E					
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	**Fail Case 1** Case: Steady State 1st								One Trip
			Attained Gear slip	>= 400 RPM							
			If the Above is True for Time	>= Table Based Time Please Refer to Table 4 in supporting documents, Enable Time (Sec)							
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio	<= 1.484985352							
			Gear Ratio	>= 1.343017578							
			If the above parameters are true								
							>=	1.1	Fail Timer (Sec)		
							>=	2	Fail Count in 1st Gear		
									or		
							>=	3	Total Fail Counts		
			Fail Case 2 Case Steady State 2nd								
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents, rpm/sec							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.484985352				
			Gear Ratio	>= 1.343017578				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 2nd Gear	
							or	
							>= 3 Total fail counts	
			Fail Case 3 Case Steady State 3rd					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 1.484985352				
			Gear Ratio	>= 1.343017578				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 3rd Gear	
							OR	
							>= 3 Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		

17 OBDG03 TCM Unique SRX LFX FWD 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					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		
					Ignition Voltage Hi	<= 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 Accelerator Pedal enable	>= 5.0003052	Pct		
					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	ºC		
					Input Speed Sensor fault	= FALSE	Boolean		
					Output Speed Sensor fault	= FALSE	Boolean		
					Default Gear Option is not present	= TRUE			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 11 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean					One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized					
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command					
			Range Shift Status	≠ Initial Clutch Control					
			Attained Gear Slip	<= 40 RPM					
			If the above conditions are true increment appropriate Fail 1 Timers Below:						
			fail timer 1 (4-1 shifting with throttle)	>= 0.5 Fail Time (Sec)					
			fail timer 1 (4-1 shifting without throttle)	>= 0.5 Fail Time (Sec)					

17 OBDG03 TCM Unique SRX LFX FWD 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			fail timer 1 (4-2 shifting with throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (4-2 shifting without throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (4-3 shifting with throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (4-3 shifting without throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (5-3 shifting with throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (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 Supporting Table 15 for Fail Timer 2	>=	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter										
			4th gear fail counter							Fail Counter From 4th Gear OR	>=	3	
			5th gear fail counter							Fail Counter From 5th Gear OR	>=	3	
			6th gear fail counter							Fail Counter From 6th Gear OR	>=	3	
			Total fail counter							Total Fail Counter	>=	5	
							TUT Enable temperature	>=	-6.65625	°C			
							Input Speed Sensor fault	=	FALSE	Boolean			
							Output Speed Sensor fault	=	FALSE	Boolean			
							Command / Attained Gear	≠	1st	Boolean			
							High Side Driver ON	=	TRUE	Boolean			
							output speed limit for TUT	>=	100	RPM			
							input speed limit for TUT	>=	200	RPM			
							PRNDL state defaulted	=	FALSE	Boolean			
							IMS Fault Pending	=	FALSE	Boolean			
							Service Fast Learn Mode	=	FALSE	Boolean			
							HSD Enabled	=	TRUE	Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Case 1 Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 1 Boolean				Special No MIL
			Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 3 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 4 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 6 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Park Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 1 Boolean				
			Tap Up Switch ON	= TRUE Boolean			>= 1 Fail Time (Sec)	
			Fail Case 2 Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 3 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 4 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Range 6 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Park Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 1 Boolean				
			Tap Up Switch ON	= TRUE Boolean				
			NOTE: Both Failcase1 and Failcase 2 Must Be Met				>= 600 Fail Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Time Since Last Range Change	>= 1 Enable 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 allowable limits for	>= 5 Sec		
					P0815 Status is	≠ Test Failed This Key On or Fault Active		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0816, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None		
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1 Boolean				Special No MIL
			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 Range Neutral Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	= 1 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				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 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	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Park Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	=	1	Boolean								
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	=	TRUE	Boolean					>=	600	sec	
							Time Since Last Range Change	>=	1	Enable 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 allowable limits for	>=	5	Sec				
							P0816 Status is	≠	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815, P0826, P182E, P1876, P1877, P1915, P1761						
								ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	=	TRUE	Boolean					>=	60	Fail Time (Sec)	Special No MIL
							Ignition Voltage Lo	>=	8.5996094	Volts				
							Ignition Voltage Hi	<=	31.990234	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							P0826 Status is	≠	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1761 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	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1		Transition 1										One Trip
			Current range	=	(bit state 1110)	Range								
			Previous range	≠	CeTRGR_e_PRNDL_Drive6	Range								
			Previous range	≠	CeTRGR_e_PRNDL_Drive5	Range								
			Range Shift State	=	Range Shift Completed	ENUM								
			Absolute Attained Gear Slip	<=	50	rpm								
			Attained Gear	<=	Sixth									
			Attained Gear	>=	First									
			Throttle Position Available	=	TRUE									
			Throttle Position	>=	8.000183105	pct								
			Output Speed	>=	200	rpm								
			Engine Torque	>=	50	Nm								
			Engine Torque	<=	8191.75	Nm								
			If the above conditions are met then Increment Fail Timer									>=	1	Fail Seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions				Time Required			Mil Illum.
			If Fail Timer has Expired then Increment Fail Counter									>=	5	Fail Counts	
			Fail Case 2 Output Speed	<=	70	rpm									
			The following PRNDL sequence events occur in this exact order:												
			PRNDL state	=	Drive 6 (bit state 0110)	Range									
			PRNDL state = Drive 6 for	>=	1	Sec									
			PRNDL state	=	Transition 8 (bit state 0111)	Range									
			PRNDL state	=	Drive 6 (bit state 0110)	Range									
			PRNDL state	=	Transition 1 (bit state 1110)	Range									
			Above sequencing occurs in	<=	1	Sec									
			Neutral Idle Mode	=	Inactive										
			If all conditions above are met Increment delay Timer												
			If the below two conditions are met Increment Fail Timer									>=	3	Fail Seconds	
			delay timer	>=	1	Sec									
			Input Speed	>=	400	Sec									
			If Fail Timer has Expired then Increment Fail Counter									>=	2	Fail Counts	
			Fail Case 3 Current range	=	Transition 13 (bit state 0010)	Range	Previous range	≠	CeTRGR_ e_PRNDL _Drive5						
			Engine Torque	>=	-8192	Nm	Previous range	≠	CeTRGR_ e_PRNDL _Drive5						
			Engine Torque	<=	8191.75	Nm	IMS is 7 position configuration	=	0	Boolean					
			If the above conditions are met then, Increment Fail Timer				If the "IMS 7 Position config" = 1 then the "previous range" criteria above must also be satsified when the "current range" = "Transition 13"				>=	0.225	Seconds	
			If Fail Timer has Expired then Increment Fail Counter									>=	15	Fail Counts	
			Fail Case 4 Current range	=	Transition 8 (bit state 0111)	Range	Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8								
			Inhibit bit (see definition)	=	FALSE		Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)								
			Steady State Engine Torque	>=	30	Nm									
			Steady State Engine Torque	<=	8191.75	Nm									
			If the above conditions are met then Increment Fail Timer									>=	0.225	Seconds	
			If the above Condtions have been met, Increment Fail Counter									>=	15	Fail Counts	
			Fail Case 5 Throttle Position Available	=	TRUE	Boolean									
			The following PRNDL sequence events occur in this exact order:												

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction		Enable Conditions		Time Required			Mil Illum.
			PRNDL State	=	Reverse (bit state 1100)	Range								
			PRNDL State	=	Transition 11 (bit state 0100)	Range								
			PRNDL State	=	Neutral (bit state 0101)	Range								
			PRNDL State	=	Transition 11 (bit state 0100)	Range								
			Above sequencing occurs in	<=	1	Sec								
			Then delay timer increments Delay timer	>=	5	sec								
			Range Shift State	=	Range Shift Complete									
			Absolute Attained Gear Slip	<=	50	rpm								
			Attained Gear	<=	Sixth									
			Attained Gear	>=	First									
			Throttle Position	>=	8.000183105	pct								
			Output Speed	>=	200	rpm								
			If the above conditions are met Increment Fail Timer								>=	20	Seconds		
			Fail Case 6 Current range	=	Illegal (bit state 0000 or 1000 or 0001)		A Open Circuit Definition (flag set false if the following conditions are met):								
			and				Current Range	≠	Transition 11 (bit state 0100)						
			A Open Circuit (See Definition)	=	FALSE	Boolean	or								
							Last positive state	≠	Neutral (bit state 0101)						
							or								
							Previous transition state	≠	Transition 8 (bit state 0111)						
							Fail case 5 delay timer	=	0	sec					
			If the above Condtions are met then, Increment Fail timer								>=	6.25	Seconds		
			Fail Case 7 Current PRNDL State	=	PRNDL circuit ABCP = 1101	Range									
			and												
			Previous PRNDL state	=	PRNDL circuit ABCP =1111	Range									
			Input Speed	>=	150	RPM									
			Reverse Trans Ratio	<=	2.678344727	ratio									
			Reverse Trans Ratio	>=	3.081542969	ratio									
			If the above Condtions are met then, Increment Fail timer								>=	6.25	Seconds		
			P182E will report test fail when any of the above 7 fail cases are met												
							Ignition Voltage Lo	>=	8.5996094	Volts					
							Ignition Voltage Hi	<=	31.990234	Volts					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						Engine Torque Signal Valid	=	TRUE	Boolean				
						Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D						
							ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Tap Up Tap Down Switch (TUTD)	P1876	Tap Up and Down Enable Switch Circuit	Current range	=	Park or Reverse or Neutral — Range State								Special No MIL
			TUTD Enable Switch is Active	=	TRUE — Boolean					>=	3	Fail Time (Sec)	
										>=	5	Fail Counts	
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.990234	Volts				
						Vehicle Speed Lo	<=	511	KPH				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						P1876 Status is	≠	Test Failed This Key On or Fault Active					
						Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0815, P0816, P0826, P1761, P1825, P1877, P1915, U0100						
							ECM: None						
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers)	=	TRUE — Boolean								One Trip
			Primary Oncoming Clutch Pressure Command Status	=	Maximum pressurized								
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command								
			Range Shift Status	≠	Initial Clutch Control								
			Attained Gear Slip	<=	40 — RPM								
			If above coditons are true, increment appropriate Fail 1 Timers Below:										

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			fail timer 1 (2-1 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (2-1 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (2-3 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (2-3 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (2-4 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (2-4 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (6-4 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (6-4 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (6-5 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (6-5 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers								Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	>=	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter											
			2nd gear fail counter								Fail Counter From 2nd Gear OR	>=	3	
			6th gear fail counter								Fail Counter From 6th Gear OR	>=	3	
			total fail counter								Total Fail Counter	>=	5	
							TUT Enable temperature	>=	-6.65625	ºC				
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault	=	FALSE	Boolean				
							Command / Attained Gear	≠	1st	Boolean				
							High Side Driver ON	=	TRUE	Boolean				
							output speed limit for TUT	>=	100	RPM				
							input speed limit for TUT	>=	200	RPM				
							PRNDL state defaulted	=	FALSE	Boolean				
							IMS Fault Pending	=	FALSE	Boolean				
							Service Fast Learn Mode	=	FALSE	Boolean				
							HSD Enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip >= 400 RPM If the Above is True for Time >= Table Based Time Please Refer to Table 4 in supporting documents Intrusive test: (CBR1 clutch exhausted) Gear Ratio <= 3.015991211 Gear Ratio >= 2.728027344 If the above parameters are true			>= 1.1 Fail Timer (Sec) >= 5 Fail Count in 1st Gear or >= 5 Total Fail Counts	One Trip
			Fail Case 2 Case: Steady State 3rd Gear Max Delta Output Speed Hysteresis >= Table Based value Please Refer to Table 22 in supporting documents rpm/sec Min Delta Output Speed Hysteresis >= Table Based value Please Refer to Table 23 in supporting documents rpm/sec If the Above is True for Time >= Table Based Time Please Refer to Table 17 in supporting documents Sec Intrusive test: (C35R clutch exhausted) Gear Ratio <= 3.015991211 Gear Ratio >= 2.728027344 If the above parameters are true			>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 3rd Gear	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
							>=	5	or Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gear							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec						
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec						
			Intrusive test: (C1234 clutch exhausted)							
			Gear Ratio	<= 0.779052734						
			Gear Ratio	>= 0.704956055						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 4th Gear or	
							>=	5	Total Fail Counts	
			Fail Case 4 Case: Steady State 5th Gear							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec						
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec						
			Intrusive test: (C35R clutch exhausted)							
			Gear Ratio	<= 0.779052734						
			Gear Ratio	>= 0.704956055						
			If the above parameters are true							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 5th Gear or	
									>=	5	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	36	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					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 allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct				
					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 present	=	TRUE					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean								One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized								
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Range Shift Status	≠	Initial Clutch Control								
			Attained Gear Slip	<=	40 RPM								
			If the above conditions are true increment appropriate Fail 1 Timers Below:										
			fail timer 1 (2-6 shifting with throttle)	>=	0.5 sec								
			fail timer 1 (2-6 shifting without throttle)	>=	0.5 sec								
			fail timer 1 (3-5 shifting with throttle)	>=	0.5 sec								
			fail timer 1 (3-5 shifting without throttle)	>=	0.5 sec								
			fail timer 1 (4-5 shifting with throttle)	>=	0.5 sec								
			fail timer 1 (4-5 shifting without throttle)	>=	0.5 sec								
			fail timer 1 (4-6 shifting with throttle)	>=	0.5 sec								
			fail timer 1 (4-6 shifting without throttle)	>=	0.5 sec								
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers							>=	Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter										
			2nd gear fail counter							>=	3	Fail Counter From 2nd Gear	
			3rd gear fail counter							>=	3	Fail Counter From 3rd Gear	
			4th gear fail counter							>=	3	Fail Counter From 4th Gear	
			total fail counter							>=	5	Total Fail Counter	
						TUT Enable temperature	>=	-6.65625	ºC				
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault	=	FALSE	Boolean				
						Command / Attained Gear	≠	1st	Boolean				
						High Side Driver ON	=	TRUE	Boolean				
						output speed limit for TUT	>=	100	RPM				
						input speed limit for TUT	>=	200	RPM				
						PRNDL state defaulted	=	FALSE	Boolean				
						IMS Fault Pending	=	FALSE	Boolean				
						Service Fast Learn Mode	=	FALSE	Boolean				
						HSD Enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear Max Delta Output Speed Hysteresis >= Min Delta Output Speed Hysteresis >= If the Above is True for Time >= Intrusive test: (C35R clutch exhausted) Gear Ratio <= 1.484985352 Gear Ratio >= 1.343017578 If the above parameters are true	Table Based value Please Refer to Table 22 in supporting documents rpm/sec Table Based value Please Refer to Table 23 in supporting documents rpm/sec Table Based Time Please Refer to Table 17 in supporting documents Sec			>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 5th Gear OR >= 3 Total Fail Counts	One Trip
			Fail Case 2 Case: 6th Gear Max Delta Output Speed Hysteresis >= Min Delta Output Speed Hysteresis >=	Table Based value Please Refer to Table 22 in supporting documents rpm/sec Table Based value Please Refer to Table 23 in supporting documents				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			If the Above is True for Time	Table Based Time Please Refer to Table 17 in supporting documents Sec								
			Intrusive test: (CB26 clutch exhausted)									
			Gear Ratio	<= 1.484985352								
			Gear Ratio	>= 1.343017578								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear OR	
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	36	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					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 allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct				
					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	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1													One Trip
				Substrate Temperature	>=	142.1016	°C						>=	5	Fail Time (Sec)	
			Fail Case 2	Substrate Temperature	>=	50	°C						>=	2	Fail Time (Sec)	
				Ignition Voltage	>=	18	Volts									
			Note: either fail case can set the DTC													
									Ignition Voltage Lo	>=	8.59961	Volts				
									Ignition Voltage Hi	<=	31.99902	Volts				
									Substrate Temp Lo	>=	0	°C				
									Substrate Temp Hi	<=	170	°C				
									Substrate Temp Between Temp Range for Time	>=	0.25	Sec				
									P0634 Status is	≠	Test Failed This Key On or Fault Active					
						Disable Conditions:			MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops		>=	900	RPM						>=	0.8	Fail Time (Sec)	One Trip
									Engine Torque is	>=	0	N*m				
									Engine Torque is	<=	8191.88	N*m				
									Engine Speed	>=	400	RPM				
									Engine Speed	<=	7500	RPM				
									Engine Speed is within the allowable limits for	>=	5	Sec				
									Vehicle Speed is	>=	10	Kph				
									Throttle Position is	>=	0	Pct				

									Transmission Input Speed is	>=	0	RPM				
									The previous requirement has been satisfied for	>=	0	Sec				

									The change (loop to loop) in transmission input speed is	<	8191.88	RPM/Loop				
									The previous requirement has been satisfied for	>=	0	Sec				
									Throttle Position Signal Valid	=	TRUE	Boolean				
									Engine Torque Signal Valid	=	TRUE	Boolean				
									Ignition Voltage	>=	8.59961	Volts				
									Ignition Voltage	<=	31.99902	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
								P0716 Status is not	=	Test Failed This Key On or Fault Active					
				Disable Conditions:				MIL not Illuminated for DTC's:	TCM: P0717, P0752, P0973, P0974 ECM: P0101, P0102, P0103, P0121, P0122, P0123						
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is		<	33	RPM					>=	4.5	Fail Time (Sec)	One Trip
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is		<	653.13	RPM	Controller uses a single power supply for the speed sensors	=	1	Boolean				
								Engine Torque is	>=	80	N*m				
								Engine Torque is	<=	8191.88	N*m				
								Vehicle Speed	>=	10	Kph				
								Engine Torque Signal Valid	=	TRUE	Boolean				
								Ignition Voltage	>=	8.59961	Volts				
								Ignition Voltage	<=	31.99902	Volts				
								Engine Speed	>=	400	RPM				
								Engine Speed	<=	7500	RPM				
								Engine Speed is within the allowable limits for	>=	5	Sec				
								P0717 Status is not	=	Test Failed This Key On or Fault Active					
				Disable Conditions:				MIL not Illuminated for DTC's:	TCM: P0722, P0723 ECM: P0101, P0102, P0103						
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed		<=	35	RPM					>=	4.5	Fail Time (Sec)	One Trip
								P0722 Status is not	=	Test Failed This Key On or Fault Active					
								Transmission Input Speed Check	=	TRUE	Boolean				
								Engine Torque Check	=	TRUE	Boolean				
								Throttle Position	>=	8.0002	Pct				
								Transmission Fluid Temperature	>=	-40	ºC				
								Disable this DTC if the PTO is active	=	1	Boolean				
								Engine Torque Signal Valid	=	TRUE	Boolean				
								Throttle Position Signal Valid	=	TRUE	Boolean				
								Ignition Voltage is	>=	8.59961	Volts				
								Ignition Voltage is	<=	31.99902	Volts				
								Engine Speed is	>=	400	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction		Enable Conditions		Time Required			Mil Illum.
							Engine Speed is Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				
							Enable_Flags Defined Below The Engine Torque Check is TRUE, if either of the two following conditions are TRUE Engine Torque Condition 1 Range Shift Status	≠	Range shift completed	ENUM				
							OR Transmission Range is	=	Park or Neutral					
							Engine Torque is Engine Torque is	>= <=	8191.75 8191.75	N*m N*m				
							Engine Torque Condition 2 Engine Torque is Engine Torque is ---------------------	>= <=	50 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	>= <=	653.13 5350	RPM RPM				
							TIS Check Condition 2 Engine Speed without the brake applied is Engine Speed with the brake applied is Engine Speed is Controller uses a single power supply for the speed sensors Powertrain Brake Pedal is Valid	>= >= <= = =	3200 3200 8191.88 1 TRUE	RPM RPM RPM Boolean Boolean				
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0723 ECM: P0101, P0102, P0103, P0121, P0122, P0123						
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>=	105	RPM					>=	0	Enable Time (Sec)	One Trip
			Output Speed Delta	<=	8192	RPM					>=	0	Enable Time (Sec)	
			Output Speed Drop	>	650	RPM					>=	1.5	Output Speed Drop Recovery Fail Time (Sec)	
			AND											

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
			Transmission Range is =	Driven range (R,D)					
					--------------------- Range_Disable OR	=	FALSE See Below		
					--------------------- Neutral_Range_Enable And	=	TRUE See Below		
					Neutral_Speed_Enable are TRUE concurrently ---------------------	=	TRUE See Below		
					Transmission_Range_Enable	=	TRUE See Below		
					Transmission_Input_Speed_Enable	=	TRUE See Below		
					No Change in Transfer Case Range (High <-> Low) for	>=	5 Seconds		
					P0723 Status is not	=	Test Failed This Key On or Fault Active		
					Disable this DTC if the PTO is active	=	1 Boolean		
					Ignition Voltage is	>=	8.59961 Volts		
					Ignition Voltage is	<=	31.99902 Volts		
					Engine Speed is	>=	400 RPM		
					Engine Speed is	<=	7500 RPM		
					Engine Speed is within the allowable limits for	>=	5 Sec		
					Enable_Flags Defined Below				
					Transmission_Input_Speed_Enable is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:				
					TIS Condition 1 is TRUE when both of the following conditions are satsified for	>=	0 Enable Time (Sec)		
					Input Speed Delta	<=	4095.88 RPM		
					Raw Input Speed	>=	500 RPM		
					TIS Condition 2 is TRUE when ALL of the next two conditions are satisfied				
					Input Speed	=	0 RPM		
					A Single Power Supply is used for all speed sensors ---------------------	=	TRUE Boolean		
					Neutral_Range_Enable is TRUE when any of the next 3 conditions are TRUE				
					Transmission Range is	=	Neutral ENUM		
					Transmission Range is	=	Reverse/Neutral Transitonal ENUM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					Transmission Range is	=	Neutral/Drive Transitional	ENUM		
					And when a drop occurs Loop to Loop Drop of Transmission Output Speed is --------------------	>	650	RPM		
					Range_Disable is TRUE when any of the next three conditions are TRUE Transmission Range is	=	Park	ENUM		
					Transmission Range is	=	Park/Reverse Transitonal	ENUM		
					Input Clutch is not --------------------	=	ON (Fully Applied)	ENUM		
					Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified for	>	1.5	Seconds		
					Transmission Output Speed	>	130	RPM		
					The loop to loop change of the Transmission Output Speed is	<	20	RPM		
					The loop to loop change of the Transmission Output Speed is --------------------	>	-10	RPM		
					Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE Transmission Range is	=	Neutral	ENUM		
					Transmission Range is	=	Reverse/Neutral Transitional	ENUM		
					Transmission Range is	=	Neutral/Drive Transitional	ENUM		
					Time since a driven range (R,D) has been selected	>=	Table Based Time Please Refer to Table 21 in supporting documents	Sec		
					Transmission Output Speed Sensor Raw Speed	>=	500	RPM		
					Output Speed when a fault was detected	>=	500	RPM		

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: P0973, P0974, P0976, P0977					
								ECM: P0101, P0102, P0103, P0121, P0122, P0123					
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure	>=	750	Kpa					>=	2	Enable Time (Sec)	Two Trips
			Either Condition (A) or (B) Must be Met											
			(A) TCC Slip Error @ TCC On Mode	>=	Refer to Table 1 in Supporting Documents	RPM					>=	5	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode	>=	130	RPM					>=	5	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter								>=	2	TCC Stuck Off Fail Counter	
							TCC Mode	=	On or Lock				
							Ignition Voltage Lo	>=	8.59961	Volts			
							Ignition Voltage Hi	<=	31.99902	Volts			
							Engine Speed	>=	400	RPM			
							Engine Speed	<=	7500	RPM			
							Engine Speed is within the allowable limits for	>=	5	Sec			
							Engine Torque Lo	>=	50	N*m			
							Engine Torque Hi	<=	8191.88	N*m			
							Throttle Position Lo	>=	8.0002	Pct			
							Throttle Position Hi	<=	99.9985	Pct			
							2nd Gear Ratio Lo	>=	2.19482	Ratio			
							2nd Gear Ratio High	<=	2.52515	Ratio			
							3rd Gear Ratio Lo	>=	1.42285	Ratio			
							3rd Gear Ratio High	<=	1.63708	Ratio			
							4th Gear Ratio Lo	>=	1.06946	Ratio			
							4th Gear Ratio High	<=	1.23047	Ratio			
							5th Gear Ratio Lo	>=	0.79053	Ratio			
							5th Gear Ratio Hi	<=	0.90955	Ratio			
							6th Gear Ratio Lo	>=	0.62305	Ratio			
							6th Gear Ratio High	<=	0.71692	Ratio			
							Transmission Fluid Temperature Lo	>=	-6.6563	ºC			
							Transmission Fluid Temperature Hi	<=	130	ºC			
							PTO Not Active	=	TRUE	Boolean			
							Engine Torque Signal Valid	=	TRUE	Boolean			
							Throttle Position Signal Valid	=	TRUE	Boolean			
							Dynamic Mode	=	FALSE	Boolean			
							P0741 Status is	≠	Test Failed This Key On or Fault Active				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0742, P2763, P2764						
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>=	-50	RPM								One Trip
			TCC Slip Speed	<=	13	RPM								
											>=	1.5	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter								>=	6	Fail Counter	
							TCC Mode	=	Off					
							Enable test if Cmnd Gear = 1stFW and value true	=	1	Boolean				
							Enable test if Cmnd Gear = 2nd and value true	=	0	Boolean				
							Engine Speed Hi	<=	6000	RPM				
							Engine Speed Lo	>=	500	RPM				
							Vehicle Speed HI	<=	511	KPH				
							Vehicle Speed Lo	>=	1	KPH				
							Engine Torque Hi	<=	8191.88	Nm				
							Engine Torque Lo	>=	80	Nm				
							Current Range	≠	Neutral	Range				
							Current Range	≠	Reverse	Range				
							Transmission Sump Temperature	<=	130	ºC				
							Transmission Sump Temperature	>=	18	ºC				
							Throttle Position Hyst High AND	>=	5.0003	Pct				
							Max Vehicle Speed to Meet Throttle Enable	<=	8	KPH				
							Once Hyst High has been met, the enable will remain while Throttle Position	>=	2.0004	Pct				
							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 value false	=	0	Boolean				
							RVT Diagnostic Active	=	FALSE	Boolean				
							Ignition Voltage	>=	8.59961	V				
							Ignition Voltage	<=	31.99902	V				
							Vehicle Speed	<=	511	KPH				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required			Mil Illum.
					Engine Speed	>=	400 RPM				
					Engine Speed	<=	7500 RPM				
					Engine Speed is within the allowable limits for	>=	5 Sec				
					Engine Torque Signal Valid	=	TRUE Boolean				
					Throttle Position Signal Valid	=	TRUE Boolean				
					P0742 Status is	≠	Test Failed This Key On or Fault Active				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0741, P2763, P2764					
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E					
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commanded Gear Slip	>= 400 RPM							Two Trips
			Commanded Gear	= 1st Lock rpm							
			Gear Ratio	<= 1.20959				>=	0.2	Fail Tmr	
			Gear Ratio	>= 1.09436				=	5	Fail Counts	
			If the above parameters are true					≠	0	Neutral Timer (Sec)	
								>=	0.3	Fail Timer (Sec)	
								>=	8	Counts	
					Ignition Voltage Lo	>=	8.59961 Volts				
					Ignition Voltage Hi	<=	31.99902 Volts				
					Engine Speed Lo	>=	400 RPM				
					Engine Speed Hi	<=	7500 RPM				
					Engine Speed is within the allowable limits for	>=	5 Sec				
					Transmission Fluid Temperature	>=	-6.6563 °C				
					Range Shift State	=	Range Shift Completed ENUM				
					TPS OR	>=	0.5005 %				
					Output Speed	>=	67 RPM				
					Throttle Position Signal Valid from ECM	=	TRUE Boolean				
					Engine Torque Signal Valid from ECM, High side driver is enabled	=	TRUE Boolean				
					High-Side Driver is Enabled	=	TRUE Boolean				
					Input Speed Sensor fault	=	FALSE Boolean				
					Output Speed Sensor fault	=	FALSE Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
							Default Gear Option is not present	=	TRUE				
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E					
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E					
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>=	400	RPM							One Trip
			Commanded Gear	=	3rd	Gear							
			Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On	=	TRUE	Boolean					Please Refer to Table 16 in Supporting Documents	>= Neutral Timer (Sec)	
			If the above parameters are true										
			Command 4th Gear once Output Shaft Speed	<=	400	RPM							
			If Gear Ratio	>=	3.82568						>= 1.5	Fail Timer (Sec)	
			And Gear Ratio	<=	4.22839						>= 5	Counts	
							Ignition Voltage Lo	>=	8.59961	Volts			
							Ignition Voltage Hi	<=	31.99902	Volts			
							Engine Speed Lo	>=	400	RPM			
							Engine Speed Hi	<=	7500	RPM			
							Engine Speed is within the allowable limits for	>=	5	Sec			
							High-Side Driver is Enabled	=	TRUE	Boolean			
							Throttle Position Signal Valid from ECM	=	TRUE	Boolean			
							Output Speed	>=	67	RPM			
							OR						
							TPS	>=	0.5005	%			
							Range Shift State	=	Range Shift Completed	ENUM			
							Transmission Fluid Temperature	>=	-6.6563	°C			
							Input Speed Sensor fault	=	FALSE	Boolean			
							Output Speed Sensor fault	=	FALSE	Boolean			
							Default Gear Option is not present	=	TRUE				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gear = 1st Locked Gear Box Slip >= 400 RPM Intrusive Shift to 2nd Commanded Gear Previous = 1st Locked Gear Gear Ratio <= 2.48218 Gear Ratio >= 2.24585 If the above parameters are true				Please Refer to Table 5 in Supporting Documents >= Neutral Timer (Sec) >= 1 sec >= 3 counts	One Trip
					Ignition Voltage Lo >= 8.59961 Volts Ignition Voltage Hi <= 31.99902 Volts Engine Speed Lo >= 400 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec Output Speed >= 67 RPM OR TPS >= 0.5005 % Range Shift State = Range Shift Completed ENUM Transmission Fluid Temperature >= -6.6563 ºC High-Side Driver is Enabled = TRUE Boolean Throttle Position Signal Valid from ECM = TRUE Boolean Input Speed Sensor fault = FALSE Boolean Output Speed Sensor fault = FALSE Boolean Default Gear Option is not present = TRUE			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1 Case: Steady State 3rd Gear										One Trip
			Commanded Gear	=	3rd Gear								
			Gearbox Slip	>=	400 RPM					Please Refer to Table 16 in Supporting Documents	>=	Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed	<=	400 RPM								
			If Gear Ratio	>=	1.09436								
			And Gear Ratio	<=	1.20959								
										>=	3	Fail Timer (Sec)	
			It the above condiations are true, Increment 3rd gear fail counter							>=	3	3rd Gear Fail Counts or	
			and C35R Fail counter							>=	14	3-5R Clutch Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear										
			Commanded Gear	=	5th Gear								
			Gearbox Slip	>=	400 Rpm					Please Refer to Table 5 in Supporting Documents	>=	Neutral Timer (Sec)	
			Intrusive Test: Command 6th Gear										
			If attained Gear=6th gear Time	>=	Please refer to Table 3 in supporting documents Shift Time (Sec)								
			It the above condiations are true, Increment 5th gear fail counter							>=	3	5th Gear Fail Counts or	
			and C35R Fail counter							>=	14	3-5R Clutch Fail Counts	
						PRNDL State defaulted	=	FALSE	Boolean				
						inhibit RVT	=	FALSE	Boolean				
						IMS fault pending indication	=	FALSE	Boolean				
						TPS validity flag	=	TRUE	Boolean				
						Hydraulic System Pressurized	=	TRUE	Boolean				
						Minimum output speed for RVT	>=	67	RPM				
						A OR B							
						(A) Output speed enable	>=	67	RPM				
						(B) Accelerator Pedal enable	>=	0.5005	Pct				
						Common Enable Criteria							
						Ignition Voltage Lo	>=	8.59961	Volts				
						Ignition Voltage Hi	<=	31.99902	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						Throttle Position Signal valid	=	TRUE	Boolean				
						HSD Enabled	=	TRUE	Boolean				
						Transmission Fluid Temperature	>=	-6.6563	ºC				
						Input Speed Sensor fault	=	FALSE	Boolean				

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Output Speed Sensor fault Default Gear Option is not present	= FALSE Boolean = TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip >= If the Above is True for Time >= Intrusive test: (CBR1 clutch exhausted) Gear Ratio <= Gear Ratio >= If the above parameters are true	400 RPM Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec) 1.60864 1.45544			>= 1.1 Fail Timer (Sec) >= 2 Fail Count in 1st Gear or >= 3 Total Fail Counts	One Trip
			Fail Case 2 Case: Steady State 2nd gear Max Delta Output Speed Hysteresis >= Min Delta Output Speed Hysteresis >= If the Above is True for Time >= Intrusive test: (CB26 clutch exhausted) Gear Ratio <= Gear Ratio >=	Table Based value Please Refer to Table 22 in supporting documents rpm/sec Table Based value Please Refer to Table 23 in supporting documents rpm/sec Table Based Time Please Refer to Table 17 in supporting documents Sec 1.60864 1.45544				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 2nd Gear or	
							>= 3 Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C1234 clutch exhausted) Gear Ratio	<= 0.89465				
			Gear Ratio	>= 0.80945				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 4th Gear or	
							>= 3 Total Fail Counts	
			Fail Case 4 Case: Steady State 6th gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required		Mil Illum.
			Intrusive test: (CB26 clutch exhausted)							
			Gear Ratio	<= 0.89465				>= 1.1	Fail Timer (Sec)	
			Gear Ratio	>= 0.80945				>= 3	counts	
			If the above parameters are true							
								>= 1.1	Fail Timer (Sec)	
								>= 3	Fail Count in 6th Gear or	
								>= 3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE Boolean			
					inhibit RVT	=	FALSE Boolean			
					IMS fault pending indication	=	FALSE Boolean			
					output speed	>=	0 RPM			
					TPS validity flag	=	TRUE Boolean			
					HSD Enabled	=	TRUE Boolean			
					Hydraulic_System_Pressurized	=	TRUE Boolean			
					A OR B					
					(A) Output speed enable	>=	67 Nm			
					(B) Accelerator Pedal enable	>=	0.5005 Nm			
					Ignition Voltage Lo	>=	8.59961 Volts			
					Ignition Voltage Hi	<=	31.99902 Volts			
					Engine Speed Lo	>=	400 RPM			
					Engine Speed Hi	<=	7500 RPM			
					Engine Speed is within the allowable limits for	>=	5 Sec			
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003 Pct			
					if Attained Gear=1st FW Engine Torque Enable	>=	5 Nm			
					if Attained Gear=1st FW Engine Torque Enable	<=	8191.88 Nm			
					Transmission Fluid Temperature	>=	-6.6563 ºC			
					Input Speed Sensor fault	=	FALSE Boolean			
					Output Speed Sensor fault	=	FALSE Boolean			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E				
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean						One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command									
			Range Shift Status	≠	Initial Clutch Control									
			Attained Gear Slip	<=	40	RPM								
			If the above conditions are true run appropriate Fail 1 Timers Below:											
			fail timer 1 (3-1 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-2 shifting with Throttle)	>=	0.2998	Fail Time (Sec)								
			fail timer 1 (3-2 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-4 shifting with Throttle)	>=	0.2998	Fail Time (Sec)								
			fail timer 1 (3-4shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-5 shifting with Throttle)	>=	0.2998	Fail Time (Sec)								
			fail timer 1 (3-5 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-3 shifting with Throttle)	>=	0.2998	Fail Time (Sec)								
			fail timer 1 (5-3 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-4 shifting with Throttle)	>=	0.2998	Fail Time (Sec)								
			fail timer 1 (5-4 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-6 shifting with Throttle)	>=	0.2998	Fail Time (Sec)								
			fail timer 1 (5-6 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers								Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	>=	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter											
			3rd gear fail counter									>=	3	3rd gear fail counts OR
			5th gear fail counter									>=	3	5th gear fail counts OR
			Total fail counter									>=	5	total fail counts
							TUT Enable temperature	>=	-6.6563	°C				
							Input Speed Sensor fault	=	FALSE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 150 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear					One Trip
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear					
			If attained Gear ≠5th for time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 4th Gear Fail Counter				>= 3 4th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear					
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 6th gear					
			If attained Gear ≠ 6th for time	>= Please Refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 5th Gear Fail Counter				>= 3 5th Gear Fail Count OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gear					
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear					
			If attained Gear ≠ 5th for time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met Increment 6th Gear Fail Counter and C456 Fail Counter				>= 3 6th Gear Fail Count OR	
			and C456 Fail Counter				>= 14 C456 Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for RVT	>= 67 RPM		
					A OR B			
					(A) Output speed enable	>= 67 RPM		
					(B) Accelerator Pedal enable	>= 0.5005 Pct		
					Common Enable Criteria			
					Ignition Voltage Lo	>= 8.59961 Volts		
					Ignition Voltage Hi	<= 31.99902 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Throttle Position Signal valid	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Transmission Fluid Temperature	>= -6.6563 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					OutputSpeed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st							One Trip
			Attained Gear slip	>= 400 RPM						
			If the Above is True for Time	>= Table Based Time Please Refer to Table 4 in supporting documents	Enable Time (Sec)					
			Intrusive test: (CBR1 clutch exhausted)							
			Gear Ratio	<= 1.20959						
			Gear Ratio	>= 1.09436						
			If the above parameters are true							
							>= 1.1	Fail Timer (Sec)		
							>= 2	Fail Count in 1st Gear or		
							>= 3	Total Fail Counts		
			Fail Case 2 Case Steady State 2nd							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents	rpm/sec					
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents	rpm/sec					
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents	Sec					
			Intrusive test: (CB26 clutch exhausted)							
			Gear Ratio	<= 1.20959						
			Gear Ratio	>= 1.09436						
			If the above parameters are true							
							>= 1.1	Fail Timer (Sec)		
							>= 3	Fail Count in 2nd Gear or		
							>= 3	Total fail counts		
			Fail Case 3 Case Steady State 3rd							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents	rpm/sec					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Min Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 23 in supporting documents rpm/sec								
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 17 in supporting documents Sec								
			Intrusive test: (C35R clutch exhausted)										
			Gear Ratio	<=	1.20959								
			Gear Ratio	>=	1.09436								
			If the above parameters are true							>=	1.1	Fail Timer (Sec)	
										>=	3	Fail Count in 3rd Gear	
											OR		
										>=	3	Total Fail Counts	
						PRNDL State defaulted	=	FALSE	Boolean				
						inhibit RVT	=	FALSE	Boolean				
						IMS fault pending indication	=	FALSE	Boolean				
						output speed	>=	0	RPM				
						TPS validity flag	=	TRUE	Boolean				
						HSD Enabled	=	TRUE	Boolean				
						Hydraulic_System_Pressurized	=	TRUE	Boolean				
						A OR B							
						(A) Output speed enable	>=	67	Nm				
						(B) Accelerator Pedal enable	>=	0.5005	Nm				
						Ignition Voltage Lo	>=	8.59961	Volts				
						Ignition Voltage Hi	<=	31.99902	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003	Pct				
						if Attained Gear=1st FW Engine Torque Enable	>=	5	Nm				
						if Attained Gear=1st FW Engine Torque Enable	<=	8191.88	Nm				
						Transmission Fluid Temperature	>=	-6.6563	ºC				
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault	=	FALSE	Boolean				
						Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
							ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 11 in Supporting Documents for Exhaust Delay Timers)	= TRUE	Boolean				One Trip
			Primary Oncoming Clutch Pressure Command Status	=	Maximum pressurized				
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command				
			Range Shift Status	≠	Initial Clutch Control				
			Attained Gear Slip	<= 40	RPM				
			If the above conditions are true increment appropriate Fail 1 Timers Below:						
			fail timer 1 (4-1 shifting with throttle)	>= 0.2998	Fail Time (Sec)				
			fail timer 1 (4-1 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (4-2 shifting with throttle)	>= 0.2998	Fail Time (Sec)				
			fail timer 1 (4-2 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (4-3 shifting with throttle)	>= 0.2998	Fail Time (Sec)				
			fail timer 1 (4-3 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (5-3 shifting with throttle)	>= 0.2998	Fail Time (Sec)				
			fail timer 1 (5-3 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (6-2 shifting with throttle)	>= 0.2998	Fail Time (Sec)				
			fail timer 1 (6-2 shifting without throttle)	>= 0.5	Fail Time (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 sec Reference 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				>= 3 Fail Counter From 4th Gear OR	
			5th gear fail counter				>= 3 Fail Counter From 5th Gear OR	
			6th gear fail counter				>= 3 Fail Counter From 6th Gear OR	
			Total fail counter				>= 5 Total Fail Counter	
					TUT Enable temperature >= -6.6563 ºC			
					Input Speed Sensor fault = FALSE Boolean			
					Output Speed Sensor fault = FALSE Boolean			
					Command / Attained Gear ≠ 1st Boolean			
					High Side Driver ON = TRUE Boolean			
					output speed limit for TUT >= 100 RPM			
					input speed limit for TUT >= 150 RPM			
					PRNDL state defaulted = FALSE Boolean			
					IMS Fault Pending = FALSE Boolean			
					Service Fast Learn Mode = FALSE Boolean			
					HSD Enabled = TRUE Boolean			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1 Current range = Previous range ≠ Previous range ≠	Transition 1 (bit state Range 1110) CeTRGR_e_PRNDL_Drive6 Range CeTRGR_e_PRNDL_Drive5 Range				One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Range Shift State	=	Range Shift Completed	ENUM								
			Absolute Attained Gear Slip	<=	50	rpm								
			Attained Gear	<=	Sixth									
			Attained Gear	>=	First									
			Throttle Position Available	=	TRUE									
			Throttle Position	>=	8.0002	pct								
			Output Speed	>=	200	rpm								
			Engine Torque	>=	50	Nm								
			Engine Torque	<=	8191.75	Nm								
			If the above conditions are met then Increment Fail Timer								>=	1	Fail Seconds		
			If Fail Timer has Expired then Increment Fail Counter								>=	5	Fail Counts		
			Fail Case 2												
			Output Speed	<=	70	rpm								
			The following PRNDL sequence events occur in this exact order:												
			PRNDL state	=	Drive 6 (bit state 0110)	Range								
			PRNDL state = Drive 6 for	>=	1	Sec								
			PRNDL state	=	Transition 8 (bit state 0111)	Range								
			PRNDL state	=	Drive 6 (bit state 0110)	Range								
			PRNDL state	=	Transition 1 (bit state 1110)	Range								
			Above sequencing occurs in	<=	1	Sec								
			Neutral Idle Mode	=	Inactive									
			If all conditions above are met Increment delay Timer												
			If the below two conditions are met Increment Fail Timer								>=	3	Fail Seconds		
			delay timer	>=	1	Sec								
			Input Speed	>=	400	Sec								
			If Fail Timer has Expired then Increment Fail Counter								>=	2	Fail Counts		
			Fail Case 3												
			Current range	=	Transition 13 (bit state 0010)	Range	Previous range	≠	CeTRGR_ e_PRNDL _Drive5					
			Engine Torque	>=	-8192	Nm	Previous range	≠	CeTRGR_ e_PRNDL _Drive5					
			Engine Torque	<=	8191.75	Nm	IMS is 7 position configuration	=	0	Boolean				
			If the above conditions are met then, Increment Fail Timer					If the "IMS 7 Position config" = 1 then the "previous range" criteria above must also be satsified when the "current range" = "Transition 13"				>=	0.225	Seconds		
			If Fail Timer has Expired then Increment Fail Counter									>=	15	Fail Counts		
			Fail Case 4												
			Current range	=	Transition 8 (bit state 0111)	Range	Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions		Time Required			Mil Illum.
			Inhibit bit (see definition)	=	FALSE		Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)						
			Steady State Engine Torque	>=	100	Nm							
			Steady State Engine Torque	<=	8191.75	Nm							
			If the above conditions are met then Increment Fail Timer							>=	0.225	Seconds	
			If the above Condtions have been met, Increment Fail Counter							>=	15	Fail Counts	
			Fail Case 5 Throttle Position Available	=	TRUE	Boolean							
			The following PRNDL sequence events occur in this exact order:										
			PRNDL State	=	Reverse (bit state 1100)	Range							
			PRNDL State	=	Transition 11 (bit state 0100)	Range							
			PRNDL State	=	Neutral (bit state 0101)	Range							
			PRNDL State	=	Transition 11 (bit state 0100)	Range							
			Above sequencing occurs in	<=	1	Sec							
			Then delay timer increments Delay timer	>=	5	sec							
			Range Shift State	=	Range Shift Complete								
			Absolute Attained Gear Slip	<=	50	rpm							
			Attained Gear	<=	Sixth								
			Attained Gear	>=	First								
			Throttle Position	>=	8.0002	pct							
			Output Speed	>=	200	rpm							
			If the above conditions are met Increment Fail Timer							>=	20	Seconds	
			Fail Case 6 Current range	=	Illegal (bit state 0000 or 1000 or 0001)		A Open Circuit Definition (flag set false if the following conditions are met):						
			and										
			A Open Circuit (See Definition)	=	FALSE	Boolean		Current Range	≠	Transition 11 (bit state 0100)				
							or							
							Last positive state	≠	Neutral (bit state 0101)				
							or							
							Previous transition state	≠	Transition 8 (bit state 0111)				
							Fail case 5 delay timer	=	0	sec			
			If the above Condtions are met then, Increment Fail timer							>=	6.25	Seconds	
			Fail Case 7 Current PRNDL State	=	PRNDL circuit ABCP = 1101	Range							
			and										

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions		Time Required		Mil Illum.
			Previous PRNDL state	=	PRNDL circuit ABCP =1111 Range						
			Input Speed	>=	150 RPM						
			Reverse Trans Ratio	<=	2.97595 ratio						
			Reverse Trans Ratio	>=	3.42395 ratio						
			If the above Condtions are met then, Increment Fail timer						>= 6.25	Seconds	
			P182E will report test fail when any of the above 7 fail cases are met								
						Ignition Voltage Lo	>=	8.59961 Volts			
						Ignition Voltage Hi	<=	31.99902 Volts			
						Engine Speed Lo	>=	400 RPM			
						Engine Speed Hi	<=	7500 RPM			
						Engine Speed is within the allowable limits for	>=	5 Sec			
						Engine Torque Signal Valid	=	TRUE Boolean			
						Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D				
							ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers)	=	TRUE Boolean						One Trip
			Primary Oncoming Clutch Pressure Command Status	=	Maximum pressurized						
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command						
			Range Shift Status	≠	Initial Clutch Control						
			Attained Gear Slip	<=	40 RPM						
			If above coditons are true, increment appropriate Fail 1 Timers Below:								
			fail timer 1 (2-1 shifting with throttle)	>=	0.2998 Fail Time (Sec)						
			fail timer 1 (2-1 shifting without throttle)	>=	0.5 Fail Time (Sec)						
			fail timer 1 (2-3 shifting with throttle)	>=	0.2998 Fail Time (Sec)						
			fail timer 1 (2-3 shifting without throttle)	>=	0.5 Fail Time (Sec)						
			fail timer 1 (2-4 shifting with throttle)	>=	0.2998 Fail Time (Sec)						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
			fail timer 1 (2-4 shifting without throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (6-4 shifting with throttle)	>=	0.2998	Fail Time (Sec)							
			fail timer 1 (6-4 shifting without throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (6-5 shifting with throttle)	>=	0.2998	Fail Time (Sec)							
			fail timer 1 (6-5 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 sec Reference Supporting Table 15 for Fail Timer 2		
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter										
			2nd gear fail counter								>=	3	Fail Counter From 2nd Gear OR
			6th gear fail counter								>=	3	Fail Counter From 6th Gear OR
			total fail counter								>=	5	Total Fail Counter
							TUT Enable temperature	>=	-6.6563	°C			
							Input Speed Sensor fault	=	FALSE	Boolean			
							Output Speed Sensor fault	=	FALSE	Boolean			
							Command / Attained Gear	≠	1st	Boolean			
							High Side Driver ON	=	TRUE	Boolean			
							output speed limit for TUT	>=	100	RPM			
							input speed limit for TUT	>=	150	RPM			
							PRNDL state defaulted	=	FALSE	Boolean			
							IMS Fault Pending	=	FALSE	Boolean			
							Service Fast Learn Mode	=	FALSE	Boolean			
							HSD Enabled	=	TRUE	Boolean			
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E					
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E					
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st										One Trip
			Attained Gear slip	>=	400	RPM							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 4 in supporting documents	Enable Time (Sec)					
			Intrusive test: (CBR1 clutch exhausted)								
			Gear Ratio	<=	2.48218						
			Gear Ratio	>=	2.24585						
			If the above parameters are true								
								>=	1.1	Fail Timer (Sec)	
								>=	5	Fail Count in 1st Gear	
										or	
								>=	5	Total Fail Counts	
			Fail Case 2 Case: Steady State 3rd Gear								
			Max Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 22 in supporting documents	rpm/sec					
			Min Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 23 in supporting documents	rpm/sec					
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 17 in supporting documents	Sec					
			Intrusive test: (C35R clutch exhausted)								
			Gear Ratio	<=	2.48218						
			Gear Ratio	>=	2.24585						
			If the above parameters are true								
								>=	1.1	Fail Timer (Sec)	
								>=	3	Fail Count in 3rd Gear	
										or	
								>=	5	Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gear								
			Max Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 22 in supporting documents	rpm/sec					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C1234 clutch exhausted)					
			Gear Ratio	<= 0.70032				
			Gear Ratio	>= 0.63367				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 4th Gear or	
							>= 5 Total Fail Counts	
			Fail Case 4 Case: Steady State 5th Gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 22 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to Table 23 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 0.70032				
			Gear Ratio	>= 0.63367				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 5th Gear or	
							>= 5 Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					TPS validity flag	=	TRUE Boolean		
					HSD Enabled	=	TRUE Boolean		
					Hydraulic_System_Pressurized	=	TRUE Boolean		
					A OR B				
					(A) Output speed enable	>=	67 Nm		
					(B) Accelerator Pedal enable	>=	0.5005 Nm		
					Ignition Voltage Lo	>=	8.59961 Volts		
					Ignition Voltage Hi	<=	31.99902 Volts		
					Engine Speed Lo	>=	400 RPM		
					Engine Speed Hi	<=	7500 RPM		
					Engine Speed is within the allowable limits for	>=	5 Sec		
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003 Pct		
					if Attained Gear=1st FW Engine Torque Enable	>=	5 Nm		
					if Attained Gear=1st FW Engine Torque Enable	<=	8191.88 Nm		
					Transmission Fluid Temperature	>=	-6.6563 ºC		
					Input Speed Sensor fault	=	FALSE Boolean		
					Output Speed Sensor fault	=	FALSE Boolean		
					Default Gear Option is not present	=	TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E			
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean					One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized					
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command					
			Range Shift Status	≠ Initial Clutch Control					
			Attained Gear Slip	<= 40 RPM					
			If the above conditions are true increment appropriate Fail 1 Timers Below:						
			fail timer 1 (2-6 shifting with throttle)	>= 0.2998 sec					
			fail timer 1 (2-6 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.
			fail timer 1 (3-5 shifting with throttle)	>=	0.2998	sec								
			fail timer 1 (3-5 shifting without throttle)	>=	0.5	sec								
			fail timer 1 (4-5 shifting with throttle)	>=	0.2998	sec								
			fail timer 1 (4-5 shifting without throttle)	>=	0.5	sec								
			fail timer 1 (4-6 shifting with throttle)	>=	0.2998	sec								
			fail timer 1 (4-6 shifting without throttle)	>=	0.5	sec								
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers								>= Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2		sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter											
			2nd gear fail counter								>=	3	Fail Counter From 2nd Gear	
			3rd gear fail counter								>=	3	Fail Counter From 3rd Gear	
			4th gear fail counter								>=	3	Fail Counter From 4th Gear	
			total fail counter								>=	5	Total Fail Counter	
							TUT Enable temperature	>=	-6.6563	°C				
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault	=	FALSE	Boolean				
							Command / Attained Gear	≠	1st	Boolean				
							High Side Driver ON	=	TRUE	Boolean				
							output speed limit for TUT	>=	100	RPM				
							input speed limit for TUT	>=	150	RPM				
							PRNDL state defaulted	=	FALSE	Boolean				
							IMS Fault Pending	=	FALSE	Boolean				
							Service Fast Learn Mode	=	FALSE	Boolean				
							HSD Enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E				
							ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1	Case: 5th Gear							One Trip
			Max Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 22 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 23 in supporting documents rpm/sec						
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 17 in supporting documents Sec						
			Intrusive test: (C35R clutch exhausted)								
			Gear Ratio	<=	1.20959						
			Gear Ratio	>=	1.09436						
			If the above parameters are true					>= 1.1 Fail Timer (Sec)			
								>= 3 Fail Count in 5th Gear OR			
								>= 3 Total Fail Counts			
			Fail Case 2	Case: 6th Gear							
			Max Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 22 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis	>=	Table Based value Please Refer to Table 23 in supporting documents rpm/sec						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			If the Above is True for Time >=	Table Based Time Please Refer to Table 17 in supporting documents Sec								
			Intrusive test: (CB26 clutch exhausted)									
			Gear Ratio <=	1.20959								
			Gear Ratio >=	1.09436								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear OR	
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	67	Nm				
					(B) Accelerator Pedal enable	>=	0.5005	Nm				
					Ignition Voltage Lo	>=	8.59961	Volts				
					Ignition Voltage Hi	<=	31.99902	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003	Pct				
					if Attained Gear=1st FW Engine Torque Enable	>=	5	Nm				
					if Attained Gear=1st FW Engine Torque Enable	<=	8191.88	Nm				
					Transmission Fluid Temperature	>=	-6.6563	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

17 OBDG03 TCM LFX Colorado/Canyon 6 Speed T43 Supporting Tables

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	ºC
Curve	409.59	2.00	2.00	Sec

Table 3

Axis	-6.67	-6.66	40.00	ºC
Curve	409.59	4.00	4.00	Sec

Table 4

Axis	-6.67	-6.66	40.00	ºC
Curve	409.59	2.00	2.00	Sec

Table 5

Axis	-6.67	-6.66	40.00	ºC
Curve	409.59	3.00	3.00	Sec

Table 6

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

Table 9

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

Table 10

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

Table 11

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

Table 12

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

Table 13

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

Table 14

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

Table 15

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

Table 16

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

Table 17

Axis	-6.67	-6.66	40.00	ºC
Curve	0.40	0.35	0.30	Sec

Table 18

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

Table 19

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

Table 20

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

Table 21

Axis	-40.00	-20.00	40.00	ºC
Curve	5.00	3.00	1.00	Sec

Table 22

Axis	-6.67	-6.66	40.00	ºC
Curve	8191.75	8191.75	8191.75	RPM/Sec

Table 23

Axis	-6.67	-6.66	40.00	ºC
Curve	8191.75	8191.75	8191.75	RPM/Sec

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude	<=	3.85	g's								Special No MIL
			Lateral accleration magnitude	>=	0.53	g's								
			Lateral accleration magnitude is within the range above for	>=	120	Sec								
							Lateral accleration magnitude	<=	3.85	g's				
							Lateral accleration magnitude	>=	0.53	g's				
							Lateral accleration magnitude is within the range above for	>=	90	Sec				
							Diagnostic shifting override command	=	FALSE	Boolean				
							Attained Gear State	=	1st through 6th					
							Attained Gear Slip	<=	100	RPM				
							Transmission Type	=	Clutch to Clutch Transmission					
							High Side Driver 1 On	=	TRUE	Boolean				
							Vehicle Speed	>=	15	kph				
							Lateral acceleration stuck in range diagnostic enable	=	TRUE	Boolean				
							Battery Voltage	<=	31.999023	Volts				
							Battery Voltage	>=	9	Volts				
							Battery voltage is within the allowable limits for	>=	0.1	Sec				
							Ignition Voltage	<=	31.999023	Volts				
							Ignition Voltage	>=	9	Volts				
							Service Fast Learn (SFL) Mode	=	FALSE	Boolean				
							Ignition voltage and SFL conditions met for	>=	0.1	Sec				
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: If calibrated to illuminate the MIL (P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073) ECM: None						
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	**Fail Case 1** Substrate Temperature	>=	142.1015625	ºC					>=	5	Fail Time (Sec)	One Trip
			Fail Case 2 Substrate Temperature	>=	50	ºC					>=	2	Fail Time (Sec)	
			Ignition Voltage	>=	18	Volts								
			Note: either fail case can set the DTC											
							Ignition Voltage Lo	>=	8.5996094	Volts				
							Ignition Voltage Hi	<=	31.999023	Volts				
							Substrate Temp Lo	>=	0	ºC				
							Substrate Temp Hi	<=	170	ºC				
							Substrate Temp Between Temp Range for Time	>=	0.25	Sec				

17 OBDG03 TCM Unique Caprice PPV LFX RWD 6 Speed T43 Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
					P0634 Status is	≠	Test Failed This Key On or Fault Active				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None					
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops	>= 900 RPM					>= 0.8 Fail Time (Sec)		One Trip
					Engine Torque is	>=	0	N*m			
					Engine Torque is	<=	8191.875	N*m			
					Engine Speed	>=	400	RPM			
					Engine Speed	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
					Vehicle Speed is	>=	10	Kph			
					Throttle Position is	>=	0	Pct			

					Transmission Input Speed is	>=	0	RPM			
					The previous requirement has been satisfied for	>=	0	Sec			

					The change (loop to loop) in transmission input speed is	<	8191.875	RPM/Loop			
					The previous requirement has been satisfied for	>=	0	Sec			
					Throttle Position Signal Valid	=	TRUE	Boolean			
					Engine Torque Signal Valid	=	TRUE	Boolean			
					Ignition Voltage	>=	8.5996094	Volts			
					Ignition Voltage	<=	31.999023	Volts			
					P0716 Status is not	=	Test Failed This Key On or Fault Active				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0717, P0752, P0973, P0974 ECM: P0101, P0102, P0103, P0121, P0122, P0123					
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	**Fail Case 1** Transmission Input Speed is	< 33 RPM					>= 4.5 Fail Time (Sec)		One Trip
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	< 653.125 RPM	Controller uses a single power supply for the speed sensors	=	1	Boolean			
					Engine Torque is	>=	100	N*m			
					Engine Torque is	<=	8191.875	N*m			
					Vehicle Speed	>=	12	Kph			
					Engine Torque Signal Valid	=	TRUE	Boolean			
					Ignition Voltage	>=	8.5996094	Volts			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Ignition Voltage	<= 31.999023 Volts		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0717 Status is not	= Test Failed This Key On or Fault Active		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, P0723 ECM: P0101, P0102, P0103		
Mode Switch	P071D	Transmission Mode Switch B Circuit	Sport Mode Switch state	= TRUE Boolean			>= 600 Fail Time (Sec)	Special No MIL
					Ignition Voltage Lo	>= 8.5996094 Volts		
					Ignition Voltage Hi	<= 31.999023 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 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			>= 4.5 Fail Time (Sec)	One Trip
					P0722 Status is not	= Test Failed This Key On or Fault Active		
					Transmission Input Speed Check	= TRUE Boolean		
					Engine Torque Check	= TRUE Boolean		
					Throttle Position	>= 8.0001831 Pct		
					Transmission Fluid Temperature	>= -40 ºC		
					Disable this DTC if the PTO is active	= 1 Boolean		
					Engine Torque Signal Valid	= TRUE Boolean		
					Throttle Position Signal Valid	= TRUE Boolean		
					Ignition Voltage is	>= 8.5996094 Volts		
					Ignition Voltage is	<= 31.999023 Volts		
					Engine Speed is	>= 400 RPM		
					Engine Speed is	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Enable_Flags Defined Below The Engine Torque Check is TRUE, if either of the two following conditions are TRUE			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
							Engine Torque Condition 1							
							Range Shift Status	≠	Range shift completed	ENUM				
							OR							
							Transmission Range is	=	Park or Neutral					
							Engine Torque is	>=	8191.75	N*m				
							Engine Torque is	<=	8191.75	N*m				
							Engine Torque Condition 2							
							Engine Torque is	>=	50	N*m				
							Engine Torque is	<=	8191.75	N*m				
							The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE							
							TIS Check Condition 1							
							Transmission Input Speed is	>=	653.125	RPM				
							Transmission Input Speed is	<=	5350	RPM				
							TIS Check Condition 2							
							Engine Speed without the brake applied is	>=	3200	RPM				
							Engine Speed with the brake applied is	>=	3200	RPM				
							Engine Speed is	<=	8191.875	RPM				
							Controller uses a single power supply for the speed sensors	=	1	Boolean				
							Powertrain Brake Pedal is Valid	=	TRUE	Boolean				
							Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0723					
									ECM: P0101, P0102, P0103, P0121, P0122, P0123					
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>=	105	RPM					>=	0	Enable Time (Sec)	One Trip
			Output Speed Delta	<=	8192	RPM					>=	0	Enable Time (Sec)	
			Output Speed Drop	>	650	RPM					>=	1.5	Output Speed Drop Recovery Fail Time (Sec)	
			AND											
			Transmission Range is	=	Driven range (R,D)									
							Range_Disable	=	FALSE	See Below				
							OR							
							Neutral_Range_Enable	=	TRUE	See Below				
							And							
							Neutral_Speed_Enable	=	TRUE	See Below				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					are TRUE concurrently --------------------					
					Transmission_Range_Enable	=	TRUE	See Below		
					Transmission_Input_Speed_Enable	=	TRUE	See Below		
					No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds		
					P0723 Status is not	=	Test Failed This Key On or Fault Active			
					Disable this DTC if the PTO is active	=	1	Boolean		
					Ignition Voltage is	>=	8.5996094	Volts		
					Ignition Voltage is	<=	31.999023	Volts		
					Engine Speed is	>=	400	RPM		
					Engine Speed is	<=	7500	RPM		
					Engine Speed is within the allowable limits for	>=	5	Sec		
					Enable_Flags Defined Below					
					Transmission_Input_Speed_Enable is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:					
					TIS Condition 1 is TRUE when both of the following conditions are satsified for	>=	0	Enable Time (Sec)		
					Input Speed Delta	<=	4095.875	RPM		
					Raw Input Speed	>=	500	RPM		
					TIS Condition 2 is TRUE when ALL of the next two conditions are satisfied					
					Input Speed	=	0	RPM		
					A Single Power Supply is used for all speed sensors --------------------	=	TRUE	Boolean		
					Neutral_Range_Enable is TRUE when any of the next 3 conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
					Transmission Range is	=	Reverse/Neutral Transitonal	ENUM		
					Transmission Range is	=	Neutral/Drive Transitional	ENUM		
					And when a drop occurs Loop to Loop Drop of Transmission Output Speed is --------------------	>	650	RPM		
					Range_Disable is TRUE when any of the next three conditions are TRUE					
					Transmission Range is	=	Park	ENUM		

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

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

					Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE				
					Transmission Range is	=	Neutral Reverse/Neutral ENUM		
					Transmission Range is	=	Transitional ENUM		
					Transmission Range is	=	Neutral/Drive Transitional ENUM		
					Time since a driven range (R,D) has been selected	>=	Table Based Time Please Refer to Table 21 in supporting documents Sec		
					Transmission Output Speed Sensor Raw Speed	>=	500 RPM		
					Output Speed when a fault was detected	>=	500 RPM		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0973, P0974, P0976, P0977			
						ECM: P0101, P0102, P0103, P0121, P0122, P0123			
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure	>= 750 Kpa				>= 2 Enable Time (Sec)	Two Trips
			Either Condition (A) or (B) Must be Met						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			(A) TCC Slip Error @ TCC On Mode	>=	Refer to Table 1 in Supporting Documents	RPM					>=	5	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode	>=	130	RPM					>=	5	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter								>=	2	TCC Stuck Off Fail Counter	
							TCC Mode	=	On or Lock					
							Ignition Voltage Lo	>=	8.5996094	Volts				
							Ignition Voltage Hi	<=	31.999023	Volts				
							Engine Speed	>=	400	RPM				
							Engine Speed	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							Engine Torque Lo	>=	50	N*m				
							Engine Torque Hi	<=	8191.875	N*m				
							Throttle Position Lo	>=	8.0001831	Pct				
							Throttle Position Hi	<=	99.998474	Pct				
							2nd Gear Ratio Lo	>=	2.1948242	Ratio				
							2nd Gear Ratio High	<=	2.5251465	Ratio				
							3rd Gear Ratio Lo	>=	1.4228516	Ratio				
							3rd Gear Ratio High	<=	1.637085	Ratio				
							4th Gear Ratio Lo	>=	1.069458	Ratio				
							4th Gear Ratio High	<=	1.2304688	Ratio				
							5th Gear Ratio Lo	>=	0.7905273	Ratio				
							5th Gear Ratio Hi	<=	0.9095459	Ratio				
							6th Gear Ratio Lo	>=	0.6230469	Ratio				
							6th Gear Ratio High	<=	0.7169189	Ratio				
							Transmission Fluid Temperature Lo	>=	-6.65625	ºC				
							Transmission Fluid Temperature Hi	<=	130	ºC				
							PTO Not Active	=	TRUE	Boolean				
							Engine Torque Signal Valid	=	TRUE	Boolean				
							Throttle Position Signal Valid	=	TRUE	Boolean				
							Dynamic Mode	=	FALSE	Boolean				
							P0741 Status is	≠	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0742, P2763, P2764						
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>=	-50	RPM								One Trip
			TCC Slip Speed	<=	13	RPM					>=	1.5	Fail Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter						>=	6	Fail Counter	
					TCC Mode	=	Off					
					Enable test if Cmnd Gear = 1stFW and value true	=	1	Boolean				
					Enable test if Cmnd Gear = 2nd and value true	=	0	Boolean				
					Engine Speed Hi	<=	6000	RPM				
					Engine Speed Lo	>=	500	RPM				
					Vehicle Speed HI	<=	511	KPH				
					Vehicle Speed Lo	>=	1	KPH				
					Engine Torque Hi	<=	8191.875	Nm				
					Engine Torque Lo	>=	80	Nm				
					Current Range	≠	Neutral	Range				
					Current Range	≠	Reverse	Range				
					Transmission Sump Temperature	<=	130	ºC				
					Transmission Sump Temperature	>=	18	ºC				
					Throttle Position Hyst High AND	>=	5.0003052	Pct				
					Max Vehicle Speed to Meet Throttle Enable	<=	8	KPH				
					Once Hyst High has been met, the enable will remain while Throttle Position	>=	2.0004272	Pct				
					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 value false	=	0	Boolean				
					RVT Diagnostic Active	=	FALSE	Boolean				
					Ignition Voltage	>=	8.5996094	V				
					Ignition Voltage	<=	31.999023	V				
					Vehicle Speed	<=	511	KPH				
					Engine Speed	>=	400	RPM				
					Engine Speed	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Throttle Position Signal Valid	=	TRUE	Boolean				
					P0742 Status is	≠	Test Failed This Key On or Fault Active					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0741, P2763, P2764						
							ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>=	400 RPM								Two Trips
			Commanded Gear	=	1st Lock rpm								
			Gear Ratio	<=	1.209594727					>=	0.2	Fail Tmr	
			Gear Ratio	>=	1.094360352					=	5	Fail Counts	
			If the above parameters are true										
										≠	0	Neutral Timer (Sec)	
										>=	0.3	Fail Timer (Sec)	
										>=	8	Counts	
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.999023	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						Transmission Fluid Temperature	>=	-6.65625	°C				
						Range Shift State	=	Range Shift Completed	ENUM				
						TPS	>=	0.5004883	%				
						OR							
						Output Speed	>=	67	RPM				
						Throttle Position Signal Valid from ECM	=	TRUE	Boolean				
						Engine Torque Signal Valid from ECM, High side driver is enabled	=	TRUE	Boolean				
						High-Side Driver is Enabled	=	TRUE	Boolean				
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault	=	FALSE	Boolean				
						Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
				Disable Conditions:			MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E						
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>=	400	RPM								One Trip
			Commanded Gear	=	3rd	Gear								
			Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On	=	TRUE	Boolean								
			If the above parameters are true								Please Refer to Table 16 in Supporting Documents	>=	Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed	<=	400	RPM								
			If Gear Ratio	>=	3.825683594									
			And Gear Ratio	<=	4.228393555						>=	1.5	Fail Timer (Sec)	
											>=	5	Counts	
							Ignition Voltage Lo	>=	8.5996094	Volts				
							Ignition Voltage Hi	<=	31.999023	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							High-Side Driver is Enabled	=	TRUE	Boolean				
							Throttle Position Signal Valid from ECM	=	TRUE	Boolean				
							Output Speed	>=	67	RPM				
							OR							
							TPS	>=	0.5004883	%				
							Range Shift State	=	Range Shift Completed	ENUM				
							Transmission Fluid Temperature	>=	-6.65625	°C				
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault	=	FALSE	Boolean				
							Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gear = 1st Locked Gear Box Slip >= 400 RPM Intrusive Shift to 2nd Commanded Gear Previous = 1st Locked Gear Gear Ratio <= 2.482177734 Gear Ratio >= 2.245849609 If the above parameters are true				Please Refer to Table 5 in Supporting Documents >= Neutral Timer (Sec) >= 1 sec >= 3 counts	One Trip
					Ignition Voltage Lo >= 8.5996094 Volts Ignition Voltage Hi <= 31.999023 Volts Engine Speed Lo >= 400 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec Output Speed >= 67 RPM OR TPS >= 0.5004883 % Range Shift State = Range Shift Completed ENUM Transmission Fluid Temperature >= -6.65625 °C High-Side Driver is Enabled = TRUE Boolean Throttle Position Signal Valid from ECM = TRUE Boolean Input Speed Sensor fault = FALSE Boolean Output Speed Sensor fault = FALSE Boolean Default Gear Option is not present = TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1	Case: Steady State 3rd Gear												One Trip
				Commanded Gear	=	3rd	Gear								
				Gearbox Slip	>=	400	RPM					>=	Please Refer to Table 16 in Supporting Documents	Neutral Timer (Sec)	
				Command 4th Gear once Output Shaft Speed	<=	400	RPM								
				If Gear Ratio	>=	1.094360352									
				And Gear Ratio	<=	1.209594727									
												>=	3	Fail Timer (Sec)	
				It the above condiations are true, Increment 3rd gear fail counter								>=	3	3rd Gear Fail Counts or	
				and C35R Fail counter								>=	14	3-5R Clutch Fail Counts	
			Fail Case 2	Case: Steady State 5th Gear											
				Commanded Gear	=	5th	Gear								
				Gearbox Slip	>=	400	Rpm					>=	Please Refer to Table 5 in Supporting Documents	Neutral Timer (Sec)	
				Intrusive Test: Command 6th Gear											
				If attained Gear=6th gear Time	>=	Please refer to Table 3 in supporting documents	Shift Time (Sec)								
				It the above condiations are true, Increment 5th gear fail counter								>=	3	5th Gear Fail Counts or	
				and C35R Fail counter								>=	14	3-5R Clutch Fail Counts	
								PRNDL State defaulted	=	FALSE	Boolean				
								inhibit RVT	=	FALSE	Boolean				
								IMS fault pending indication	=	FALSE	Boolean				
								TPS validity flag	=	TRUE	Boolean				
								Hydraulic System Pressurized	=	TRUE	Boolean				
								Minimum output speed for RVT	>=	67	RPM				
								A OR B							
								(A) Output speed enable	>=	67	RPM				
								(B) Accelerator Pedal enable	>=	0.5004883	Pct				
								Common Enable Criteria							
								Ignition Voltage Lo	>=	8.5996094	Volts				
								Ignition Voltage Hi	<=	31.999023	Volts				
								Engine Speed Lo	>=	400	RPM				
								Engine Speed Hi	<=	7500	RPM				
								Engine Speed is within the allowable limits for	>=	5	Sec				
								Throttle Position Signal valid	=	TRUE	Boolean				
								HSD Enabled	=	TRUE	Boolean				
								Transmission Fluid Temperature	>=	-6.65625	ºC				
								Input Speed Sensor fault	=	FALSE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1 Case: Steady State 1st					One Trip
			Attained Gear slip >=	400 RPM				
			If the Above is True for Time >=	Table Based Time Please Refer to Table 4 in supporting documents	Enable Time (Sec)			
			Intrusive test: (CBR1 clutch exhausted)					
			Gear Ratio <=	1.608642578				
			Gear Ratio >=	1.455444336				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)	
							>= 2 Fail Count in 1st Gear	
							or	
							>= 3 Total Fail Counts	
			Fail Case 2 Case: Steady State 2nd gear					
			Max Delta Output Speed Hysteresis >=	Table Based value Please Refer to 3D Table 1 in supporting documents	rpm/sec			
			Min Delta Output Speed Hysteresis >=	Table Based value Please Refer to 3D Table 2 in supporting documents	rpm/sec			
			If the Above is True for Time >=	Table Based Time Please Refer to Table 17 in supporting documents	Sec			
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio <=	1.608642578				
			Gear Ratio >=	1.455444336				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
			If the above parameters are true				>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 2nd Gear or	
							>=	3	Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear							
			Max Delta Output Speed Hysteresis >=	Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis >=	Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec						
			If the Above is True for Time >=	Table Based Time Please Refer to Table 17 in supporting documents Sec						
			Intrusive test: (C1234 clutch exhausted) Gear Ratio <=	0.89465332						
			Gear Ratio >=	0.809448242						
			If the above parameters are true				>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 4th Gear or	
							>=	3	Total Fail Counts	
			Fail Case 4 Case: Steady State 6th gear							
			Max Delta Output Speed Hysteresis >=	Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis >=	Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec						
			If the Above is True for Time >=	Table Based Time Please Refer to Table 17 in supporting documents Sec						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required		Mil Illum.
			Intrusive test: (CB26 clutch exhausted)							
			Gear Ratio	<= 0.89465332				>= 1.1	Fail Timer (Sec)	
			Gear Ratio	>= 0.809448242				>= 3	counts	
			If the above parameters are true							
								>= 1.1	Fail Timer (Sec)	
								>= 3	Fail Count in 6th Gear or	
								>= 3	Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean				
					inhibit RVT	= FALSE Boolean				
					IMS fault pending indication	= FALSE Boolean				
					output speed	>= 0 RPM				
					TPS validity flag	= TRUE Boolean				
					HSD Enabled	= TRUE Boolean				
					Hydraulic_System_Pressurized	= TRUE Boolean				
					A OR B					
					(A) Output speed enable	>= 67 Nm				
					(B) Accelerator Pedal enable	>= 0.5004883 Nm				
					Ignition Voltage Lo	>= 8.5996094 Volts				
					Ignition Voltage Hi	<= 31.999023 Volts				
					Engine Speed Lo	>= 400 RPM				
					Engine Speed Hi	<= 7500 RPM				
					Engine Speed is within the allowable limits for	>= 5 Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>= 5.0003052 Pct				
					if Attained Gear=1st FW Engine Torque Enable	>= 5 Nm				
					if Attained Gear=1st FW Engine Torque Enable	<= 8191.875 Nm				
					Transmission Fluid Temperature	>= -6.65625 ºC				
					Input Speed Sensor fault	= FALSE Boolean				
					Output Speed Sensor fault	= FALSE Boolean				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E				
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean						One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command									
			Range Shift Status	≠	Initial Clutch Control									
			Attained Gear Slip	<=	40	RPM								
			If the above conditions are true run appropriate Fail 1 Timers Below:											
			fail timer 1 (3-1 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-2 shifting with Throttle)	>=	0.299804688	Fail Time (Sec)								
			fail timer 1 (3-2 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-4 shifting with Throttle)	>=	0.299804688	Fail Time (Sec)								
			fail timer 1 (3-4shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-5 shifting with Throttle)	>=	0.299804688	Fail Time (Sec)								
			fail timer 1 (3-5 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-3 shifting with Throttle)	>=	0.299804688	Fail Time (Sec)								
			fail timer 1 (5-3 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-4 shifting with Throttle)	>=	0.299804688	Fail Time (Sec)								
			fail timer 1 (5-4 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-6 shifting with Throttle)	>=	0.299804688	Fail Time (Sec)								
			fail timer 1 (5-6 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers								Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	>=	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter											
			3rd gear fail counter								>=	3	3rd gear fail counts OR	
			5th gear fail counter								>=	3	5th gear fail counts OR	
			Total fail counter								>=	5	total fail counts	
							TUT Enable temperature	>=	-6.65625	°C				
							Input Speed Sensor fault	=	FALSE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required		Mil Illum.
					Output Speed Sensor fault	=	FALSE Boolean			
					Command / Attained Gear	≠	1st Boolean			
					High Side Driver ON	=	TRUE Boolean			
					output speed limit for TUT	>=	100 RPM			
					input speed limit for TUT	>=	150 RPM			
					PRNDL state defaulted	=	FALSE Boolean			
					IMS Fault Pending	=	FALSE Boolean			
					Service Fast Learn Mode	=	FALSE Boolean			
					HSD Enabled	=	TRUE Boolean			
					Default Gear Option is not present	=	TRUE			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E			
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear							One Trip
			Gear slip	>= 400 RPM				>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)		
			Intrusive test: commanded 5th gear							
			If attained Gear ≠5th for time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)						
			if the above conditions have been met							
			Increment 4th Gear Fail Counter					>= 3 4th Gear Fail Count OR		
			and C456 Fail Counters					>= 14 C456 Fail Counts		
			Fail Case 2 Case: Steady State 5th Gear							
			Gear slip	>= 400 RPM				>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)		
			Intrusive test: commanded 6th gear							
			If attained Gear ≠ 6th for time	>= Please Refer to Table 3 in Supporting Documents Shift Time (Sec)						
			if the above conditions have been met							
			Increment 5th Gear Fail Counter					>= 3 5th Gear Fail Count OR		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			and C456 Fail Counters						>=	14	C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gear									
			Gear slip	>= 400 RPM					>=		Please See Table 5 For Neutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear									
			If attained Gear ≠ 5th for time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)								
			if the above conditions have been met Increment 6th Gear Fail Counter and C456 Fail Counter						>=	3	6th Gear Fail Count OR	
			and C456 Fail Counter						>=	14	C456 Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					TPS validity flag	=	TRUE	Boolean				
					Hydraulic System Pressurized	=	TRUE	Boolean				
					Minimum output speed for RVT	>=	67	RPM				
					A OR B							
					(A) Output speed enable	>=	67	RPM				
					(B) Accelerator Pedal enable	>=	0.5004883	Pct				
					Common Enable Criteria							
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Throttle Position Signal valid	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Transmission Fluid Temperature	>=	-6.65625	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					OutputSpeed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E						
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1							One Trip
			Case: Steady State 1st							
			Attained Gear slip	>= 400 RPM						
			If the Above is True for Time	>= Table Based Time Please Refer to Table 4 in supporting documents	Enable Time (Sec)					
			Intrusive test: (CBR1 clutch exhausted)							
			Gear Ratio	<= 1.209594727						
			Gear Ratio	>= 1.094360352						
			If the above parameters are true							
							>= 1.1	Fail Timer (Sec)		
							>= 2	Fail Count in 1st Gear		
								or		
							>= 3	Total Fail Counts		
			Fail Case 2							
			Case Steady State 2nd							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents	rpm/sec					
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents	rpm/sec					
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents	Sec					
			Intrusive test: (CB26 clutch exhausted)							
			Gear Ratio	<= 1.209594727						
			Gear Ratio	>= 1.094360352						
			If the above parameters are true							
							>= 1.1	Fail Timer (Sec)		
							>= 3	Fail Count in 2nd Gear		
								or		
							>= 3	Total fail counts		
			Fail Case 3							
			Case Steady State 3rd							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents	rpm/sec					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required			Mil Illum.
			Min Delta Output Speed Hysteresis >=	Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec							
			If the Above is True for Time >=	Table Based Time Please Refer to Table 17 in supporting documents Sec							
			Intrusive test: (C35R clutch exhausted) Gear Ratio <=	1.209594727							
			Gear Ratio >=	1.094360352							
			If the above parameters are true					>=	1.1	Fail Timer (Sec)	
								>=	3	Fail Count in 3rd Gear	
									OR		
								>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE Boolean				
					inhibit RVT	=	FALSE Boolean				
					IMS fault pending indication	=	FALSE Boolean				
					output speed	>=	0 RPM				
					TPS validity flag	=	TRUE Boolean				
					HSD Enabled	=	TRUE Boolean				
					Hydraulic_System_Pressurized	=	TRUE Boolean				
					A OR B						
					(A) Output speed enable	>=	67 Nm				
					(B) Accelerator Pedal enable	>=	0.5004883 Nm				
					Ignition Voltage Lo	>=	8.5996094 Volts				
					Ignition Voltage Hi	<=	31.999023 Volts				
					Engine Speed Lo	>=	400 RPM				
					Engine Speed Hi	<=	7500 RPM				
					Engine Speed is within the allowable limits for	>=	5 Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052 Pct				
					if Attained Gear=1st FW Engine Torque Enable	>=	5 Nm				
					if Attained Gear=1st FW Engine Torque Enable	<=	8191.875 Nm				
					Transmission Fluid Temperature	>=	-6.65625 ºC				
					Input Speed Sensor fault	=	FALSE Boolean				
					Output Speed Sensor fault	=	FALSE Boolean				
					Default Gear Option is not present	=	TRUE				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions	Time Required		Mil Illum.
				Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E			
							ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 11 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean						One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized						
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command						
			Range Shift Status	≠ Initial Clutch Control						
			Attained Gear Slip	<= 40 RPM						
			If the above conditions are true increment appropriate Fail 1 Timers Below:							
			fail timer 1 (4-1 shifting with throttle)	>= 0.299804688 Fail Time (Sec)						
			fail timer 1 (4-1 shifting without throttle)	>= 0.5 Fail Time (Sec)						
			fail timer 1 (4-2 shifting with throttle)	>= 0.299804688 Fail Time (Sec)						
			fail timer 1 (4-2 shifting without throttle)	>= 0.5 Fail Time (Sec)						
			fail timer 1 (4-3 shifting with throttle)	>= 0.299804688 Fail Time (Sec)						
			fail timer 1 (4-3 shifting without throttle)	>= 0.5 Fail Time (Sec)						
			fail timer 1 (5-3 shifting with throttle)	>= 0.299804688 Fail Time (Sec)						
			fail timer 1 (5-3 shifting without throttle)	>= 0.5 Fail Time (Sec)						
			fail timer 1 (6-2 shifting with throttle)	>= 0.299804688 Fail Time (Sec)						
			fail timer 1 (6-2 shifting without throttle)	>= 0.5 Fail Time (Sec)						
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers					Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 >= sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter								
			4th gear fail counter						>=	3	Fail Counter From 4th Gear OR
			5th gear fail counter						>=	3	Fail Counter From 5th Gear OR
			6th gear fail counter						>=	3	Fail Counter From 6th Gear OR
			Total fail counter						>=	5	Total Fail Counter
					TUT Enable temperature	>=	-6.65625	ºC			
					Input Speed Sensor fault	=	FALSE	Boolean			
					Output Speed Sensor fault	=	FALSE	Boolean			
					Command / Attained Gear	≠	1st	Boolean			
					High Side Driver ON	=	TRUE	Boolean			
					output speed limit for TUT	>=	100	RPM			
					input speed limit for TUT	>=	150	RPM			
					PRNDL state defaulted	=	FALSE	Boolean			
					IMS Fault Pending	=	FALSE	Boolean			
					Service Fast Learn Mode	=	FALSE	Boolean			
					HSD Enabled	=	TRUE	Boolean			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E

ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | | | | |
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
									>	10	Sample Timer (Sec)	
					Pattern Switch Message Health	=	TRUE	Boolean			
					Engine Speed Lo	>=	400	RPM			
					Engine Speed Hi	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None

ECM: None | | | | | |
| Internal Mode Switch (IMS) | P182E | Internal Mode Switch - Invalid Range | Fail Case 1
Current range | = Transition 1 (bit state 1110) Range | | | | | | | | One Trip |

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions		Time Required			Mil Illum.
			Previous range ≠	CeTRGR_e_P RNDL_Drive6	Range								
			Previous range ≠	CeTRGR_e_P RNDL_Drive3	Range								
			Range Shift State =	Range Shift Completed	ENUM								
			Absolute Attained Gear Slip <=	50	rpm								
			Attained Gear <=	Sixth									
			Attained Gear >=	First									
			Throttle Position Available =	TRUE									
			Throttle Position >=	8.000183105	pct								
			Output Speed >=	200	rpm								
			Engine Torque >=	50	Nm								
			Engine Torque <=	8191.75	Nm								
			If the above conditions are met then Increment Fail Timer							>=	1	Fail Seconds	
			If Fail Timer has Expired then Increment Fail Counter							>=	5	Fail Counts	
			<u>Fail Case 2</u> Output Speed <=	70	rpm								
			The following PRNDL sequence events occur in this exact order:										
			PRNDL state =	Drive 6 (bit state 0110)	Range								
			PRNDL state = Drive 6 for >=	1	Sec								
			PRNDL state =	Transition 8 (bit state 0111)	Range								
			PRNDL state =	Drive 6 (bit state 0110)	Range								
			PRNDL state =	Transition 1 (bit state 1110)	Range								
			Above sequencing occurs in <=	1	Sec								
			Neutral Idle Mode =	Inactive									
			If all conditions above are met Increment delay Timer										
			If the below two conditions are met Increment Fail Timer							>=	3	Fail Seconds	
			delay timer >=	1	Sec								
			Input Speed >=	400	Sec								
			If Fail Timer has Expired then Increment Fail Counter							>=	2	Fail Counts	
			<u>Fail Case 3</u> Current range =	Transition 13 (bit state 0010)	Range	Previous range ≠		CeTRGR_ e_PRNDL _Drive3					
			Engine Torque >=	-8192	Nm	Previous range ≠		CeTRGR_ e_PRNDL _Drive3					
			Engine Torque <=	8191.75	Nm	IMS is 7 position configuration =		0	Boolean				
			If the above conditions are met then, Increment Fail Timer			If the "IMS 7 Position config = 1 then the "previous range" criteria above must also be satsified when the "current range" = "Transition 13"				>=	0.225	Seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			Threshold Value		Secondary Malfunction	Enable Conditions		Time Required			Mil Illum.
			If Fail Timer has Expired then Increment Fail Counter								>=	15	Fail Counts	
			Fail Case 4					Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8						
			Current range	=	Transition 8 (bit state 0111)		Range							
			Inhibit bit (see definition)	=	FALSE			Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)						
			Steady State Engine Torque	>=	100		Nm							
			Steady State Engine Torque	<=	8191.75		Nm							
			If the above conditions are met then Increment Fail Timer								>=	0.225	Seconds	
			If the above Condtions have been met, Increment Fail Counter								>=	15	Fail Counts	
			Fail Case 5	Throttle Position Available	=	TRUE	Boolean							
			The following PRNDL sequence events occur in this exact order:											
			PRNDL State	=	Reverse (bit state 1100)		Range							
			PRNDL State	=	Transition 11 (bit state 0100)		Range							
			PRNDL State	=	Neutral (bit state 0101)		Range							
			PRNDL State	=	Transition 11 (bit state 0100)		Range							
			Above sequencing occurs in	<=	1		Sec							
			Then delay timer increments Delay timer	>=	5		sec							
			Range Shift State	=	Range Shift Complete									
			Absolute Attained Gear Slip	<=	50		rpm							
			Attained Gear	<=	Sixth									
			Attained Gear	>=	First									
			Throttle Position	>=	8.000183105		pct							
			Output Speed	>=	200		rpm							
			If the above conditions are met Increment Fail Timer								>=	20	Seconds	
			Fail Case 6						A Open Circuit Definition (flag set false if the following conditions are met):						
			Current range	=	Illegal (bit state 0000 or 1000 or 0001)										
			and						Current Range	≠	Transition 11 (bit state 0100)				
			A Open Circuit (See Definition)	=	FALSE		Boolean		or						
									Last positive state	≠	Neutral (bit state 0101)				
									or						
									Previous transition state	≠	Transition 8 (bit state 0111)				
									Fail case 5 delay timer	=	0	sec			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			If the above Condtions are met then, Increment Fail timer							>=	6.25	Seconds	
			Fail Case 7										
			Current PRNDL State	=	PRNDL circuit ABCP = 1101 Range								
			and										
			Previous PRNDL state	=	PRNDL circuit ABCP =1111 Range								
			Input Speed	>=	150 RPM								
			Reverse Trans Ratio	<=	2.975952148 ratio								
			Reverse Trans Ratio	>=	3.423950195 ratio								
			If the above Condtions are met then, Increment Fail timer							>=	6.25	Seconds	
			P182E will report test fail when any of the above 7 fail cases are met										
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.999023	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						Engine Torque Signal Valid	=	TRUE	Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D					
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E					
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers)	=	TRUE Boolean								One Trip
			Primary Oncoming Clutch Pressure Command Status	=	Maximum pressurized								
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command								
			Range Shift Status	≠	Initial Clutch Control								
			Attained Gear Slip	<=	40 RPM								
			If above coditons are true, increment appropriate Fail 1 Timers Below:										
			fail timer 1 (2-1 shifting with throttle)	>=	0.299804688 Fail Time (Sec)								
			fail timer 1 (2-1 shifting without throttle)	>=	0.5 Fail Time (Sec)								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (2-3 shifting with throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1 (2-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (2-4 shifting with throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1 (2-4 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (6-4 shifting with throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1 (6-4 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (6-5 shifting with throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1 (6-5 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				>= Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			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	>= -6.65625 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 150 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (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 Gear Ratio If the above parameters are true	>= 400 RPM Table Based Time Please Refer to Table 4 in supporting documents >= Enable Time (Sec) >= >= <= 2.482177734 >= 2.245849609			>= 1.1 Fail Timer (Sec) >= 5 Fail Count in 1st Gear or >= 5 Total Fail Counts	One Trip
			Fail Case 2 Case: Steady State 3rd Gear Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec >= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec >= Table Based Time Please Refer to Table 17 in supporting documents Sec <= 2.482177734 >= 2.245849609			>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 3rd Gear	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required			Mil Illum.
							>=	5	or Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gear							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec						
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec						
			Intrusive test: (C1234 clutch exhausted)							
			Gear Ratio	<= 0.700317383						
			Gear Ratio	>= 0.633666992						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 4th Gear	
									or	
							>=	5	Total Fail Counts	
			Fail Case 4 Case: Steady State 5th Gear							
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec						
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec						
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec						
			Intrusive test: (C35R clutch exhausted)							
			Gear Ratio	<= 0.700317383						
			Gear Ratio	>= 0.633666992						
			If the above parameters are true							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
								>= 1.1 Fail Timer (Sec)	
								>= 3 Fail Count in 5th Gear or	
								>= 5 Total Fail Counts	
					PRNDL State defaulted	=	FALSE Boolean		
					inhibit RVT	=	FALSE Boolean		
					IMS fault pending indication	=	FALSE Boolean		
					output speed	>=	0 RPM		
					TPS validity flag	=	TRUE Boolean		
					HSD Enabled	=	TRUE Boolean		
					Hydraulic_System_Pressurized	=	TRUE Boolean		
					A OR B				
					(A) Output speed enable	>=	67 Nm		
					(B) Accelerator Pedal enable	>=	0.5004883 Nm		
					Ignition Voltage Lo	>=	8.5996094 Volts		
					Ignition Voltage Hi	<=	31.999023 Volts		
					Engine Speed Lo	>=	400 RPM		
					Engine Speed Hi	<=	7500 RPM		
					Engine Speed is within the allowable limits for	>=	5 Sec		
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052 Pct		
					if Attained Gear=1st FW Engine Torque Enable	>=	5 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 present	=	TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E			
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean					One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized					
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
			Range Shift Status	≠	Initial Clutch Control								
			Attained Gear Slip	<=	40	RPM							
			If the above conditions are true increment appropriate Fail 1 Timers Below:										
			fail timer 1 (2-6 shifting with throttle)	>=	0.299804688	sec							
			fail timer 1 (2-6 shifting without throttle)	>=	0.5	sec							
			fail timer 1 (3-5 shifting with throttle)	>=	0.299804688	sec							
			fail timer 1 (3-5 shifting without throttle)	>=	0.5	sec							
			fail timer 1 (4-5 shifting with throttle)	>=	0.299804688	sec							
			fail timer 1 (4-5 shifting without throttle)	>=	0.5	sec							
			fail timer 1 (4-6 shifting with throttle)	>=	0.299804688	sec							
			fail timer 1 (4-6 shifting without throttle)	>=	0.5	sec							
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers								>= Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter										
			2nd gear fail counter								>= 3 Fail Counter From 2nd Gear		
			3rd gear fail counter								>= 3 Fail Counter From 3rd Gear		
			4th gear fail counter								>= 3 Fail Counter From 4th Gear		
			total fail counter								>= 5 Total Fail Counter		
							TUT Enable temperature	>=	-6.65625	°C			
							Input Speed Sensor fault	=	FALSE	Boolean			
							Output Speed Sensor fault	=	FALSE	Boolean			
							Command / Attained Gear	≠	1st	Boolean			
							High Side Driver ON	=	TRUE	Boolean			
							output speed limit for TUT	>=	100	RPM			
							input speed limit for TUT	>=	150	RPM			
							PRNDL state defaulted	=	FALSE	Boolean			
							IMS Fault Pending	=	FALSE	Boolean			
							Service Fast Learn Mode	=	FALSE	Boolean			
							HSD Enabled	=	TRUE	Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear					One Trip
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted) Gear Ratio	<= 1.209594727				
			Gear Ratio	>= 1.094360352				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 5th Gear OR	
							>= 3 Total Fail Counts	
			Fail Case 2 Case: 6th Gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			If the Above is True for Time	Table Based Time Please Refer to Table 17 in supporting documents	>=			Sec				
			Intrusive test: (CB26 clutch exhausted)									
			Gear Ratio	<= 1.209594727								
			Gear Ratio	>= 1.094360352								
			If the above parameters are true						>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear OR	
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	67	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct				
					if Attained Gear=1st FW Engine Torque Enable	>=	5	Nm				
					if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm				
					Transmission Fluid Temperature	>=	-6.65625	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

17 OBDG03 TCM Unique Caprice PPV LFX RWD 6 Speed T43 Supporting Tables

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	ºC
Curve	409.59	2.00	2.00	Sec

Table 3

Axis	-6.67	-6.66	40.00	ºC
Curve	409.59	4.00	4.00	Sec

Table 4

Axis	-6.67	-6.66	40.00	ºC
Curve	409.59	2.00	2.00	Sec

Table 5

Axis	-6.67	-6.66	40.00	ºC
Curve	409.59	3.00	3.00	Sec

Table 6

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

Table 9

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

Table 10

Axis	-6.67	-6.66	40.00	80.00	120.00	ºC
Curve	3.03	1.86	1.00	0.75	0.58	Sec

Table 11

Axis	-6.67	-6.66	40.00	80.00	120.00	ºC
Curve	1.72	1.11	0.60	0.36	0.22	Sec

Table 12

Axis	-6.67	-6.66	40.00	80.00	120.00	ºC
Curve	2.12	1.39	0.84	0.64	0.33	Sec

Table 13

Axis	-6.67	-6.66	40.00	80.00	120.00	ºC
Curve	2.51	0.95	0.50	0.29	0.13	Sec

Table 14

Axis	-6.67	-6.66	40.00	80.00	120.00	ºC
Curve	2.97	0.82	0.47	0.20	0.13	Sec

Table 15

Axis	-40.00	-30.00	-20.00	-10.00	0.00	10.00	20.00	30.00	40.00	ºC
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	ºC

Curve	409.59	2.50	2.50	Sec

Table 17

Axis	-6.67	-6.66	40.00	ºC
Curve	0.40	0.35	0.30	Sec

Table 18

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

Table 19

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

Table 20

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

Table 21

Axis	-40.00	-20.00	40.00	ºC
Curve	5.00	3.00	1.00	Sec

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude	<=	3.849999905	g's								Special No MIL
			Lateral accleration magnitude	>=	0.529999971	g's								
			Lateral accleration magnitude is within the range above for	>=	75	Sec								
							Lateral accleration magnitude	<=	3.8499999	g's				
							Lateral accleration magnitude	>=	0.53	g's				
							Lateral accleration magnitude is within the range above for	>=	60	Sec				
							Diagnostic shifting override command	=	FALSE	Boolean				
							Attained Gear State	=	1st through 6th					
							Attained Gear Slip	<=	100	RPM				
							Transmission Type	=	Clutch to Clutch Transmission					
							High Side Driver 1 On	=	TRUE	Boolean				
							Vehicle Speed	>=	15	kph				
							Lateral acceleration stuck in range diagnostic enable	=	1	Boolean				
							Battery Voltage	<=	31.999023	Volts				
							Battery Voltage	>=	9	Volts				
							Battery voltage is within the allowable limits for	>=	0.1	Sec				
							Ignition Voltage	<=	31.999023	Volts				
							Ignition Voltage	>=	9	Volts				
							Service Fast Learn (SFL) Mode	=	FALSE	Boolean				
							Ignition voltage and SFL conditions met for	>=	0.1	Sec				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: If calibrated to illuminate the MIL (P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073) ECM: None						
Mode Switch	P071A	Transmission Mode Switch A Circuit	Tow Haul Mode Switch state	=	TRUE	Boolean					>=	600	Fail Time (Sec)	Special No MIL
							Ignition Voltage Lo	>=	8.5996094	Volts				
							Ignition Voltage Hi	<=	31.999023	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	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: P1762 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
												>	10	Sample Timer (Sec)	
							Pattern Switch Message Health	=	TRUE	Boolean					
							Engine Speed Lo	>=	400	RPM					
							Engine Speed Hi	<=	7500	RPM					
							Engine Speed is within the allowable limits for	>=	5	Sec					
				Disable Conditions:			MIL not Illuminated for DTC's:		TCM: None ECM: None						

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.
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.	Ignition switch Run/Start 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.	Ignition switch Run/Start position circuit high	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 Communication 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 Message $1BA Message $287 Message $3D1 Message $3E9 Message $4C1 Message $4C7 Message $4D1 Message $4F1 Message $589	 ≥ 0.50 seconds ≥ 12.00 seconds ≥ 0.50 seconds ≥ 12.00 seconds ≥ 12.00 seconds ≥ 12.00 seconds ≥ 0.50 seconds ≥ 0.50 seconds ≥ 12.00 seconds ≥ 12.00 seconds ≥ 12.00 seconds ≥ 12.00 seconds ≥ 12.00 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 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 A, 1 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		
					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.
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. update raw lateral acceleration signal stability time, fail and sample time, 50 millisecond update rate	raw lateral acceleration signal when sensor type is directly proportional OR raw lateral acceleration signal when sensor type is inversely proportional	≤ -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_VoltageDirectProp = 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 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 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 = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = 1st thru 10th ≤ 100.0 RPM < 0.5300 g = FALSE = FALSE VehicleSpeedSensor_FA	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_VoltageDirectProp = 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 4 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 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) update region 4 sample time: brake pedal position engine torque TOSS vehicle speed acceleration TOSS vehicle speed TOSS vehicle speed	≥ 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 = 1st thru 10th ≤ 100.0 RPM ≥ 0.5300 g ≤ 3.8500 g ≤ 0.70 % ≤ 80.0 Nm ≤ 0.1500 g ≥ 0.0 KPH ≤ 0.0 KPH	raw lateral longitudinal acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate region 4 fail time ≥ 75.0 seconds out of region 4 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.
					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 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 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	≥ 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 = 1st thru 10th ≤ 100.0 RPM ≥ 0.5300 g ≤ 3.8500 g	raw lateral longitudinal acceleration signal stability time ≥ 30.0 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 3 sample time: brake pedal position engine torque ABS(TOSS vehicle speed acceleration) 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 ≤ 0.1000 g ≥ 0.0 KPH < 0.5300 g = FALSE = FALSE VehicleSpeedSensor_FA VehicleSpeedSensorError	region 3 fail time ≥ 75.0 seconds out of region 3 sample time ≥ 120.0 seconds, 50 millisecond update rate	
			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 fault active P0717 test fail this key on P07BF fault active	≥ 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	raw lateral longitudinal acceleration signal stability time ≥ 30.0 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 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 2 sample time: brake pedal position engine torque TOSS vehicle speed acceleration 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	= FALSE = FALSE = FALSE = 1st thru 10th ≤ 100.0 RPM ≥ 0.5300 g ≤ 3.8500 g ≤ 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 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	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = 0 Boolean ≥ 15.0 KPH ≤ 0.5300 g = TRUE	raw lateral longitudinal acceleration signal stability time ≥ 30.0 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.
					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) update region 1 sample time: brake pedal position engine torque TOSS vehicle speed acceleration 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	= TRUE = TRUE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = 1st thru 10th ≤ 100.0 RPM ≥ 0.5300 g ≤ 3.8500 g ≤ 0.70 % ≥ 80.0 Nm ≥ 0.1500 g ≥ 15.0 KPH ≤ 200.0 KPH < 0.5300 g = FALSE = FALSE VehicleSpeedSensor_FA VehicleSpeedSensorError	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.
Control Module Read Only Memory (ROM)	P0601	This DTC will be stored if the calibration check sum is incorrect or the flash memory detects an uncorrectable error via the Error Correcting Code.	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.
TCM Long Term Memory Reset	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
			Perserved NVM region error detected during initialization				Diagnostic runs at controller power up.	
			ECC ROM fault detected in NVM Flash region				Diagnostic runs at controller power up.	
			ECC ROM Error Count >	3				
			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 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 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
			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 dual 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, 159 / 399 counts intermittent or 39 counts continuous; 39 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_StackLimitTestEnbl == 1 Value of KeMEMD_b_StackLimitTestEnbl is: 1 . (If 0, this test is disabled)	variable, depends on length of time to corrupt stack	
			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_TestEnbld == 1 Value of KePISD_b_ALU_TestEnbld 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_ConfigRegTestEnbld == 1 Value of KePISD_b_ConfigRegTestEnbld 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_SOH_FltEnbld == 1 Value of KePISD_b_MainCPU_SOH_FltEnbld 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_TestEnbld == 1 Value of KePISD_b_ALU_TestEnbld 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_ConfigRegTestEnbld == 1 Value of KePISD_b_ConfigRegTestEnbld 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_StackLimitTestEnbl == 1 Value of KeMEMD_b_StackLimitTestEnbl is: 1 . . (If 0, this test is disabled)	variable, depends on length of time to corrupt stack	
			Voltage deviation >	9.00		KePISD_b_A2D_CnvrtrTestEnbld == 1 Value of KePISD_b_A2D_CnvrtrTestEnbld 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,	

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 Enbld == 1 Value of KePISD_b_DMA_XferTest Enbld is: 0 . (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 StorFltEnbl == 1 Value of KePISD_b_SeedUpdKey StorFltEnbl 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.
Powertrain Internal Control Module EEPROM Error	P062F	This DTC detects a NVM long term performance. There are 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 that writing to NVM (at shutdown) will not succeed				Diagnostic runs at controller power up.	Type A, 1 Trips
			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 ≥ 2,395 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.
Transmission Range (TR) Switch Circuit Low Voltage	P0707	Diagnoses the internal range sensor circuit A and wiring for a ground short circuit fault using controller specific PWM duty cycle measurement thresholds.	when PWM sensor type and PWM voltage direct conditional internal range sensor A PWM duty cycle when PWM sensor type and PWM voltage inverse conditional internal range sensor A PWM duty cycle Increment fail and sample time, update rate 25 milliseconds Controller specific PWM duty cycle thresholds are set to meet the following controller specification for a short to ground.	≤ 9.998 % duty cycle ≥ 9.998 % duty cycle ≤ 0.5 Ω impedance between signal and controller ground	diagnostic monitor enable battery voltage when sensor type is PWM duty cycle direct or inverse conditional for fail threshold is used conditional type check calibration	= 1 Boolean ≥ 9.00 volts = CeTRGD_e_VoltDirctProp	fail time ≥ 1.000 seconds out of sample time ≥ 1.500 seconds battery voltage time ≥ 1.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmission Range (TR) Switch Circuit High Voltage	P0708	Diagnoses the internal range sensor circuit A and wiring for a short to voltage circuit fault using controller specific PWM duty cycle measurement thresholds.	when PWM sensor type and PWM voltage direct conditional internal range sensor A PWM duty cycle when PWM sensor type and PWM voltage inverse conditional internal range sensor A PWM duty cycle Increment fail and sample time, update rate 25 milliseconds Controller specific PWM duty cycle thresholds are set to meet the following controller specification for a short to power.	≥ 91.998 % duty cycle ≤ 91.998 % duty cycle ≤ 0.5 Ω impedance between signal and controller power	diagnostic monitor enable battery voltage when sensor type is PWM duty cycle direct or inverse conditional for fail threshold is used conditional type check calibration	= 1 Boolean ≥ 9.00 volts = CeTRGD_e_VoltDirctProp	fail time ≥ 1.000 seconds out of sample time ≥ 1.500 seconds battery voltage time ≥ 1.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmission 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 unrealistic delta changes (intermittent faults) based on the raw transmissin fluid temperature sesnor, and, raw transmissin fluid temperature sesnor signal stuck in valid range.	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
					diagnsotic monitor enable P0712 NOT fault active P0713 NOT fault active battery voltage	= 1 Boolean ≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
					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 engine torque engine speed vehicle speed engine coolant temperature engine coolant temperature raw transmission fluid temperature raw transmission fluid temperature	≥ 5.0 % ≥ 50.0 Nm ≥ 500.0 RPM ≥ 10.0 KPH ≥ -40.0 °C ≤ 150.0 °C ≥ -40.0 °C ≤ 150.0 °C		
					P2818 fault active P2818 test fail this key on DTCs not fault active	= FALSE = FALSE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						EngineTorqueEstInaccurate 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 battery voltage	= 1 Boolean ≥ 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 seconds	

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, update fail time		diagnsotic monitor enable P0712 NOT fault active P0713 NOT fault active battery voltage	= 1 Boolean ≥ 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.
Transmission 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	≤ 47.450 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 ≥ 10.00 seconds out of sample time ≥ 12.00 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.
Transmission 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	≥ 105,445.0 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 ≥ 10.00 seconds out of fail time ≥ 12.00 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.
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 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 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 set based on an intermittent raw transmission input speed signal RPM.	delta raw transmission input speed delta raw transmission input speed = raw transmission input speed - last valid raw transmission input speed, 25 millisecond update rate	≥ 850.0 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 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 long as (delta delta raw transmission input speed AND raw transmission input speed) raw transmission output speed accelerator pedal position engine torque engine torque transmission hydraulic pressure available: engine speed	= FALSE = 1 Boolean = FALSE = FALSE = FALSE ≥ 160.0 RPM ≥ 160.0 RPM ≤ 320.0 RPM > 160.0 RPM ≥ 254.0 RPM ≥ 5.0 % ≤ 8,191.9 Nm ≥ 30.0 Nm ≥ 400.0 RPM	fail time ≥ 1.500 seconds updated fail event count, fail event count ≥ 5 counts, 25 millisecond update rate raw transmission input speed time ≥ 2.00 seconds stability time ≥ 0.100 seconds engine speed time ≥	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccurate	**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.
Input Speed Sensor Circuit Low Voltage	P0717	Detects no activity in raw transmission input speed signal RPM due to open ciruit electrical failure mode or sensor internal faults, or, controller internal 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.	raw transmission input speed OR TISS/TOSS fault (single power supply to TISS and TOSS) = TRUE, update fail time 25 millisecond update rate	≤ 100.0 RPM < 425.0 RPM	service mode $04 active diagnostic monitor enable run crank voltage service fast learn active run crank voltage P0722 fault active P0723 fault active P077C fault active P077D 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 (transmission current attained gear transmission current attained gear raw transmission output speed OR transmission current attained gear transmission current attained gear raw transmission output speed) P0717 fault active P0717 test fail this key on	= FALSE = 1 Boolean ≥ 5.00 volts = FALSE ≥ 9.00 volts = FALSE = FALSE = FALSE = FALSE = CeBRKR_e_OBD < 70.0 % = FALSE = FALSE = FALSE ≥ 5.0 % ≥ 30.0 Nm ≤ 8,191.9 Nm ≤ CeCGSR_e_CR_Seventh ≥ CeCGSR_e_CR_First ≥ 162.0 RPM ≤ CeCGSR_e_CR_Tenth ≥ CeCGSR_e_CR_Seventh	fail time ≥ 4.00 seconds run crank voltage time ≥ 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.
					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	≥ 162.0 RPM = FALSE = FALSE		
					transmission hydraulic pressure available: engine speed	= 0 Boolean = 1 Boolean ≥ 400.0 RPM	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting tables	
					DTCs not fault active			
						EngineTorqueEstInaccurate		

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 non-transitional 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 on period when direction is reverse OR on period 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 < 0.2080 seconds > 0.1523 seconds < 0.0518 seconds > 0.0381 seconds < 0.3994 seconds > 0.3193 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	≤ 30.0 RPM ≥ 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 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 high engine torque hysteresis low	= FALSE = 1 Boolean ≠ COMPLETE = PARK = NEUTRAL ≠ no inhibit 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	≥ 8.0 %		
					accelerator pedal position hysteresis low)	> 5.0 %		
					TISS enable occurs when: (TISS speed select	= 1 Boolean		
					OR TISS/TOSS has single power supply calibration	= 0 Boolean		
					AND TISS	≤ 8,191.9 RPM		
					AND TISS)	≥ 425.0 RPM		
					OR (TISS speed select	≠ 1 Boolean		
					OR TISS/TOSS has single power supply calibration	= 0.00 Boolean		
					AND TISS	≤ 8,191.9 RPM		
					AND TISS)	≥ 3,500.0 RPM		
					P0716 test fail this key on	= FALSE		
					P0717 test fail this key on	= FALSE		
					P07BF test fail this key on	= FALSE		
					P07C0 test fail this key on	= FALSE		
					PTO check: PTO enable calibration is FALSE	≠ 1 Boolean		
					OR (PTO enable calibration is TRUE	= 1 Boolean		
					AND PTO active)	= TRUE		
					run crank voltage	≥ 5.00 volts	run crank voltage time ≥ 25 milliseconds	
					service fast learn active	= FALSE		

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 DTCs not fault active	≥ 9.00 volts ≥ -40.00 °C = FALSE = FALSE = FALSE = FALSE = FALSE ≥ 400.0 RPM AcceleratorPedalFailure EngineTorqueEstInaccurate	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.
Output Speed Sensor Circuit Intermittent	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 speed signal RPM.	4WD low fail threshold: delta raw transmission output speed OR NOT 4WD low fail threshold, update fail time, delta raw transmission output speed = raw transmission output speed previous loop - raw transmission output speed, 25 millisecond update rate	≥ 500.0 RPM

≥ 500.0 RPM | service mode $04 active diagnostic monitor enable

transmission engaged state

4WD low state

PTO check: PTO enable calibration is FALSE OR (PTO enable calibration is TRUE AND PTO active)

run crank voltage

service fast learn active run crank voltage P077C test fail this key on P077D test fail this key on

when PRNDL is moved to | = FALSE = 1 Boolean

≠ not engaged

= 4WD low state previous loop, 25 millisecond update rate

≠ 1 Boolean

= 1 Boolean

= TRUE

≥ 5.00 volts

= FALSE ≥ 9.00 volts = FALSE = FALSE | fail time ≥ 1.500 seconds updated fail event count, fail event count ≥ 5 counts, 25 millisecond update rate

transmission engaged state time ≥ **P0723 transmission engaged state time threshold** see supporting tables

4WD low change time ≥ 3.0 seconds

run crank voltage time ≥ 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.
					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	= CeTRGR_e_PRNDL_Neutral		
					PRNDL OR	= CeTRGR_e_PRNDL_Transitional1 N-D transitional		
					PRNDL OR	= CeTRGR_e_PRNDL_Transitional4 R-N transitional		
					raw transmission output speed OR	≥ 250.0 RPM		
					last valid raw transmission output speed	≥ 250.0 RPM		
					determine if raw transmission input speed is stable: (raw transmission input speed - raw transmission input speed previous, 25 millisecond update AND	≤ 4,095.9 RPM	raw transmission input speed stability time ≥ 2.00 seconds	
					raw transmission input speed) OR	≥ 160.0 RPM		
					(TISS/TOSS has single power supply calibration AND	= 0 Boolean	no time required	
					raw transmission input speed)	= 0.0 RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					select delta RPM fail thes* hold: (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 raw transmission output speed)	≤ 140.0 RPM ≥ 89.0 RPM	stability time ≥ 0.100 seconds	
					transmission hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting tables	
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccurate		

17 OBDG03 TCM Common 9 Speed T87A Summary Tables

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. The GR10 diagnostic monitor detects	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) THEN increment fail count 25 millisecond update rate	≥ **P0741 torque convert derivative slip speed fail threshold** see supporting tables ≤ 250.0 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 PRNDL PRNDL PRNDL transmission fluid temperature	= 1 Boolean = 1 Boolean = 1 Boolean ≥ 400.0 RPM = FALSE ≥ 9.00 volts ≥ 9.00 volts = FALSE = FALSE = FALSE ≠ PARK ≠ NEUTRAL ≠ REVERSE ≥ -6.66 °C	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 temperature	≤ 130.00 °C		
					accelerator pedal position	≥ 0.00 %		
					accelerator pedal position	≤ 20.00 %		
					vehicle speed	≥ 0.0 KPH		
					vehicle speed	≤ 45.0 KPH		
					TCC command mode	= OFF		
					break latch state (clutch select valve solenoid control)	≠ disabled (clutch select 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 temperature	≥ -6.66 °C		
					transmission fluid temperature	≤ 130.00 °C		
					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 OR	= FALSE		
					driver shift mode calibration)	= 0 Boolean		
					(misfire requests TCC off OR			
					misfire TCC off calibration)	= 0 Boolean		
					(clucth control solenoid stuck on OR solenoid stuck OFF intrusive shift active)	= FALSE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0746 fault pending	= FALSE		
					P0747 fault pending	= FALSE		
					P0776 fault pending	= FALSE		
					P0777 fault pending	= FALSE		
					P0796 fault pending	= FALSE		
					P0797 fault pending	= FALSE		
					P2714 fault pending	= FALSE		
					P2715 fault pending	= FALSE		
					P2723 fault pending	= FALSE		
					P2724 fault pending	= FALSE		
					P2732 fault pending	= FALSE		
					P2733 fault pending	= FALSE		
					P2820 fault pending	= FALSE		
					P2821 fault pending	= FALSE		
					vehicle speed	≤ 8.0 KPH		
					accelerator pedal position	≥ 4.0 %		
					hysteresis	> 1.0 %		
					when: break latch state (clutch select valve solenoid)	= disabled (clutch select valve not transitioning)		
					previous break latch state (clutch select valve solenoid)	= complete (clutch select valve transition complete)		
					set stuck on test time and begin time down, stuck on test time must time down from calibration value to zero (0.0) seconds	= **P0741 stuck on test time** see supporting tables		
					break latch state AND	= clutch select valve solenoid mutliplexed to TCC hydraulic		
					previous break latch state THEN initialize	= disabled (clutch select valve not transitioning)		
					control valve test time, control valve test time must time down from calibration value to zero (0.0) seconds	= **P0741 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 EngineTorqueEstInaccurate 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 the solenoid is electrically functional. In the failure mode the clutch slip speed, and gear box gear slip, will be excessive, not near or at zero RPM. The clutch slip speed is calculated based on the transmission lever node design, requiring transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft speed. The clutch pressure control solenoid is tested after an automatic transmission shift occurs and has been considered shift 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 transmission line	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM	use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE AND run crank voltage TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled service fast learn active service solenoid cleaning procedure active hydraulic pressure	= 1 Boolean = 1 Boolean ≥ 9.00 volts = 0 Boolean = 0 Boolean ≥ 9.00 volts = TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean	fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update 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.
		pressure control, which normally allows the clutch to maintain full torque holding capacity at the given engine crankshaft torque, to maintain true gear ratio. When the clutch pressure control solenoid is failed hydraulically off, the clutch does not maintain holding capacity at any engine crankshaft torque, and the clutch slip speed is uncontrollable. The clutch pressure control solenoid test is suspended if the higher level safety startle mitigation function is active. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid that has failed in the opposite sense, clutch pressure control solenoid failed hydraulically on, while the solenoid is electrically functional, which must take priority over any clutch pressure control solenoid stuck off diagnostic monitor. All clutch pressure control			available: engine speed enable C1 clutch slip speed fail compare when: diagnostic clutch test C1 ((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) unintended deceleration fault pending OR unintended deceleration fault pending enable FASLE (startle mitigation) clutch steady state adaptive active transmission output shaft speed C1 clutch slip speed valid, all speed sesnors are functional for lever node clutch slip speed calculation accelerator pedal position engine speed diagnostic clutch test C1 set to HOLDING CLUTCH when: clutch solenoid test state	≥ 400.0 RPM = HOLDING CLUTCH = FALSE = TRUE ≠ initial startle mitigation gear = FALSE = 0 Boolean = FALSE ≥ 100.0 RPM = TRUE ≥ 2.00 % ≥ 1,500.0 RPM = NEUTRAL TEST	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting table	

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 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.			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C1 clutch pressured map

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

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

NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on | = FALSE

= TRUE

≠ initial startle mitigation gear

= mapped to line pressure, C1 clutch pressure has transtioned from off-applying-applied

= TRUE

≠ range shift completed

= 1 Boolean = forward gear

= 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST

= range shift completed | initialize range shift complete time = 0.500 seconds, range shift complete time must time down to zero when range shift complete | |

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 A Stuck On	P0747	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 pressure control solenoid is tested during an automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off, the intended off going clutch continues to maintain torque capacity during the transmission automatic shift. In the failure mode, the off going clutch slip speed will remain near zero RPM when the clutch pressure control solenoid is commanded 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	shift type is power down shift, C1 clutch slip speed OR shift type is not power down shift, C1 clutch slip speed update fail time 6.25 milliscond update	< 50.0 RPM < 50.0 RPM	use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE AND run crank voltage TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= 1 Boolean = 1 Boolean ≥ 9.00 volts = 0 Boolean = 0 Boolean ≥ 9.00 volts = TRUE Boolean	shift type is power down shift, fail time ≥ 0.800 seconds, OR shift type is not power down shift, fail time ≥ 0.150 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update 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 input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the 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 solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure control solenoid stuck on 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 speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled service fast learn active service solenoid cleaning procedure active hydraulic pressure available: engine speed transmission output shaft speed set solenoid stuck on test trigger to TRUE when: clutch pressure control solenoid stuck off stuck intrusive shift request startle mitigation active (see startle mitigation active NOTE below) clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below) initialize active clutch controller (clutch control processing in process of sequencing clutches on	= TRUE Boolean = FALSE Boolean = FALSE Boolean ≥ 400.0 RPM ≥ 89.0 RPM = FALSE = FALSE ≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD = TRUE	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting table	

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 solenoid.			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift OR shift type enable for garage shift OR shift type enable for negative torque up shift OR shift type enable for open throttle power on up shift OR shift type enable for closed throttle down shift OR shift type enable for open throttle power down shift OR shift type enable for closed throttle lift foot up shift) OR clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below) transition clutch controller active clutch controller (staged steady sate shift - shift not in process, no new shift type occuring, no interrupted shift) set clutch control solenoid test state to TIE UP TEST	= 0 Boolean = 0 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 0 Boolean = TIE UP TEST TEST STATE = TIE UP TEST HOLD = TRUE ≠ staged steady state		

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	= TRUE		
					current loop clutch control solenoid test state OR	= TEST WAITING		
					current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below)	= TIE UP TEST HOLD		
					range shift state	≠ range shift complete		
					solenoid stuck on test trigger	= TRUE		
					additional off going clutch occured	= TRUE		
					(clutch control solenoid test state OR	= TIE UP TEST TEST STATE		
					clutch control solenoid test state) (see clutch control solenoid test state NOTE below)	= TIE UP TEST HOLD		
					diagnostic clutch test	= OFF GOING CLUTCH TEST		
					(C1 off going clutch pressure control ramp time out complete AND	= TRUE		
					off going clutch pressure ramp control ramp time out enable) OR	= 1 Boolean		
					C1 off going clutch pressure	≤ 350.0 kPa	for C1 off going 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	≥ 8,191.8 Nm	**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 open throttle power down shift** see supporting tables	
					primary on coming clutch active	= TRUE		
					primary on coming control state	≠ clutch fill phase		
					closed throttle lift foot up shift primary on coming clutch pressure OR	≥ 690.0 kPa		
					open throttle power on up shift primary on coming clutch pressure OR	≥ 690.0 kPA		
					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	≥ 690.0 kPa		
					open throttle power down shift primary on coming clutch pressure OR	≥ 690.0 kPa		
					closed throttle down shift primary on coming clutch pressure	≥ 690.0 kPa		
					C1 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 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 B Stuck Off	P0776	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while the solenoid is electrically functional. In the failure mode the clutch slip speed, and gear box gear slip, will be excessive, not near or at zero RPM. The clutch slip speed is calculated based on the transmission lever node design, requiring transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft speed. The clutch pressure control solenoid is tested after an automatic transmission shift occurs and has been considered shift 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 transmission line	C1 clutch slip speed, update fail time 6.25 millisecond update	≥ 200.0 RPM	use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE AND run crank voltage TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled service fast learn active service solenoid cleaning procedure active hydraulic pressure	= 1 Boolean = 1 Boolean ≥ 9.00 volts = 0 Boolean = 0 Boolean ≥ 9.00 volts = TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean	fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update 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.
		pressure control, which normally allows the clutch to maintain full torque holding capacity at the given engine crankshaft torque, to maintain true gear ratio. When the clutch pressure control solenoid is failed hydraulically off, the clutch does not maintain holding capacity at any engine crankshaft torque, and the clutch slip speed is uncontrollable. The clutch pressure control solenoid test is suspended if the higher level safety startle mitigation function is active. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid that has failed in the opposite sense, clutch pressure control solenoid failed hydraulically on, while the solenoid is electrically functional, which must take priority over any clutch pressure control solenoid stuck off diagnostic monitor. All clutch pressure control			available: engine speed enable C2 clutch slip speed fail compare when: diagnostic clutch test C2 ((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) unintended deceleration fault pending OR unintended deceleration fault pending enable FASLE (startle mitigation) clutch steady state adaptive active transmission output shaft speed C2 clutch slip speed valid, all speed sesnors are functional for lever node clutch slip speed calculation accelerator pedal position engine speed diagnostic clutch test C2 set to HOLDING CLUTCH when: clutch solenoid test state	≥ 400.0 RPM = HOLDING CLUTCH = FALSE = TRUE ≠ initial startle mitigation gear = FALSE = 0 Boolean = FALSE ≥ 100.0 RPM = TRUE ≥ 2.00 % ≥ 1,500.0 RPM = NEUTRAL TEST	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting table	

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 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.			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C2 clutch pressured map 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 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 NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	= FALSE = TRUE ≠ initial startle mitigation gear = mapped to line pressure, C2 clutch pressure has transtioned from off-applying-applied = TRUE ≠ range shift completed = 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST = range shift completed	initialize range shift complete time = 0.500 seconds, range shift complete time must time down to zero when range shift complete	

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 hydraulically on, while the solenoid is electrically functional. The clutch pressure control solenoid is tested during an automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off, the intended off going clutch continues to maintain torque capacity during the transmission automatic shift. In the failure mode, the off going clutch slip speed will remain near zero RPM when the clutch pressure control solenoid is commanded 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	shift type is power down shift, C2 clutch slip speed OR shift type is not power down shift, C2 clutch slip speed update fail time 6.25 milliscond update	< 50.0 RPM < 50.0 RPM	use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE AND run crank voltage TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= 1 Boolean = 1 Boolean ≥ 9.00 volts = 0 Boolean = 0 Boolean ≥ 9.00 volts = TRUE Boolean	shift type is power down shift, fail time ≥ 0.800 seconds, OR shift type is not power down shift, fail time ≥ 0.150 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update 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 input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the 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 solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure control solenoid stuck on 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 speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting table	
					service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
					hydraulic pressure available: engine speed	≥ 400.0 RPM		
					transmission output shaft speed	≥ 89.0 RPM		
					set solenoid stuck on test trigger to TRUE when: clutch pressure control solenoid stuck off stuck intrusive shift request	= FALSE		
					startle mitigation active (see startle mitigation active NOTE below)	= FALSE		
					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		
					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 solenoid.			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift OR shift type enable for garage shift OR shift type enable for negative torque up shift OR shift type enable for open throttle power on up shift OR shift type enable for closed throttle down shift OR shift type enable for open throttle power down shift OR shift type enable for closed throttle lift foot up shift) OR clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below) transition clutch controller active clutch controller (staged steady sate shift - shift not in process, no new shift type occuring, no interrupted shift) set clutch control solenoid test state to TIE UP TEST	= 0 Boolean = 0 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 0 Boolean = TIE UP TEST TEST STATE = TIE UP TEST HOLD = TRUE ≠ staged steady state		

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	= TRUE		
					current loop clutch control solenoid test state OR	= TEST WAITING		
					current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below)	= TIE UP TEST HOLD		
					range shift state	≠ range shift complete		
					solenoid stuck on test trigger	= TRUE		
					additional off going clutch occured	= TRUE		
					(clutch control solenoid test state OR	= TIE UP TEST TEST STATE		
					clutch control solenoid test state) (see clutch control solenoid test state NOTE below)	= TIE UP TEST HOLD		
					diagnostic clutch test	= OFF GOING CLUTCH TEST		
					(C2 off going clutch pressure control ramp time out complete AND	= TRUE		
					off going clutch pressure ramp control ramp time out enable) OR	= 1 Boolean		
					C2 off going clutch pressure	≤ 350.0 kPa	for C2 off going clutch pressure time ≥ **P0777 C2 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.
							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 open throttle power down shift** see supporting tables	
					engine torque	≥ 8,191.8 Nm		
					primary on coming clutch active	= TRUE		
					primary on coming control state	≠ clutch fill phase		
					closed throttle lift foot up shift primary on coming clutch pressure OR	≥ 800.0 kPa		
					open throttle power on up shift primary on coming clutch pressure OR	≥ 800.0 kPA		
					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	≥ 800.0 kPa		
					open throttle power down shift primary on coming clutch pressure OR	≥ 800.0 kPa		
					closed throttle down shift primary on coming clutch pressure	≥ 800.0 kPa		
					C2 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 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.
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 run crank voltage battery voltage P077C fault active P077C 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.
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	= FALSE = 1 Boolean = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate	Type A, 1 Trips
							fail count ≥ 16 counts 12.5 millisecond update rate	
					run crank voltage battery voltage	≥ 10.00 volts ≥ 10.00 volts	run crank and battery voltage time ≥ 5.000 seconds	
					P077D fault active P077D 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.
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 the solenoid is electrically functional. In the failure mode the clutch slip speed, and gear box gear slip, will be excessive, not near or at zero RPM. The clutch slip speed is calculated based on the transmission lever node design, requiring transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft speed. The clutch pressure control solenoid is tested after an automatic transmission shift occurs and has been considered shift 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 transmission line	C1 clutch slip speed, update fail time 6.25 millliscond update	≥ 200.0 RPM	use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage	= 1 Boolean = 1 Boolean ≥ 9.00 volts	fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 millliscond update battery voltage time ≥ 0.100 seconds	Type A, 1 Trips
					use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE AND run crank voltage	= 0 Boolean = 0 Boolean ≥ 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		
					TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
					service fast learn active service solenoid cleaning procedure active hydraulic pressure	= FALSE Boolean = FALSE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which normally allows the clutch to maintain full torque holding capacity at the given engine crankshaft torque, to maintain true gear ratio. When the clutch pressure control solenoid is failed hydraulically off, the clutch does not maintain holding capacity at any engine crankshaft torque, and the clutch slip speed is uncontrollable. The clutch pressure control solenoid test is suspended if the higher level safety startle mitigation function is active. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid that has failed in the opposite sense, clutch pressure control solenoid failed hydraulically on, while the solenoid is electrically functional, which must take priority over any clutch pressure control solenoid stuck off diagnostic monitor. All clutch pressure control			available: engine speed enable C3 clutch slip speed fail compare when: diagnostic clutch test C3 ((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) unintended deceleration fault pending OR unintended deceleration fault pending enable FASLE (startle mitigation) clutch steady state adaptive active transmission output shaft speed C3 clutch slip speed valid, all speed sesnors are functional for lever node clutch slip speed calculation accelerator pedal position engine speed diagnostic clutch test C3 set to HOLDING CLUTCH when: clutch solenoid test state	≥ 400.0 RPM = HOLDING CLUTCH = FALSE = TRUE ≠ initial startle mitigation gear = FALSE = 0 Boolean = FALSE ≥ 100.0 RPM = TRUE ≥ 2.00 % ≥ 1,500.0 RPM = NEUTRAL TEST	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting table	

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 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.			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C3 clutch pressured map 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 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 NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	= FALSE = TRUE ≠ initial startle mitigation gear = mapped to line pressure, C3 clutch pressure has transtioned from off-applying-applied = TRUE ≠ range shift completed = 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST = range shift completed	initialize range shift complete time = 0.500 seconds, range shift complete time must time down to zero when range shift complete	

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 the solenoid is electrically functional. The clutch pressure control solenoid is tested during an automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off, the intended off going clutch continues to maintain torque capacity during the transmission automatic shift. In the failure mode, the off going clutch slip speed will remain near zero RPM when the clutch pressure control solenoid is commanded 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	shift type is power down shift, C3 clutch slip speed OR shift type is not power down shift, C3 clutch slip speed update fail time 6.25 milliscond update	< 50.0 RPM < 50.0 RPM	use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE AND run crank voltage TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= 1 Boolean = 1 Boolean ≥ 9.00 volts = 0 Boolean = 0 Boolean ≥ 9.00 volts = TRUE Boolean	shift type is power down shift, fail time ≥ 0.800 seconds, OR shift type is not power down shift, fail time ≥ 0.150 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update 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 input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the 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 solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure control solenoid stuck on 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 speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
					service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
					hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting table	
					transmission output shaft speed	≥ 89.0 RPM		
					set solenoid stuck on test trigger to TRUE when: clutch pressure control solenoid stuck off stuck intrusive shift request	= FALSE		
					startle mitigation active (see startle mitigation active NOTE below)	= FALSE		
					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		
					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 solenoid.			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift OR	= 0 Boolean		
					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	= TIE UP TEST TEST STATE		
					clutch control solenoid test state (see clutch control solenoid test state NOTE below)	= 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.
					TEST STATE when: solenoid stuck on test trigger	= TRUE		
					current loop clutch control solenoid test state OR	= TEST WAITING		
					current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below)	= TIE UP TEST HOLD		
					range shift state	≠ range shift complete		
					solenoid stuck on test trigger	= TRUE		
					additional off going clutch occured	= TRUE		
					(clutch control solenoid test state OR	= TIE UP TEST TEST STATE		
					clutch control solenoid test state) (see clutch control solenoid test state NOTE below)	= TIE UP TEST HOLD		
					diagnostic clutch test	= OFF GOING CLUTCH TEST		
					(C3 off going clutch pressure control ramp time out complete AND	= TRUE		
					off going clutch pressure ramp control ramp time out enable) OR	= 1 Boolean		
					C3 off going clutch pressure	≤ 350.0 kPa	for C3 off going clutch pressure time ≥ **P0797 C3 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.
							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 open throttle power down shift** see supporting tables	
					engine torque	≥ 8,191.8 Nm		
					primary on coming clutch active	= TRUE		
					primary on coming control state	≠ clutch fill phase		
					closed throttle lift foot up shift primary on coming clutch pressure OR	≥ 500.0 kPa		
					open throttle power on up shift primary on coming clutch pressure OR	≥ 500.0 kPA		
					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	≥ 500.0 kPa		
					OR open throttle power down shift primary on coming clutch pressure	≥ 500.0 kPa		
					OR 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 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 run crank voltage battery voltage P07BF fault active P07BF 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.
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.
Upshift Switch Circuit	P0815	Diagnoses the state of the upshift switch circuit, stuck in the state "tap up" (upshift) active.	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 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 = 1 Boolean ≥ 5.00 volts ≥ 9.00 volts = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean Transmission Shift Lever Position Validity	fail time 2 ≥ 120.00 seconds run crank voltage time ≥ 25 milliseconds ≥ 1.00 seconds	Special Type C
			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 test fail this key on	= FALSE = 1 Boolean ≥ 5.00 volts ≥ 9.00 volts = FALSE = FALSE = FALSE	fail time 1 ≥ 1.00 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:	= FALSE = FALSE = FALSE	≥ 1.00 seconds	
					D1 OR	= 1 Boolean		
					D2 OR	= 1 Boolean		
					D3 OR	= 1 Boolean		
					D4 OR	= 1 Boolean		
					D5 OR	= 1 Boolean		
					D6 OR	= 1 Boolean		
					D7 OR	= 1 Boolean		
					D8 OR	= 1 Boolean		
					D9 OR	= 1 Boolean		
					D10 OR	= 0 Boolean		
					NEUTRAL OR	= 0 Boolean		
					PARK OR	= 0 Boolean		
					REVERSE	= 0 Boolean		
					DTCs not fault pending	Transmission Shift Lever Position Validity		

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 state "tap down" (downshift) active.	switch state update fail time 2 100 millisecond update rate	= tap down (downshift) 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 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 = 1 Boolean ≥ 5.00 volts ≥ 9.00 volts = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean Transmission Shift Lever Position Validity	fail time 2 ≥ 120.00 seconds run crank voltage time ≥ 25 milliseconds ≥ 1.00 seconds	Special Type C
			switch state update fail time 1 100 millisecond update rate	= tap down (downshift) 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 1 ≥ 1.00 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 (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 = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 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	≥ 8.00 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

17 OBDG03 TCM Common 9 Speed T87A Summary Tables

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	≥ 8.00 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 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	≥ 8.00 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 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	≥ 8.00 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 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	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 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 | ≥ 8.00 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 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	≥ 8.00 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	≥ 8.00 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 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 | battery voltage

run crank voltage OR accessory voltage active

diagnostic monitor enable calibration | ≥ 8.00 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.
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.	This function detects a serial communications fault based upon the detection of missing or invalid (receive) message within the secondary processor before and after receiving a valid message.			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 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 before receiving a valid message.			Run/Crank voltage > 6.41	39 / 399 counts continuous; 12.5 ms /count in the TCM main processor	Type A, 1 Trips
			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	159 / 399 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	= 1 Boolean	Single Event	Type A, 1 Trips
			Safety Monitor Enable Critera	= TRUE Boolean	Reduandant Memory Command Pressure Enable Calibraiton	= 0 Boolean	Single Event	
			AND					
			No traction event in progress	diffeerence between driven and non-driven wheel speeds: >= 50.00 pct			Single Event	
			AND				Single Event	
			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 Clutch Slip Sum**				
			AND					
			Condition timer greater than threshold	= TRUE Boolean			>= 0.00 seconds	
			AND					
			Command clutch pressure	Thresholds for clutches				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			on released clutch greater than threshold	by gear: <= **P2D2 Decel Pressure - C1** <= **P2D2 Decel Pressure - C2** <= **P2D2 Decel Pressure - C3** <= **P2D2 Decel Pressure - C4** <= **P2D2 Decel Pressure - C5** <= **P2D2 Decel Pressure - C6** <= **P2D2 Decel Pressure - C7** *See Attached Supporting Tables:				
			AND *Monitor is disabled if Fault Active or codes for: Speeds Sensors 1/2/3, High Side Drivers 1/2 or service fast learn active. Brake Pedal is defaulted is FA Engine torque is defaulted is FA					

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	Reduandant Memory Command Gear Enable Calibraiton Not	= 1 Boolean	Single Event	
			Safety Monitor Enable Critera	= TRUE Boolean	Reduandant Memory Command Gear Enable Calibraiton	= 0 Boolean		
			Command gear too low for present vehcle velocity and pedal position	Commanded Gear Threshold by vehicle velocity: **<= 1st FWD Thrshld** **<= 1st REV Thrshld** **<=2nd FWD Thrshld** **<=2nd REV Thrshld** **<=3rd FWD Thrshld** **<=4th FWD Thrshld** **<=5th FWD Thrshld** **<=6th FWD Thrshld** **<=7th FWD Thrshld** **<=8th FWD Thrshld** **<=9th FWD Thrshld** **<=** **REV Thrshld (Negative Velocity)** **<=** **REV Thrshld (Forward Velocity)** *See Attached Supporting Tables:				
			*Monitor is diabled if: TISS FA or TOSS					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			directional FA, SFL or HSD 1/2 are OFF					

Component/ System	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 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	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 run crank voltage battery voltage	= FALSE = 1 Boolean ≥ 356.0 RPM ≥ 356.0 RPM ≥ 10.00 volts ≥ 10.00 volts	fail time ≥ 8.000 seconds out of sample time ≥ 10.000 seconds 25 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.
		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.						

17 OBDG03 TCM Common 9 Speed T87A Summary Tables

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 = 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 threshold 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 error in 10 element 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.
Transmission 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	> 20.0 RPM > **P176B intermediate speed sensor fail RPM threshold** see supporting tables	diagnostic monitor enable 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 ***************************** delay time updates when: estimated transmission intermediate speed (transmission input	= 1 Boolean = CeTNSR_e_NSPD_SingleSpdSnsr **P176B ratio calibration = when not REVERSE** see supporting tables **P176B ratio calibration = when REVERSE** see supporting tables ***************************** ≥ **P176B minimum estimated transmission intermediate speed to enable fail evaluation**	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 ****************** delay time ≥	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	see supporting tables	**P176B delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation** see supporting tables	
					transmission input speed	≥ **P176B minimum transmission input speed to enable 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	= **P176B holding clutch states** 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 P077D fault active P176C fault active P176D fault active battery voltage	****************************** ≥ 172.0 RPM ≥ 89.0 RPM = nuetral idle mode ON = range shift complete = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE ≥ 9.00 volts	battery voltage time ≥ 0.100	

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	= FALSE ≥ 9.00 volts ≥ 400.0 RPM	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.
Transmission 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

17 OBDG03 TCM Common 9 Speed T87A Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmission 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 non-transitional 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	≠ FORWARD ≠ REVERSE ≥ 25.0 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 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 unknown	= FALSE = 1 Boolean ≠ 0 counts = FALSE = FALSE = CeTNSR_e_NSPD_SingleSpdSnsr ≥ 0.3994 seconds ≤ 0.3193 seconds < 0.2080 seconds > 0.1523 seconds < 0.0518 seconds > 0.0381 seconds < 0.3994 seconds > 0.3193 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.
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 ≥ 2,395 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 the solenoid is electrically functional. In the failure mode the clutch slip speed, and gear box gear slip, will be excessive, not near or at zero RPM. The clutch slip speed is calculated based on the transmission lever node design, requiring transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft speed. The clutch pressure control solenoid is tested after an automatic transmission shift occurs and has been considered shift 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 transmission line	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM	use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE AND run crank voltage TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled service fast learn active service solenoid cleaning procedure active hydraulic pressure	= 1 Boolean = 1 Boolean ≥ 9.00 volts = 0 Boolean = 0 Boolean ≥ 9.00 volts = TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean	fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update 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.
		pressure control, which normally allows the clutch to maintain full torque holding capacity at the given engine crankshaft torque, to maintain true gear ratio. When the clutch pressure control solenoid is failed hydraulically off, the clutch does not maintain holding capacity at any engine crankshaft torque, and the clutch slip speed is uncontrollable. The clutch pressure control solenoid test is suspended if the higher level safety startle mitigation function is active. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid that has failed in the opposite sense, clutch pressure control solenoid failed hydraulically on, while the solenoid is electrically functional, which must take priority over any clutch pressure control solenoid stuck off diagnostic monitor. All clutch pressure control			available: engine speed enable C4 clutch slip speed fail compare when: diagnostic clutch test C4 ((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) unintended deceleration fault pending OR unintended deceleration fault pending enable FASLE (startle mitigation) clutch steady state adaptive active transmission output shaft speed C4 clutch slip speed valid, all speed sesnors are functional for lever node clutch slip speed calculation accelerator pedal position engine speed diagnostic clutch test C4 set to HOLDING CLUTCH when: clutch solenoid test state	≥ 400.0 RPM = HOLDING CLUTCH = FALSE = TRUE ≠ initial startle mitigation gear = FALSE = 0 Boolean = FALSE ≥ 100.0 RPM = TRUE ≥ 2.00 % ≥ 1,500.0 RPM = NEUTRAL TEST	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting table	

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 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.			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C4 clutch pressured map 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 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 NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	= FALSE = TRUE ≠ initial startle mitigation gear = mapped to line pressure, C4 clutch pressure has transtioned from off-applying-applied = TRUE ≠ range shift completed = 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST = range shift completed	initialize range shift complete time = 0.500 seconds, range shift complete time must time down to zero when range shift complete	

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 D Stuck On	P2715	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 pressure control solenoid is tested during an automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off, the intended off going clutch continues to maintain torque capacity during the transmission automatic shift. In the failure mode, the off going clutch slip speed will remain near zero RPM when the clutch pressure control solenoid is commanded 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	shift type is power down shift, C4 clutch slip speed OR shift type is not power down shift, C4 clutch slip speed update fail time 6.25 milliscond update	< 50.0 RPM < 50.0 RPM	use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE AND run crank voltage TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= 1 Boolean = 1 Boolean ≥ 9.00 volts = 0 Boolean = 0 Boolean ≥ 9.00 volts = TRUE Boolean	shift type is power down shift, fail time ≥ 0.800 seconds, OR shift type is not power down shift, fail time ≥ 0.150 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update 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 input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the 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 solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure control solenoid stuck on 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 speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled service fast learn active service solenoid cleaning procedure active hydraulic pressure available: engine speed transmission output shaft speed set solenoid stuck on test trigger to TRUE when: clutch pressure control solenoid stuck off stuck intrusive shift request startle mitigation active (see startle mitigation active NOTE below) clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below) initialize active clutch controller (clutch control processing in process of sequencing clutches on	= TRUE Boolean = FALSE Boolean = FALSE Boolean ≥ 400.0 RPM ≥ 89.0 RPM = FALSE = FALSE ≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD = TRUE	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting table	

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 solenoid.			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift OR	= 0 Boolean		
					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	= TIE UP TEST TEST STATE		
					clutch control solenoid test state (see clutch control solenoid test state NOTE below)	= 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.
					TEST STATE when: solenoid stuck on test trigger	= TRUE		
					current loop clutch control solenoid test state OR	= TEST WAITING		
					current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below)	= TIE UP TEST HOLD		
					range shift state	≠ range shift complete		
					solenoid stuck on test trigger	= TRUE		
					additional off going clutch occured	= TRUE		
					(clutch control solenoid test state OR	= TIE UP TEST TEST STATE		
					clutch control solenoid test state) (see clutch control solenoid test state NOTE below)	= TIE UP TEST HOLD		
					diagnostic clutch test	= OFF GOING CLUTCH TEST		
					(C4 off going clutch pressure control ramp time out complete AND	= TRUE		
					off going clutch pressure ramp control ramp time out enable) OR	= 1 Boolean		
					C4 off going clutch pressure	≤ 350.0 kPa	for C4 off going 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.
							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 open throttle power down shift** see supporting tables	
					engine torque	≥ 8,191.8 Nm		
					primary on coming clutch active	= TRUE		
					primary on coming control state	≠ clutch fill phase		
					closed throttle lift foot up shift primary on coming clutch pressure OR	≥ 850.0 kPa		
					open throttle power on up shift primary on coming clutch pressure OR	≥ 850.0 kPA		
					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	≥ 850.0 kPa		
					OR open throttle power down shift primary on coming clutch pressure	≥ 850.0 kPa		
					OR 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. 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 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	≥ 8.00 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 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	≥ 8.00 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	≥ 8.00 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 Stuck Off	P2723	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while the solenoid is electrically functional. In the failure mode the clutch slip speed, and gear box gear slip, will be excessive, not near or at zero RPM. The clutch slip speed is calculated based on the transmission lever node design, requiring transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft speed. The clutch pressure control solenoid is tested after an automatic transmission shift occurs and has been considered shift 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 transmission line	C1 clutch slip speed, update fail time 6.25 millliscond update	≥ 200.0 RPM	use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE AND run crank voltage TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled service fast learn active service solenoid cleaning procedure active hydraulic pressure	= 1 Boolean = 1 Boolean ≥ 9.00 volts = 0 Boolean = 0 Boolean ≥ 9.00 volts = TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean	fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 millliscond update 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.
		pressure control, which normally allows the clutch to maintain full torque holding capacity at the given engine crankshaft torque, to maintain true gear ratio. When the clutch pressure control solenoid is failed hydraulically off, the clutch does not maintain holding capacity at any engine crankshaft torque, and the clutch slip speed is uncontrollable. The clutch pressure control solenoid test is suspended if the higher level safety startle mitigation function is active. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid that has failed in the opposite sense, clutch pressure control solenoid failed hydraulically on, while the solenoid is electrically functional, which must take priority over any clutch pressure control solenoid stuck off diagnostic monitor. All clutch pressure control			available: engine speed enable C5 clutch slip speed fail compare when: diagnostic clutch test C5 ((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) unintended deceleration fault pending OR unintended deceleration fault pending enable FASLE (startle mitigation) clutch steady state adaptive active transmission output shaft speed C5 clutch slip speed valid, all speed sesnors are functional for lever node clutch slip speed calculation accelerator pedal position engine speed diagnostic clutch test C5 set to HOLDING CLUTCH when: clutch solenoid test state	≥ 400.0 RPM = HOLDING CLUTCH = FALSE = TRUE ≠ initial startle mitigation gear = FALSE = 0 Boolean = FALSE ≥ 100.0 RPM = TRUE ≥ 2.00 % ≥ 1,500.0 RPM = NEUTRAL TEST	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting table	

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 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.			((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		
					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 = 0.500 seconds, range shift complete time must time down to zero when range shift complete	
					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		
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on			

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 E Stuck On	P2724	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 pressure control solenoid is tested during an automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off, the intended off going clutch continues to maintain torque capacity during the transmission automatic shift. In the failure mode, the off going clutch slip speed will remain near zero RPM when the clutch pressure control solenoid is commanded 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	shift type is power down shift, C5 clutch slip speed OR shift type is not power down shift, C5 clutch slip speed update fail time 6.25 milliscond update	< 50.0 RPM < 50.0 RPM	use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE AND run crank voltage TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= 1 Boolean = 1 Boolean ≥ 9.00 volts = 0 Boolean = 0 Boolean ≥ 9.00 volts = TRUE Boolean	shift type is power down shift, fail time ≥ 0.800 seconds, OR shift type is not power down shift, fail time ≥ 0.150 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update 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 input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the 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 solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure control solenoid stuck on 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 speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting table	
					service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
					hydraulic pressure available: engine speed	≥ 400.0 RPM		
					transmission output shaft speed	≥ 89.0 RPM		
					set solenoid stuck on test trigger to TRUE when: clutch pressure control solenoid stuck off stuck intrusive shift request	= FALSE		
					startle mitigation active (see startle mitigation active NOTE below)	= FALSE		
					clutch control solenoid test state	≠ TIE UP TEST TEST STATE		
					clutch control solenoid test state (see clutch control solenoid test state NOTE below)	≠ TIE UP TEST HOLD		
					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 solenoid.			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift OR	= 0 Boolean		
					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	= TIE UP TEST TEST STATE		
					clutch control solenoid test state (see clutch control solenoid test state NOTE below)	= 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.
					TEST STATE when: solenoid stuck on test trigger	= TRUE		
					current loop clutch control solenoid test state OR	= TEST WAITING		
					current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below)	= TIE UP TEST HOLD		
					range shift state	≠ range shift complete		
					solenoid stuck on test trigger	= TRUE		
					additional off going clutch occured	= TRUE		
					(clutch control solenoid test state OR	= TIE UP TEST TEST STATE		
					clutch control solenoid test state) (see clutch control solenoid test state NOTE below)	= TIE UP TEST HOLD		
					diagnostic clutch test	= OFF GOING CLUTCH TEST		
					(C5 off going clutch pressure control ramp time out complete AND	= TRUE		
					off going clutch pressure ramp control ramp time out enable) OR	= 1 Boolean		
					C5 off going clutch pressure	≤ 350.0 kPa	for C5 off going clutch pressure time ≥ **P2724 C5 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.
							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 open throttle power down shift** see supporting tables	
					engine torque	≥ 8,191.8 Nm		
					primary on coming clutch active	= TRUE		
					primary on coming control state	≠ clutch fill phase		
					closed throttle lift foot up shift primary on coming clutch pressure OR	≥ 703.0 kPa		
					open throttle power on up shift primary on coming clutch pressure OR	≥ 703.0 kPA		
					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	≥ 703.0 kPa		
					open throttle power down shift primary on coming clutch pressure OR	≥ 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 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 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 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	≥ 8.00 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	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 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	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 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 Stuck Off	P2732	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while the solenoid is electrically functional. In the failure mode the clutch slip speed, and gear box gear slip, will be excessive, not near or at zero RPM. The clutch slip speed is calculated based on the transmission lever node design, requiring transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft speed. The clutch pressure control solenoid is tested after an automatic transmission shift occurs and has been considered shift 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 transmission line	C1 clutch slip speed, update fail time 6.25 millisecond update	≥ 200.0 RPM	use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE AND run crank voltage TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled service fast learn active service solenoid cleaning procedure active hydraulic pressure	= 1 Boolean = 1 Boolean ≥ 9.00 volts = 0 Boolean = 0 Boolean ≥ 9.00 volts = TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean	fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update 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.
		pressure control, which normally allows the clutch to maintain full torque holding capacity at the given engine crankshaft torque, to maintain true gear ratio. When the clutch pressure control solenoid is failed hydraulically off, the clutch does not maintain holding capacity at any engine crankshaft torque, and the clutch slip speed is uncontrollable. The clutch pressure control solenoid test is suspended if the higher level safety startle mitigation function is active. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid that has failed in the opposite sense, clutch pressure control solenoid failed hydraulically on, while the solenoid is electrically functional, which must take priority over any clutch pressure control solenoid stuck off diagnostic monitor. All clutch pressure control			available: engine speed enable C6 clutch slip speed fail compare when: diagnostic clutch test C6 ((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) unintended deceleration fault pending OR unintended deceleration fault pending enable FASLE (startle mitigation) clutch steady state adaptive active transmission output shaft speed C6 clutch slip speed valid, all speed sesnors are functional for lever node clutch slip speed calculation accelerator pedal position engine speed diagnostic clutch test C6 set to HOLDING CLUTCH when: clutch solenoid test state	≥ 400.0 RPM = HOLDING CLUTCH = FALSE = TRUE ≠ initial startle mitigation gear = FALSE = 0 Boolean = FALSE ≥ 100.0 RPM = TRUE ≥ 2.00 % ≥ 1,500.0 RPM = NEUTRAL TEST	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting table	

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 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 pressure control solenoid.			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C6 clutch pressured map 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 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 NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	= FALSE = TRUE ≠ initial startle mitigation gear = mapped to line pressure, C6 clutch pressure has transtioned from off-applying-applied = TRUE ≠ range shift completed = 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST = range shift completed	initialize range shift complete time = 0.500 seconds, range shift complete time must time down to zero when range shift complete	

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 F Stuck On	P2733	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 pressure control solenoid is tested during an automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off, the intended off going clutch continues to maintain torque capacity during the transmission automatic shift. In the failure mode, the off going clutch slip speed will remain near zero RPM when the clutch pressure control solenoid is commanded 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	shift type is power down shift, C6 clutch slip speed OR shift type is not power down shift, C6 clutch slip speed update fail time 6.25 milliscond update	< 50.0 RPM < 50.0 RPM	use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE AND run crank voltage TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= 1 Boolean = 1 Boolean ≥ 9.00 volts = 0 Boolean = 0 Boolean ≥ 9.00 volts = TRUE Boolean	shift type is power down shift, fail time ≥ 0.800 seconds, OR shift type is not power down shift, fail time ≥ 0.150 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update 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 input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the 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 solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure control solenoid stuck on 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 speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled service fast learn active service solenoid cleaning procedure active hydraulic pressure available: engine speed transmission output shaft speed set solenoid stuck on test trigger to TRUE when: clutch pressure control solenoid stuck off stuck intrusive shift request startle mitigation active (see startle mitigation active NOTE below) clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below) initialize active clutch controller (clutch control processing in process of sequencing clutches on	= TRUE Boolean = FALSE Boolean = FALSE Boolean ≥ 400.0 RPM ≥ 89.0 RPM = FALSE = FALSE ≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD = TRUE	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting table	

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 C45678910R, clutch pressure control solenoid.			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift OR shift type enable for garage shift OR shift type enable for negative torque up shift OR shift type enable for open throttle power on up shift OR shift type enable for closed throttle down shift OR shift type enable for open throttle power down shift OR shift type enable for closed throttle lift foot up shift) OR clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below) transition clutch controller active clutch controller (staged steady sate shift - shift not in process, no new shift type occuring, no interrupted shift) set clutch control solenoid test state to TIE UP TEST	= 0 Boolean = 0 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 0 Boolean = TIE UP TEST TEST STATE = TIE UP TEST HOLD = TRUE ≠ staged steady state		

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	= TRUE		
					current loop clutch control solenoid test state OR	= TEST WAITING		
					current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below)	= TIE UP TEST HOLD		
					range shift state	≠ range shift complete		
					solenoid stuck on test trigger	= TRUE		
					additional off going clutch occured	= TRUE		
					(clutch control solenoid test state OR	= TIE UP TEST TEST STATE		
					clutch control solenoid test state) (see clutch control solenoid test state NOTE below)	= TIE UP TEST HOLD		
					diagnostic clutch test	= OFF GOING CLUTCH TEST		
					(C6 off going clutch pressure control ramp time out complete AND	= TRUE		
					off going clutch pressure ramp control ramp time out enable) OR	= 1 Boolean		
					C6 off going clutch pressure	≤ 350.0 kPa	for C6 off going clutch pressure time ≥ **P2733 C6 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.
							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 open throttle power down shift** see supporting tables	
					engine torque	≥ 8,191.8 Nm		
					primary on coming clutch active	= TRUE		
					primary on coming control state	≠ clutch fill phase		
					closed throttle lift foot up shift primary on coming clutch pressure OR	≥ 655.0 kPa		
					open throttle power on up shift primary on coming clutch pressure OR	≥ 655.0 kPA		
					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	≥ 655.0 kPa		
					open throttle power down shift primary on coming clutch pressure OR	≥ 655.0 kPa		
					closed throttle down shift primary on coming clutch pressure	≥ 655.0 kPa		
					C6 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 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 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	≥ 8.00 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	≥ 8.00 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	≥ 8.00 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 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.
Transmission Range Sensor A/B Correlation	P2805	Internal range sensor A is wired independently to the TCM while internal range sensor B is wired independently to the ECM. The monitor diagnoses the internal range sensor A PWM duty cycle by comparing the raw sensor A value against the raw sensor B adjusted value, to verify signals are consistent, or determine the TCM internal range sensor A does not correlate to the ECM internal range sensor B. The ECM transmits internal range sensor B raw PWM to the TCM over the serial data bus.	ABS((TCM internal range sesnor A + ECM internal range sesnor B raw adjusted for high or low time) - 100 %)) Increment fail and sample time, update rate 25 milliseconds	> 4.999 % duty cycle	diagnostic monitor enable P0707 fault active P0708 fault active U0100 fault active ECM internal range sesnor B available from ECM ECM internal range sesnor B fault active battery voltage ABS(TCM internal range sesnor A current loop value - TCM internal range sesnor A previous loop value), update TCM internal range sesnor A stablity time, update rate 25 milliseconds ABS(ECM internal range sesnor B current loop value - ECM internal range sesnor B previous loop value), update ECM internal range sesnor B stablity time, update rate 25 milliseconds TCM internal range sesnor A stability time met OR ECM internal range sesnor B stability time met ECM internal range sesnor B raw adjusted for	= 1 Boolean = FALSE = FALSE = FALSE = TRUE = FALSE ≥ 9.00 volts < 4.999 % duty cycle < 4.999 % duty cycle = ABS(ECM internal range sesnor B raw -	PWM fail time ≥ 1.000 seconds out of sample time ≥ 1.000 seconds battery voltage time ≥ 1.000 seconds TCM internal range sesnor A stability time ≥ 1.000 seconds ECM internal range sesnor B stability time ≥ 1.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					high or low time	100.000 %)		

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	≥ 8.00 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	≥ 8.00 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	≥ 8.00 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 Performance /Stuck Off	P2817	The diagnostic monitor detects the transmission torque converter control valve solenoid failed hydraulically off. The monitor executes when the transmission torque converter is commanded to a "lock" mode during which the torque converter will be controlled to near zero (0.0) RPM slip speed, or, an "on" mode during which the torque converter will be controlled to target slip speed using slip speed error. The transmission torque converter control valve solenoid is considered failed hydraulically off when the "lock" mode slip speed is excessive, or, when the 'on' mode slip speed error is excessive.	if use TCC slip speed error OR TCC control mode TCC slip speed error = TCC slip speed - TCC comand slip speed else if TCC control mode torque convert slip = engine speed - transmission input shaft speed then update fail time 25 millisecond update rate	= 0 Boolean = ON mode (controlled slip mode) ≥ **P2817 TCC stuck off fail TCC slip speed** see supporting table = LOCK ≥ 130.0 RPM	diagnostic monitor enable TCC command capacity TCC command pressure (TCC control mode previous TCC control mode previous TCC control mode previous) AND (TCC control mode current OR TCC control mode current) (TCC stuck off enable OR TCC stuck on enable) hydraulic pressure available: engine speed	= 1 Boolean ≥ 0.00 % ≥ 600.0 kPa ≠ TCC control mode current ≠ ON mode (controlled slip mode) ≠ LOCK = ON mode (controlled slip mode) = LOCK = 1 Boolean = 1 Boolean ≥ 400.0 RPM	fail time ≥ 2.500 seconds increment fail count fail count ≥ 3 counts 25 millisecond update rate TCC command capacity time ≥ 0.00 seconds TCC command pressure time ≥ 2.00 seconds engine speed time ≥ **engine speed time for transmission hydraulic pressure available**	Type B, 2 Trips

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 battery voltage	= FALSE ≥ 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 temperature	≥ -6.66 °C		
					transmission fluid temperature	≤ 130.0 °C		
					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 select valve solenoid)	= disabled (clutch select valve not transitioning)		
					attained gear	≥ CeCGSR_e_CR_Second		
					attained gear slip	≤ 25.0 RPM		
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccurate		

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	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 large slope while decreasing toward zero RPM, and the torque converter slip speed will remain low near zero RPM.	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 torque convert slip speed THEN increment fail time 25 millisecond update rate	≥ **P2818 torque convert derivative slip speed fail threshold** see supporting table ≤ 300.0 RPM ≥ -50.0 RPM ≤ 30.0 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 PRNDL PRNDL transmission fluid temperature transmission fluid	= 1 Boolean = 1 Boolean ≥ 400.0 RPM = FALSE ≥ 9.00 volts ≥ 9.00 volts = FALSE = FALSE = FALSE ≠ NEUTRAL ≠ REVERSE ≥ -6.66 °C ≤ 130.00 °C	fail time ≥ 1.500 seconds increment fail count fail count ≥ 2 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 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.
					temperature			
					accelerator pedal position	≥ 0.00 %		
					accelerator pedal position	≤ 20.00 %		
					vehicle speed	≥ 0.0 KPH		
					vehicle speed	≤ 45.0 KPH		
					TCC command mode	= OFF		
					break latch state (clutch select valve solenoid)	≠ disabled (clutch select 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 temperature	≥ -6.66 °C		
					transmission fluid temperature	≤ 130.00 °C		
					engine torque	≥ 55.0 Nm		
					engine torque	≤ 800.0 Nm		
					P2818 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 OR	= FALSE		
					driver shift mode calibration)	= 0 Boolean		
					(misfire requests TCC off OR	= FALSE		
					misfire TCC off calibration)	= 0 Boolean		
					(clucth control solenoid stuck on OR stuck OFF intrusive shift active)	= FALSE		
					P0746 fault pending	= FALSE		
					P0747 fault pending	= FALSE		
					P0776 fault pending	= FALSE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0777 fault pending	= FALSE		
					P0796 fault pending	= FALSE		
					P0797 fault pending	= FALSE		
					P2714 fault pending	= FALSE		
					P2715 fault pending	= FALSE		
					P2723 fault pending	= FALSE		
					P2724 fault pending	= FALSE		
					P2732 fault pending	= FALSE		
					P2733 fault pending	= FALSE		
					P2820 fault pending	= FALSE		
					P2821 fault pending	= FALSE		
					vehicle speed	≤ 8.0 KPH		
					accelerator pedal position	≥ 4.0 %		
					hysteresis	> 1.0 %		
					when: break latch state (clutch select valve solenoid)	= disabled (clutch select valve not transitioning)		
					previous break latch state (clutch select valve solenoid)	= complete (clutch select valve transition complete)		
					set stuck on test time and begin time down, stuck on test time must time down from calibration value to zero (0.0) seconds	= **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)	= disabled (clutch select valve not transitioning)		
					THEN initialize control valve test time, control valve test time must time down from calibration value to zero (0.0) seconds	= **P2818 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 EngineTorqueEstInaccurate 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	≥ 8.00 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	≥ 8.00 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	≥ 8.00 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 hydraulically off, while the solenoid is electrically functional. This diagnostic monitor detects the clutch select valve solenoid failed hydraulically off. The clutch select valve is used to route hydraulic fluid to, either, the selectable one way clutch hydraulic circuit used to attain transmission 1st gear lock state, or, to the C6 - C6789 clutch hydraulic circuit necessary for transmission higher gear states. When the clutch select valve is failed hydraulically off, and transmission is in 1st gear lock state, it is possible to measure low C6 - C6789 clutch slip speed as hydraulic fluid is routed to the clutch C6 - C6789, or, 6th gear transmission gear ratio, based on transmission lever node design, the	gear ratio gear ratio OR C6 clutch slip speed, update fail time 6.25 milliscond update	≤ 1.700 ≥ 1.200 ≤ 20.0 RPM	use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE AND run crank voltage TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled service fast learn active service solenoid cleaning procedure active hydraulic pressure	= 1 Boolean = 1 Boolean ≥ 9.00 volts = 0 Boolean = 0 Boolean ≥ 9.00 volts = TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean	fail time ≥ 0.250 seconds, update fail count, fail count ≥ 2 counts 6.25 milliscond update 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 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. This diagnostic monitor is relative to the GF9 clutch select valve pressure control solenoid.			available: engine speed	≥ 400.0 RPM	engine speed time ≥ **engine speed time for transmission hydraulic pressure available** see supporting table	
					diagnostic monitor enabled	= 1 Booelan		
					transmission output shaft speed	≥ 35.0 RPM		
					transmission fluid temperature	≥ -7.00 °C		
					transmission fluid temperature	≤ 130.0 °C		
					P2820 test fail this key on (command gear OR attained gear)	= FALSE = 1st lock = 1st lock		
					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		

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	Cx clutch slip speed fail compare C3 (CB38) OR 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 = TRUE			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 faults. It is thus necessary, when individual clutch slip occurs in 3rd or 4th or 5th gear and counted toward the clutch pressure control solenoid stuck on failure, for an intrusive gear commanded from 3rd or 4th or 5th to verify the clutch slip in the remaining gear states. The individual clutch slip that occurs in those intrusive gears, 3rd or 4th or 5th, is also counted toward the clutch pressure control solenoid stuck on failure. As individual clutch slip is accumulated in each commanded gear 3rd or 4th or 5th, that failure time is the verification of the clutch pressure control solenoid failed hydraulically on. The clutch slip speed is calculated based on the transmission lever node design, requiring transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft speed. The clutch			use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE AND run crank voltage TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled service fast learn active service solenoid cleaning procedure active hydraulic pressure available: engine speed	= 1 Boolean = 1 Boolean ≥ 9.00 volts = 0 Boolean = 0 Boolean ≥ 9.00 volts = TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean ≥ 400.0 RPM	battery voltage time ≥ 0.100 seconds run crank voltage time ≥ 0.100 seconds engine speed time ≥	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control solenoid is tested after an automatic transmission shift occurs and has been considered shift 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 transmission line pressure control, which normally allows the clutch to maintain full torque holding capacity at the given engine crankshaft torque, to maintain true gear ratio. When the clutch select pressure control solenoid is failed hydraulically on, C3 (CB38) or C4 (C4) or C5 (C57R) clutches cannot maintain holding capacity at any engine crankshaft torque, and the clutch slip speed is uncontrollable. The clutch pressure control solenoid test is suspended if the higher level safety startle mitigation function is			diagnostic monitor enable transmission fluid temperature transmission fluid temperature P2821 test fail this key on 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 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 Cx indicates any one of the 4 clutches: C3 (CB38) OR C4 (C4) OR C5 (C57R) enable Cx clutch slip	= 1 Boolean ≥ -7.00 °C ≤ 130.0 °C = FALSE = 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST = range shift completed = TRUE ≠ range shift completed	**engine speed time for transmission hydraulic pressure available** see supporting table initialize range shift complete time = 0.500 seconds, range shift complete time must time down to zero when range shift complete	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		active. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid that has failed hydraulically on, while the solenoid is electrically functional, which, must take priority over this clutch select pressure control solenoid stuck off diagnostic monitor. All clutch pressure control 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 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 clutch select valve pressure control solenoid.			speed fail compare when: diagnostic clutch test Cx ((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) unintended deceleration fault pending OR unintended deceleration fault pending enable FASLE (startle mitigation) clutch steady state adaptive active transmission output shaft speed Cx clutch slip speed valid, all speed sesnors are functional for lever node cluch slip speed calculation accelerator pedal position engine speed diagnostic clutch test Cx set to HOLDING CLUTCH when: clutch solenoid test state ((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) Cx clutch pressured map	= HOLDING CLUTCH = FALSE = TRUE ≠ initial startle mitigation gear = FALSE = 0 Boolean = FALSE ≥ 100.0 RPM ≥ 2.00 % ≥ 1,500.0 RPM = NEUTRAL TEST = FALSE = TRUE ≠ initial startle mitigation gear = mapped to line pressure, Cx clutch pressure has transtioned		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						from off-applying-applied		
					clutch select stuck on test 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	≠ REVERSE = NEUTRAL TEST = complete		
					clutch select stuck on test 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 NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	= TRUE = FALSE = CeCGSR_e_Fourth = CeCGSR_e_Fifth = CeCGSR_e_Fourth		

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 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	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 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	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 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

Initial Supporting table - 1st FWD Thrshld

Description: Max Vehcile Velocity Allowed For 1st Gear - Forward Velocity

Value Units: KPH
X Unit: % Pedal
Y Units: KPH

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	60	60	60	60	60	60	60	79	85	88	100	100	100	100	100	105	120

Initial Supporting table - 1st REV Thrshld

Description: Max Vehcile Velocity Allowed For 1st Gear - Reverse Velocity (if using directional speed sensor)

Value Units: KPH
X Unit: % Pedal
Y Units: KPH

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	-12	-12	-12	-53	-59	-65	-72	-79	-85	-88	-100	-100	-100	-100	-100	-105	-120

Initial Supporting table - 2nd FWD Thrshld

Description: Max Vehcile Velocity Allowed For 2nd Gear - Forward Velocity

Value Units: KPH
X Unit: % Pedal
Y Units: KPH

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	70	72	72	73	79	85	93	99	105	108	110	113	123	147	169	172	200

Initial Supporting table - 2nd REV Thrshld

Description: Max Vehcile Velocity Allowed For 2nd Gear - Reverse Velocity (if using directional speed sensor)

Value Units: KPH
X Unit: % Pedal
Y Units: KPH

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	-85	-86	-88	-89	-90	-98	-105	-115	-125	-135	-148	-160	-181	-201	-221	-240	-250

Initial Supporting table - 3rd FWD Thrshld

Description: Max Vehcile Velocity Allowed For 3rd Gear - Forward Velocity

Value Units: KPH
X Unit: % Pedal
Y Units: KPH

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	105	106	107	108	110	114	120	127	145	150	160	170	180	200	240	280	300

Initial Supporting table - 4th FWD Thrshld

Description: Max Vehcile Velocity Allowed For 4th Gear - Forward Velocity

Value Units: KPH
X Unit: % Pedal
Y Units: KPH

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	105	106	107	108	110	114	120	127	145	150	160	170	180	200	240	280	300

Initial Supporting table - 5th FWD Thrshld

Description: Max Vehcile Velocity Allowed For 5th Gear - Forward Velocity

Value Units: KPH
X Unit: % Pedal
Y Units: KPH

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	135	136	137	138	140	142	150	157	165	193	300	300	300	300	300	300	300

Initial Supporting table - 6th FWD Thrshld

Description: Max Vehcile Velocity Allowed For 6th Gear - Forward Velocity

Value Units: KPH
X Unit: % Pedal
Y Units: KPH

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300

Initial Supporting table - 7th FWD Thrshld

Description: Max Vehcile Velocity Allowed For 7th Gear - Forward Velocity

Value Units: KPH
X Unit: % Pedal
Y Units: KPH

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300

Initial Supporting table - 8th FWD Thrshld

Description: Max Vehcile Velocity Allowed For 8th Gear - Forward Velocity

Value Units: KPH
X Unit: % Pedal
Y Units: KPH

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1		300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300

Initial Supporting table - 9th FWD Thrshld

Description: Max Vehcile Velocity Allowed For 9th Gear - Forward Velocity

Value Units: KPH
X Unit: % Pedal
Y Units: KPH

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1		300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300

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: °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: °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: °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 - 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)

P0606_Last Seed Timeout f(Loop Time) - Part 1

y/x	CePISR_e_5msSeq	CePISR_e_6p25msSeq	CePISR_e_10msSeq	CePISR_e_12p5msSeq	CePISR_e_20msSeq	CePISR_e_25msSeq	CePISR_e_40msSeq
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_Seq	CePISR_e_EventB_Seq	CePISR_e_EventC_Seq	
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(Loop Time) - Part 1

y/x	CePISR_e_5msSeq	CePISR_e_6p25msSeq	CePISR_e_10msSeq	CePISR_e_12p5msSeq	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

y/x	CePISR_e_50msSeq	CePISR_e_80msSeq	CePISR_e_100msSeq	CePISR_e_EventA_Seq	CePISR_e_EventB_Seq	CePISR_e_EventC_Seq	
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 Sequence Sample f(Loop Time) - Part 1

y/x	CePISR_e_5msSeq	CePISR_e_6p25msSeq	CePISR_e_10msSeq	CePISR_e_12p5msSeq	CePISR_e_20msSeq	CePISR_e_25msSeq	CePISR_e_40msSeq
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_Seq	CePISR_e_EventB_Seq	CePISR_e_EventC_Seq	
1	4	4	4	4	4	4	

Initial Supporting table - P0723 transmission engaged state time threshold

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

Value Units: seconds
X Unit: °C

y/x	-40.000	0.000	40.000
1	5.000	5.000	5.000

Initial Supporting table - P0741 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	0.350	0.350	0.350

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
X Unit: transmission fluid temperature °C

y/x	-7.00	10.00	40.00
1	1.500	1.250	1.000

Initial Supporting table - P0741 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
1	500.0	500.0	500.0

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
X Unit: transmission fluid temperature °C

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
X Unit: transmission fluid temperature °C

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
X Unit: transmission fluid temperature °C

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
X Unit: transmission fluid temperature °C

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 - 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
X Unit: transmission fluid temperature °C

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 open throttle power on up shift

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

Value Units: seconds
X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.269	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
X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.200	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
X Unit: transmission fluid temperature °C

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
X Unit: transmission fluid temperature °C

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
X Unit: transmission fluid temperature °C

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
X Unit: transmission fluid temperature °C

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
X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.262	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
X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.200	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
X Unit: transmission fluid temperature °C

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
X Unit: transmission fluid temperature °C

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
X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.144	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
X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.256	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
X Unit: transmission fluid temperature °C

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 - 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: commanded gear
Y Units: intermediate speed sensor select

P176B holding clutch states - Part 1

y/x	CeCGSR_e_CR_NullForSched	CeCGSR_e_CR_Neutral	CeCGSR_e_CR_Park	CeCGSR_e_CR_Reverse	CeCGSR_e_CR_First	CeCGSR_e_CR_Second	CeCGSR_e_CR_Third
CeTSRR_e_C2C_ClchSpdSnsr1	1	1	1	0	0	0	1
CeTSRR_e_C2C_ClchSpdSnsr2	1	1	1	1	1	1	1

P176B holding clutch states - Part 2

y/x	CeCGSR_e_CR_Fourth	CeCGSR_e_CR_Fifth	CeCGSR_e_CR_Sixth	CeCGSR_e_CR_Seventh	CeCGSR_e_CR_Eighth	CeCGSR_e_CR_Ninth	CeCGSR_e_CR_Tenth
CeTSRR_e_C2C_ClchSpdSnsr1	0	0	0	0	1	0	1
CeTSRR_e_C2C_ClchSpdSnsr2	1	1	1	1	1	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: P176B intermediate speed sensor fail RPM speed threshold

Value Units: RPM
X Unit: intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	20.0	20.0

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	160.0	160.0

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	160.0	160.0

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	CeTGRR_e_Gear1	CeTGRR_e_Gear2	CeTGRR_e_Gear3	CeTGRR_e_Gear4	CeTGRR_e_Gear5	CeTGRR_e_Gear6	CeTGRR_e_Gear7	CeTGRR_e_Gear8	CeTGRR_e_Gear9	CeTGRR_e_Gear10
CeTSRR_e_C2C_ClchSpdSnsr1	1.5848	6.3694	1.0000	2.4450	1.0000	0.5227	1.0000	1.0000	1.1905	1.0000
CeTSRR_e_C2C_ClchSpdSnsr2	1.0000	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 - 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
X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.225	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
X Unit: transmission fluid temperature °C

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
X Unit: transmission fluid temperature °C

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
X Unit: transmission fluid temperature °C

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
X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
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
X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.300	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
X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.337	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
X Unit: transmission fluid temperature °C

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 - P2724 C5 clutch exhaust delay time garage shift

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

Value Units: seconds
X Unit: transmission fluid temperature °C

y/x	-40	-20	0	30	110
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
X Unit: transmission fluid temperature °C

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 - 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
X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.163	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
X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.406	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
X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.350	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
X Unit: transmission fluid temperature °C

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 garage shift

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

Value Units: seconds
X Unit: transmission fluid temperature °C

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
X Unit: transmission fluid temperature °C

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
X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.131	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
X Unit: transmission fluid temperature °C

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

y/x	0.00	64.00	128.00	192.00	256.00	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 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	0.350	0.350	0.350

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
1	-2,000.0	-2,000.0	-2,000.0

Initial Supporting table - P2D2 Clutch Slip Sum

Description:

X Unit: Brake Pedal %
Y Units: dn rpm

y/x	0	13	25	38	50	63	75	88	100
1	-1	-6	-12	-17	-23	-28	-33	-39	-44

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_Neutral	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3	CeCGSR_e_NeutralC4
1	186	186	186	186	186	186	186

P2D2 Decel Pressure - C1 - Part 2

y/x	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4	CeCGSR_e_NeutralC2C5
1	186	186	186	186	186	186	186

P2D2 Decel Pressure - C1 - Part 3

y/x	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_Park
1	186	186	186	186	186	186	186

P2D2 Decel Pressure - C1 - Part 4

y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth
1	186	99,999	99,999	186	186	186	186

P2D2 Decel Pressure - C1 - Part 5

y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	
1	186	99,999	99,999	99,999	99,999	186	

Initial Supporting table - P2D2 Decel Pressure - C2

Description:

Value Units: Kpa
X Unit: Cmnd Gear
Y Units: Kpa

P2D2 Decel Pressure - C2 - Part 1

y/x	CeCGSR_e_NullForSched	CeCGSR_e_Neutral	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3	CeCGSR_e_NeutralC4
1	358	358	358	358	358	358	358

P2D2 Decel Pressure - C2 - Part 2

y/x	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4	CeCGSR_e_NeutralC2C5
1	358	358	358	358	358	358	358

P2D2 Decel Pressure - C2 - Part 3

y/x	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_Park
1	358	358	358	358	358	358	358

P2D2 Decel Pressure - C2 - Part 4

y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth
1	358	358	358	99,999	99,999	358	358

P2D2 Decel Pressure - C2 - Part 5

y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	
1	358	99,999	358	358	358	99,999	

Initial Supporting table - P2D2 Decel Pressure - C3

Description:

Value Units: Kpa
X Unit: Cmnd Gear
Y Units: Kpa

P2D2 Decel Pressure - C3 - Part 1

y/x	CeCGSR_e_NullForSched	CeCGSR_e_Neutral	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3	CeCGSR_e_NeutralC4
1	443	443	443	443	443	443	443

P2D2 Decel Pressure - C3 - Part 2

y/x	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4	CeCGSR_e_NeutralC2C5
1	443	443	443	443	443	443	443

P2D2 Decel Pressure - C3 - Part 3

y/x	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_Park
1	443	443	443	443	443	443	443

P2D2 Decel Pressure - C3 - Part 4

y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth
1	443	443	443	443	443	99,999	443

P2D2 Decel Pressure - C3 - Part 5

y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	
1	443	443	99,999	443	443	99,999	

Initial Supporting table - P2D2 Decel Pressure - C4

Description:

Value Units: Kpa
X Unit: Cmnd Gear
Y Units: Kpa

P2D2 Decel Pressure - C4 - Part 1

y/x	CeCGSR_e_NullForSched	CeCGSR_e_Neutral	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3	CeCGSR_e_NeutralC4
1	373	373	373	373	373	373	373

P2D2 Decel Pressure - C4 - Part 2

y/x	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4	CeCGSR_e_NeutralC2C5
1	373	373	373	373	373	373	373

P2D2 Decel Pressure - C4 - Part 3

y/x	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_Park
1	373	373	373	373	373	373	373

P2D2 Decel Pressure - C4 - Part 4

y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth
1	373	373	373	373	373	373	99,999

P2D2 Decel Pressure - C4 - Part 5

y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	
1	373	373	373	99,999	373	373	

Initial Supporting table - P2D2 Decel Pressure - C5

Description:

Value Units: Kpa
X Unit: Cmnd Gear
Y Units: Kpa

P2D2 Decel Pressure - C5 - Part 1

y/x	CeCGSR_e_NullForSched	CeCGSR_e_Neutral	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3	CeCGSR_e_NeutralC4
1	315	315	315	315	315	315	315

P2D2 Decel Pressure - C5 - Part 2

y/x	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4	CeCGSR_e_NeutralC2C5
1	315	315	315	315	315	315	315

P2D2 Decel Pressure - C5 - Part 3

y/x	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_Park
1	315	315	315	315	315	315	315

P2D2 Decel Pressure - C5 - Part 4

y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth
1	315	315	315	315	315	315	315

P2D2 Decel Pressure - C5 - Part 5

y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	
1	99,999	315	315	315	99,999	315	

Initial Supporting table - P2D2 Decel Pressure - C6

Description:

Value Units: Kpa **X Unit:** Cmnd Gear **Y Units:** Kpa

P2D2 Decel Pressure - C6 - Part 1

y/x	CeCGSR_e_NullForSched	CeCGSR_e_Neutral	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3	CeCGSR_e_NeutralC4
1	315	315	315	315	315	315	315

P2D2 Decel Pressure - C6 - Part 2

y/x	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4	CeCGSR_e_NeutralC2C5
1	315	315	315	315	315	315	315

P2D2 Decel Pressure - C6 - Part 3

y/x	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_Park
1	315	315	315	315	315	315	315

P2D2 Decel Pressure - C6 - Part 4

y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth
1	315	315	315	315	315	315	315

P2D2 Decel Pressure - C6 - Part 5

y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	
1	9,999	315	315	315	9,999	315	

Initial Supporting table - P2D2 Decel Pressure - C7

Description:

Value Units: Kpa
X Unit: Cmnd Gear
Y Units: Kpa

P2D2 Decel Pressure - C7 - Part 1

y/x	CeCGSR_e_NullForSched	CeCGSR_e_Neutral	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3	CeCGSR_e_NeutralC4
1	0	0	0	0	0	0	0

P2D2 Decel Pressure - C7 - Part 2

y/x	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4	CeCGSR_e_NeutralC2C5
1	0	0	0	0	0	0	0

P2D2 Decel Pressure - C7 - Part 3

y/x	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_Park
1	0	0	0	0	0	0	0

P2D2 Decel Pressure - C7 - Part 4

y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth
1	0	9,999	9,999	0	0	0	0

P2D2 Decel Pressure - C7 - Part 5

y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	
1	0	0	0	0	0	0	

Initial Supporting table - REV Thrshld (Forward Velocity)

Description: Max Vehcile Velocity Allowed For Reverse Gear - Forward Velocity

Value Units: KPH
X Unit: % Pedal
Y Units: KPH

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15

Initial Supporting table - REV Thrshld (Negative Velocity)

Description: Max Vehcile Velocity Allowed For Reverse Gear - Reverse Velocity (if using directional speed sensor)

Value Units: KPH
X Unit: % Pedal
Y Units: KPH

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	-57	-57	-57	-57	-57	-57	-72	-79	-85	-88	-100	-100	-100	-100	-100	-105	-120

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

Bundle Name: AcceleratorPedalFailure
P2122, P2123, P2127, P2128, P2138, P0697, P06A3
Bundle Name: CrankSensor_FA
P0335, P0336
Bundle Name: ECT_Sensor_FA
P0116, P0117, P0118, P0119, P0128, P111E
Bundle Name: EngineTorqueEstInaccurate
EngineMisfireDetected_FA, FuelInjedtorCircuit_FA, FuelInjedtorCircuit_TFTKO, FuelTrimSystemB1_FA, FuelTrimSystemB2_FA, MAF_SensorTFTKO, MAP_SensorTFTKO, EGRValvePerformance_FA, P16F3
EngineTorqueEstInaccurate - Other Definitions: P16F3 with GetXOYR_b_SecurityFlt (CeXOYR_e_MAPR_AfterThrotPresFlt, CeXOYR_e_MAPR_EngineVacuumFlt, CeXOYR_e_MAPR_IntkMnfdPresFlt, CeXOYR_e_MAFR_Ahead1vs2FinalFlt)
Bundle Name: Transmission Shift Lever Position Validity
P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915
Bundle Name: VehicleSpeedSensor_FA
P0502, P0503, P0722, P0723
Bundle Name: VehicleSpeedSensorError
P0502, P0503, P0722, P0723