16 OBDG05 TCM Summary Tables Common 8 Speed T87

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				

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				

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)	One Trip
											Out of 50	Sample Counts (100ms loop)	
							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 after a valid message was received by the primary processor OR	Loss or invalid message at initialization detected or loss or invalid message after a valid message was recieved						One Trip

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							at controller initialization, then 12.5 ms cont.	
			configuration register test fail current loop	=	TRUE	Boolean	configuration register test enable	=	1	Boolean	
						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			

16 OBDG05 TCM Summary Tables Common 8 Speed T87

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	ºC						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.
			Fail Case 3 transmission fluid temperature stuck in range test transmission fluid temperature delta (100 ms loop to loop)	<=	0	℃					>=	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	℃				
							transmission fluid temperature	>=	-40	℃				
						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)	Two Trips
											out of	12	Sample Time (Sec)	
							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_Sixt h						
							Transmission Output Speed Sensor Raw Speed when attained gear low	>=	72	RPM					
							attained gear high	>=	CeCGSR_ e_CR_Sixt h						
							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 threshold" RPM				>=	1.5	Fail Time (Sec)	One Trip
					transmission output speed OR	>=	36	RPM	>=	5	fail events	

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	>=	2	seconds		
					set fail RPM threshold					
					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	=	1355	RPM		
					OR					
					4WD low state valid	=	TRUE	Boolean		
					4WD low state	=	FALSE	Boolean		
					OR					
					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	=	FALSE	See Below		
					OR					
					--------------------- Neutral_Range_Enable	=	TRUE	See Below		
					And					
					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 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	>	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/Neutral Transitional	ENUM				
					Transmission Range is	=	Neutral/Drive Transitional	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 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							
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		

16 OBDG05 TCM Summary Tables Common 8 Speed T87

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		
					cluch 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 seconds documents	
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited								see Table 30 >= in supporting seconds documents	
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift no deceleration								see Table 31 >= in supporting seconds documents	
											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 seconds documents	
			increment fail time when slip criteria met, fail time during shift no deceleration								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		

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	=	TRUE Boolean						
			NOTE: Both Failcase1 and Failcase 2 Must Be Met					>= 120 sec			

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					>=	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)	P0968	Pressure Control Solenoid C Control Circuit Open (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				

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	=	TRUE	Boolean	redundent memory command pressure disable calibration not	=	TRUE	Boolean				
							OR redundent memory command pressure enable calibration	=	TRUE	Boolean				
			OR B) command shift and its dual store do not equal	=	TRUE	Boolean	redundent memory command shift disable calibration not	=	FALSE	Boolean				
							OR			Boolean				
							redundent memory command shift enable calibration	=	TRUE	Boolean				
			OR 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	counts (25 msec continuous)	
											>=	20	counts (25 msec continuous)	
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P16F4	Transmission Control Module	redundent path calculation of driver selected transmission range error	=	TRUE	Boolean					>=	6	counts (25 msec continuous)	One Trip
											>=	8	counts (25 msec continuous)	
							secureed controller or emission critical ignition voltage	>=	11	volts				
							P16F4 status is not	=	test pass this key on	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	seconds	One Trip
											>=	10	seconds	
							Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
							Battery Voltage Max (disabled above this value)	<=	31.999023	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 error 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 attained gear is 3rd or 4th or 5th or 6th or 7th or 8th	>	60	PRM								
			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				

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	see Table 52 in supporting documents	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	see Table 56 in supporting documents	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				>= 70 out of 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				>= 70 out of 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					>= 70 out of 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					>= 70 out of 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)					>=	108	Fail Counts (25ms loop)	Two Trips
			=	enumeration								
									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						>= 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)	P1839	Internal Mode Switch C Circuit Low Voltage	IMS switch C 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				

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					>= 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)	P1841	Internal Mode Switch S Circuit High Voltage	IMS switch S 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)	P18B5	Internal Mode Switch A Circuit Shorted	IMS switch A voltage IMS switch A voltage	< 1.679999948 volts > 0.966000021 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips

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)	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				

16 OBDG05 TCM Summary Tables Common 8 Speed T87

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)	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)	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)	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)	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		
					clutch 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						
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)	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)	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)	One Trip
											out of	0.5	Sample Time (Sec)	
							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					>= 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						
Variable Force Solenoid (VFS)	P2736	Pressure Control Solenoid F Control Circuit Open (line pressure 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				

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 counts = non-volatile memory		
				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 counts = non-volatile memory		
				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 counts = non-volatile memory		
				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 counts = non-volatile memory		
				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_Fou rth					
							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 Document s	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 °C		
					Transmission Fluid Temperature	>=	-6.65625 °C		
					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 out of 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)	P2814	Pressure Control Solenoid G Control Circuit Low (TCC pressure VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean					>= 0.3 out of 0.5	Fail Time (Sec) 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				>=	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				
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				>=	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			

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 seconds documents	
					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			

16 OBDG05 2D Summary Tables TCM Common 8 Speed T87

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	°C
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	°C
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	°C
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	°C
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	°C
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	ºC
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	ºC
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	IR_i_MontrA	IR_i_MontrB	IR_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

16 OBDG05 2D Summary Tables TCM Common 8 Speed T87

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	g_0BE_BusA	GACY_BusA	g_0C1_BusA	g_0C5_BusA	g_0C9_BusA	g_0F1_BusA	28_CA_BusA	g_12A_BusA	g_185_BusA	g_18E_BusA	GACY_BusA	g_191_BusA	g_1A1_BusA	g_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	g_1E9_BusA	g_1F1_BusA	g_1F3_BusA	g_1F9_BusA	g_1FC_BusA	g_287_BusA	g_2D1_BusA	g_2F9_BusA	g_3D1_BusA	g_3E9_BusA	g_3FC_BusA	g_4A3_BusA	g_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	g_0BE_BusA	GACY_BusA	g_0C1_BusA	g_0C5_BusA	g_0C9_BusA	g_0F1_BusA	28_CA_BusA	g_12A_BusA	g_185_BusA	g_18E_BusA	GACY_BusA	g_191_BusA	g_1A1_BusA	g_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	g_1E9_BusA	g_1F1_BusA	g_1F3_BusA	g_1F9_BusA	g_1FC_BusA	g_287_BusA	g_2D1_BusA	g_2F9_BusA	g_3D1_BusA	g_3E9_BusA	g_3FC_BusA	g_4A3_BusA	g_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 ty
	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 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									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	
			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)	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	°C						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 °C							
			Both conditions above required to increment fail counter Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.						>=	3000	Fail Counts (100ms loop)	
									Out of	3750	Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>=	700	Pass Counts (100ms loop)	
									Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid	=	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_RatlEnbl					
					The above clutch pressure is greater than this value for one loop	>=	600	kpa				
					Set Brake Torque Active FALSE if above conditions are met for:	>=	20	Sec				

16 OBDG05 TCM Summary Tables Common 6 Speed T43

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 °C								Two Trips
			If transmission oil temp to power up temp Δ >	Refer to Table 18 in supporting documents °C								
			Both conditions above required to increment fail counter						>=	3000	Fail Counts (100ms loop)	
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.						Out of	3750	Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>=	700	Pass Counts (100ms loop)	
									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 Out of 3750	Fail Counts (100ms loop) 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 If Transmission Fluid Temperature Sensor = Direct Proportional and Temp <= -74 °C If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp >= -74 °C					Two Trips
			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 If Transmission Fluid Temperature Sensor = Direct Proportional and Temp >= 174 °C					Two Trips

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	>=	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)	P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean					>=	0.3	Fail Time (Sec)	One Trip
									out of	0.375	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				
					P0966 Status is not	=	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0967	Pressure Control (PC) Solenoid B Control Circuit High Voltage (C35R VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean					>=	0.3	Fail Time (Sec)	One Trip
									out of	0.375	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				
					P0967 Status is not	=	Test Failed This Key On or 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.
Variable Bleed Solenoid (VBS)	P0970	Pressure Control (PC) Solenoid C Control Circuit Low Voltage (C456/CBR1 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip
					P0970 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 8.5996094 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) out of 0.375 Sample Time (Sec)	One Trip
					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) out of 1.5 Sample Time (Sec)	One Trip
					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 Solinoid	P0974	Shift Solenoid A Control Circuit High (Mode 2 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= 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	>=	400	RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Mode 3 Multiplex Valve	P0977	Shift Solenoid B Control Circuit High (Mode 3 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= out of	1.2 1.5	Sec Sec	One Trip
						P0977 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						
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					>=	280	Fail Counts (25ms loop)	One Trip
			Ignition Voltage High Hyst (run crank goes true when above this value)		5	Volts								
			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					>=	280	Fail Counts (25ms loop)	One Trip
			Ignition Voltage High Hyst (run crank goes true when above this value)		5	Volts								
			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 ºC		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2720	Pressure Control (PC) Solenoid D Control Circuit Low (CB26 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip
					P2770 Status is not	= Test Failed This Key On or Fault Active		
					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) out of 0.375 Sample Time (Sec)	One Trip
					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												One Trip
			Gear slip	>=	400	RPM						>=	Please See Table 5 For Neutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 2nd gear												
			If attained Gear ≠ 2nd for Time	>=	Please refer to Table 3 in Supporting Documents	Shift Time (Sec)									
			If Above Conditions have been met, Increment 1st gear fail counter									>=	3	1st Gear Fail Count or	
			and C1234 fail counter									>=	14	C1234 Clutch Fail Count	
			Fail Case 2 Case: Steady State 2nd Gear												
			Gear slip	>=	400	RPM						>=	Please See Table 5 For Neutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 3rd gear												
			If attained Gear ≠ 3rd for Time	>=	Please refer to Table 3 in Supporting Documents	Shift Time (Sec)									
			If Above Conditions have been met, Increment 2nd gear fail counter									>=	3	2nd Gear Fail Count or	
			and C1234 fail counter									>=	14	C1234 Clutch Fail Count	
			Fail Case 3 Case: Steady State 3rd Gear												
			Gear slip	>=	400	RPM						>=	Please See Table 5 For Neutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 4th gear												
			If attained Gear ≠ 4th for time	>=	Please refer to Table 3 in Supporting Documents	Shift Time (Sec)									
			If Above Conditions have been met, Increment 3rd gear fail counter									>=	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	
			and C1234 fail counter				>= 14 or 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							>=	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	℃				
						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								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	<=	1.484985352							
			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								

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					

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						

Supporting Documents

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 acceleration magnitude	>=	-3.85	g's				
							Lateral acceleration 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 acceleration magnitude	>=	3.85	g's				
							Lateral acceleration 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				

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	<= 1.484985352					>=	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	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				

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	<=	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	°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 Gear Box Slip Intrusive Shift to 2nd Commanded Gear Previous Gear Ratio Gear Ratio If the above parameters are true	= 1st Locked >= 400 RPM = 1st Locked Gear <= 3.015991211 >= 2.728027344			Please Refer to Table 5 in Supporting Documents >= Neutral Timer (Sec) >= 1 sec >= 3 counts	One Trip
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Output Speed OR TPS Range Shift State Transmission Fluid Temperature High-Side Driver is Enabled Throttle Position Signal Valid from ECM Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>= 8.5996094 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec >= 36 RPM >= 0.5004883 % = Range Shift Completed ENUM >= -6.65625 ºC = TRUE Boolean = TRUE Boolean = FALSE Boolean = 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		

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 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	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)	>=	0.5 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	°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	>=	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)	<u>Fail Case 1</u>					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	<= 1.484985352				
			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	
			<u>Fail Case 2</u> 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	
			<u>Fail Case 3</u> 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	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)	>= 0.5 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 sec Reference Supporting Table 15 for Fail Timer 2	

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	=	TRUE	Boolean						
			NOTE: Both Failcase1 and Failcase 2 Must Be Met						>=	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 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								
			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 satisfied 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				
			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 sec Reference Supporting Table 15 for Fail Timer 2	

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 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)	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	=	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					
			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 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						

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	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)	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	=	FALSE	See Below					
								OR								
								Neutral_Range_Enable	=	TRUE	See Below					
								And								
								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 °C					>=	5	Fail Time (Sec)	One Trip
					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				
					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				

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
					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 Substrate Temperature	>= 146.296875 ºC			>= 5 Fail Time (Sec)	One Trip
					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 TCC Slip Speed	>= -50 RPM <= 13 RPM				One Trip
			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 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		

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 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)	
													>=	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				

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 Output Speed	>= 0.5004883 % >= 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 Ignition Voltage Hi	>= 8.5996094 Volts <= 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					
			It the above condiations are true, Increment 3rd gear fail counter				>= 3 Fail Timer (Sec) >= 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 ºC			>= 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 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** 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)				

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
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio	<= 1.933959961						
			Gear Ratio	>= 1.75						
			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 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						

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 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 Substrate Temperature	>= 146.296875 ºC			>= 5 Fail Time (Sec)	One Trip
					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		
				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	°C					>=	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								>=	Timer 1, and	Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail 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						

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
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear Gear slip >= Intrusive test: commanded 5th gear If attained Gear ≠5th for time >= if the above conditions have been met Increment 4th Gear Fail Counter and C456 Fail Counters	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 4th Gear Fail Count OR >= 14 C456 Fail Counts	One Trip
			Fail Case 2 Case: Steady State 5th Gear Gear slip >= Intrusive test: commanded 6th gear If attained Gear ≠ 6th for time >= if the above conditions have been met Increment 5th Gear Fail Counter and C456 Fail Counters	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 5th Gear Fail Count OR >= 14 C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gear Gear slip >= Intrusive test: commanded 5th gear	400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (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)	
			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					One Trip
			Case: Steady State 1st					
			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 <=	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	ºC			>=	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)	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)						

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
				If Attained Gear Slip is Less than Above Cal Increment Fail Timers										Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	>= sec
				If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter											
				4th gear fail counter								>=	3	Fail Counter From 4th Gear OR	
				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									

16 OBDG05 TCM Summary Tables Unique LLT FWD 6 Speed T43

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	ºC			>=	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						

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 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 ºC		Engine Speed is within the allowable limits for >= 5 Sec P0826 Status is ≠ Test Failed This Key On or Fault Active		>= 5 Fail Time (Sec)	One Trip
					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 > 10 Sample Timer (Sec)	Special No MIL
					Tap Up Tap Down Message Health = TRUE Boolean Engine Speed Lo >= 400 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec			
					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 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 If Fail Timer has Expired then Increment Fail Counter				>= 1 Fail Seconds >= 5 Fail Counts	One Trip
			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 <= Then delay timer increments	1 Sec				
			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	ºC					>=	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												One Trip
			Substrate Temperature	>=	146.296875	ºC					>=	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								>=	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	>=	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												One Trip
			Case: Steady State 1st											
			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 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: (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				

16 OBDG05 TCM Summary Tables Unique LLT FWD 6 Speed T43

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
					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		
				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 ºC				>= 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 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 5th Gear OR >= 3 Total Fail Counts	One Trip
			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					

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										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				

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	>= 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 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		

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	>	-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			

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				
					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					
				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				

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

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							≠	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	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								

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value			Secondary Malfunction				Enable Conditions			Time Required				Mil Illum.
								OR											
								TPS	>=	0.5004883	%								
								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.
			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	°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)	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 <=	1.933959961								
			Gear Ratio >=	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)	
							>=	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				

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

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Gear slip >= 400 RPM				>= Please See Table 5 For Neutral Time Cal — Neutral Timer (Sec)	
			Intrusive test: commanded 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					
			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			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					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									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	<= 1.484985352								
			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									

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 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	

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

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

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								

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 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	
							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					

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, 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						
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_P RNDL_Drive6 Range								
			Previous range	≠ CeTRGR_e_P RNDL_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								

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

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 =	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				
			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.
			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)					
			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					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	<= 3.015991211				
			Gear Ratio	>= 2.728027344				

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)	
							>=	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				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			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				
					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	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 Max Delta Output Speed Hysteresis	Table Based value Please Refer to Table 22 in supporting documents >= rpm/sec								One Trip

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 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		

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											One Trip
			Substrate Temperature	>=	146.296875	ºC					>=	5	Fail Time (Sec)	
			Fail Case 2								>=	2	Fail Time (Sec)	
			Substrate Temperature	>=	50	ºC								
			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	℃				
							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 RPM <= 8191 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 RPM >= 3200 RPM <= 8191 RPM = 1 Boolean = TRUE Boolean		
			Disable Conditions:		MIL not Illuminated for DTC's: TCM: P0716, P0717, P0723 ECM: P0101, P0102, P0103, P0121, P0122, P0123			
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed Output Speed Delta Output Speed Drop AND Transmission Range is	>= 105 RPM <= 8191 RPM > 650 RPM = Driven range (R,D)			>= 0.2 Enable Time (Sec) >= 0 Enable Time (Sec) >= 1.5 Output Speed Drop Recovery Fail Time (Sec)	One Trip
					--------------------- Range_Disable OR --------------------- Neutral_Range_Enable And Neutral_Speed_Enable are TRUE concurrently ---------------------	= FALSE See Below = TRUE See Below = TRUE See Below		
					Transmission_Range_Enable Transmission_Input_Speed_Enable No Change in Transfer Case Range (High <-> Low) for P0723 Status is not Disable this DTC if the PTO is active	= TRUE See Below = TRUE See Below >= 5 Seconds = Test Failed This Key On or Fault Active = 1 Boolean		

16 OBDG05 TCM Summary Tables Unique SRX LFX FWD 6 Speed T43

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/N eutral Transitiona l ENUM			
					Transmission Range is	=	Neutral/Dri ve Transitiona l 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 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					
			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 ºC		

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					>=	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	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.
					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				
			It the above condiations are true, Increment 3rd gear fail counter				>= 3 Fail Timer (Sec)	
							>= 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 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	<= 1.933959961								
			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		

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	=	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 Current range	=	Transition 1 (bit state 1110)	Range										One Trip
			Previous range	≠	CeTRGR_e_P RNDL_Drive6	Range										
			Previous range	≠	CeTRGR_e_P RNDL_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							>= 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	>=	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								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								
			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	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								

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								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	°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		
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 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 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 <=	1.484985352								
			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	℃				
					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	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	>=	8.59961	Volts				
								Ignition Voltage Hi	<=	31.99902	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	>=	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 RPM >= 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 >= 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 >= 653.13 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 <= 8191.88 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 Output Speed Delta <= 8192 RPM Output Speed Drop > 650 RPM AND				>= 0 Enable Time (Sec) >= 0 Enable Time (Sec) >= 1.5 Output Speed Drop Recovery 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 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	°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				

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	Commaned 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	ºC			
					Range Shift State	=	Range Shift Completed	ENUM			
					TPS	>=	0.5005	%			
					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			

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									
			And Gear Ratio	<=	4.22839							>=	1.5 Fail Timer (Sec)	
												>=	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 Gear Box Slip Intrusive Shift to 2nd Commanded Gear Previous Gear Ratio Gear Ratio If the above parameters are true	= 1st Locked >= 400 RPM = 1st Locked Gear <= 2.48218 >= 2.24585			Please Refer to Table 5 in Supporting Documents Neutral Timer (Sec) >= >= 1 sec >= 3 counts	One Trip
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Output Speed OR TPS Range Shift State Transmission Fluid Temperature High-Side Driver is Enabled Throttle Position Signal Valid from ECM Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>= 8.59961 Volts <= 31.99902 Volts >= 400 RPM <= 7500 RPM >= 5 Sec >= 67 RPM >= 0.5005 % = Range Shift Completed ENUM >= -6.6563 ºC = TRUE Boolean = TRUE Boolean = FALSE Boolean = 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		

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 >= 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 <= 1.60864 Gear Ratio >= 1.45544 If the above parameters are true				>= 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 >= 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 <= 1.60864 Gear Ratio >= 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 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)			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	One Trip
			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 Intrusive test: commanded 6th gear If attained Gear ≠ 6th for time >=	Please Refer to Table 3 in Supporting Documents Shift Time (Sec)			>= Please See Table 5 For Neutral Time Cal Neutral Timer (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 Reference Supporting Table 15 for Fail Timer 2 >= sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			4th gear fail counter				>= 3 Fail Counter From 4th Gear OR	
			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 1110) CeTRGR_e_P RNDL_Drive6 Range CeTRGR_e_P RNDL_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					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											

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	$\geq$ Table Based value Please Refer to Table 23 in supporting documents rpm/sec								
			If the Above is True for Time	$\geq$ Table Based Time Please Refer to Table 17 in supporting documents Sec								
			Intrusive test: (C1234 clutch exhausted)									
			Gear Ratio	$\leq$ 0.70032								
			Gear Ratio	$\geq$ 0.63367								
			If the above parameters are true									
									$\geq$ 1.1	Fail Timer (Sec)		
									$\geq$ 3	Fail Count in 4th Gear		
										or		
									$\geq$ 5	Total Fail Counts		
			Fail Case 4 Case: Steady State 5th Gear									
			Max Delta Output Speed Hysteresis	$\geq$ Table Based value Please Refer to Table 22 in supporting documents rpm/sec								
			Min Delta Output Speed Hysteresis	$\geq$ Table Based value Please Refer to Table 23 in supporting documents rpm/sec								
			If the Above is True for Time	$\geq$ Table Based Time Please Refer to Table 17 in supporting documents Sec								
			Intrusive test: (C35R clutch exhausted)									
			Gear Ratio	$\leq$ 0.70032								
			Gear Ratio	$\geq$ 0.63367								
			If the above parameters are true									
									$\geq$ 1.1	Fail Timer (Sec)		
									$\geq$ 3	Fail Count in 5th Gear		
										or		
									$\geq$ 5	Total Fail Counts		
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	$\geq$	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								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	>=	-6.6563	°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 Max Delta Output Speed Hysteresis >= rpm/sec Min Delta Output Speed Hysteresis >= rpm/sec If the Above is True for Time >= Sec 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 Table Based value Please Refer to Table 23 in supporting documents Table Based Time Please Refer to Table 17 in supporting documents 1.20959 1.09436			>= 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 >= rpm/sec Min Delta Output Speed Hysteresis >= rpm/sec	Table Based value Please Refer to Table 22 in supporting documents 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 <=	1.20959								
			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		

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	3.03	1.86	1.00	0.75	0.58	Sec

Table 11

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

Table 12

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

Table 13

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

Table 14

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

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)	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											One Trip
			Substrate Temperature	>=	142.1015625	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	<=	31.999023	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		>=	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_E nable	=	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_E nable 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/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					

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

16 OBDG05 TCM Summary Tables Unique Caprice PPV LFX RWD 6 Speed T43

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 Commanded Gear = 1st Lock rpm Gear Ratio <= 1.209594727 Gear Ratio >= 1.094360352 If the above parameters are true				>= 0.2 Fail Tmr = 5 Fail Counts ≠ 0 Neutral Timer (Sec) >= 0.3 Fail Timer (Sec) >= 8 Counts	Two Trips
					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 ℃ 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	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; 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 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	>= 1.094360352				
			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 °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)	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)) 1.608642578 1.455444336			>= 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 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 1.608642578 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	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	>=	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								Please See Table 5 For Neutral Time Cal	
			Gear slip	>= 400 RPM					>=		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							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			Max Delta Output Speed Hysteresis	>=	Table Based value Please Refer to 3D Table 1 in supporting documents	rpm/sec							
			Min Delta Output Speed Hysteresis	>=	Table Based value Please Refer to 3D Table 2 in supporting documents	rpm/sec							
			If the Above is True for Time	>=	Table Based Time Please Refer to Table 17 in supporting documents	Sec							
			Intrusive test: (C35R clutch exhausted) Gear Ratio	<=	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_PRNDL_Drive6	Range								
			Previous range ≠	CeTRGR_e_PRNDL_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	
			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_Drive3						
			Engine Torque >=	-8192	Nm	Previous range ≠	CeTRGR_e_PRNDL_Drive3						
			Engine Torque <=	8191.75	Nm	IMS is 7 position configuration =	0	Boolean					

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value			Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
							Previous transition state	≠	Transition 8 (bit state 0111)					
							Fail case 5 delay timer	=	0	sec				
			If the above Condtions are met then, Increment Fail timer								>=	6.25	Seconds	
			Fail Case 7											
			Current PRNDL State	=	PRNDL circuit ABCP = 1101	Range								
			and											
			Previous PRNDL state	=	PRNDL circuit ABCP =1111	Range								
			Input Speed	>=	150	RPM								
			Reverse Trans Ratio	<=	2.975952148	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:											

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)	>=	0.299804688 Fail Time (Sec)							
			fail timer 1 (2-1 shifting without throttle)	>=	0.5 Fail Time (Sec)							
			fail timer 1 (2-3 shifting with throttle)	>=	0.299804688 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 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	>=	-6.65625	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	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								

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	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)	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		

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	°C
Curve	0.40	0.35	0.30	Sec

Table 18

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

Table 19

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

Table 20

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

Table 21

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

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	> 9000 [mV] for 3 sec continuously	240 msec	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		
					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]		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System Voltage	P0563	System Voltage High	Battery Voltage	> 18 [V]	Ignition Voltage The Input Speed signal is available from the Input Speed Sensor Input Speed 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) OR Ignition Voltage Engine speed Engine speed signal validity U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM "A")	> 9000 [mV] = TRUE > 400 [rpm] for [> 2 sec] = NOT DETECTED = NOT DETECTED = NOT DETECTED > 9000 [mV] > 400 [rpm] for [> 2 sec] = VALID = NOT DETECTED = NOT DETECTED	10 sec	1
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 system		(none)	(none)	10 msec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			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 temperature value at start-up and confirm that it gradually increases over a period of time, once the	<= 20 [deg C]	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A")	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID	10 min	2

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			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.		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	= 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 cleared. (*) T/C Heat Load = (*TCCF* x Torque Capacity x | (Engine Speed – Input Speed x *Tr*) |) [kW] *TCCF:* T/C Capacity Factor *Tr:* Torque Ratio (Note): The Heat Load is only calculated if the Output Speed is greater than a calibrated	<= 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.
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
						= 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 (all 8 criteria for 2 [sec] continuously) 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) 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)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = 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 ALL = 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.
					P07C0 (Input/Turbine Speed Sensor "A" Circuit High)	= NOT DETECTED		
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low)	= NOT DETECTED		
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)	= 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	> 9000 [mV] for 10 [msec] continuously	At Max Input Speed: 8.9 [sec]	1
					Battery Voltage	> 10.2 [V]		
					Battery Voltage	<= 32.0 [V]	At Idle Input Speed: 108.3 [sec]	
					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		
					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)		
					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)	= NOT DETECTED		
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low)	= NOT DETECTED		
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)	= NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High)	= NOT DETECTED		
					P0973 (Shift Solenoid "A" Control Circuit Low)	= 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	>= 300 [rpm]		
					P077D (Output Speed Sensor Circuit Low)	= NOT DETECTED		
					P077C (Output Speed Sensor Circuit High)	= NOT DETECTED		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has been INACTIVE	>= 8 [sec]		
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]		

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

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

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

			OR		Engine Torque	{if ATF Temp >= 0 [degC]}
						  >= 80 [Nm]
						{if ATF Temp < 0 [degC]}
						  >= 150 [Nm]		

			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)		
					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		

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

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 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 OR Difference between actual Gear Ratio and 4th Gear Ratio OR Difference between actual Gear Ratio and 8th Gear Ratio	< 4 % < 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) 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) 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) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously	= 2ND 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 = D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1)	5 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		
					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) 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 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 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, 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		

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		
Gear Ratio (4th Gear)	P0734	Gear 4 Incorrect Ratio	Difference between actual Gear Ratio and 4th Gear Ratio	> 20 [%]	Current Gear	= 4TH 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)		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					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
					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 6th Gear Ratio	< 4 %				
					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)			

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					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	= NOT DETECTED = NOT DETECTED 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 Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously	>= -20 [deg C] = FALSE 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 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)			

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

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					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		
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) 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)	> 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.
					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	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					Range Selector Position Switch	= D Range		
					Time since shifting to D	= 8 [sec]		
					Engine Torque	>= 0 [Nm]		
					Engine Speed	< 4000 [rpm]		
					ATF Temperature	>= 20 [degC]		
					SLU Pressure:			
					- Pressure Value:	PLUP_CLOSE_FAIL (*5)		
					- Time since meeting value criteria:	T_SLUFull (*6)		
					SL Solenoid Command	= ON		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					P2770 (SL Solenoid B+ Short / Open)	= NOT DETECTED		
					P2769 (SL Solenoid GND Short)	= NOT DETECTED		
					P2763 (SLU Solenoid B+ Short / Open)	= NOT DETECTED		
					P2764 (SLU Solenoid GND Short)	= NOT DETECTED		
					P2761 (SLU Feedback stuck)	= NOT DETECTED		
					P0713 (Transmission Fluid Temperature Sensor "A" Circuit High)	= NOT DETECTED		
					P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low)	= 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, 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.		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)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
			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					

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			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) P0962 (Pressure Control Solenoid "A" Control Circuit Low) P0963 (Pressure Control Solenoid "A" Control Circuit High) Emergency Mode (*4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
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, 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	= 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 = D Range	12 sec (cumulatively)	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					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		
Neutral condition at D Range (C1 no engagement)	P0776	Pressure Control Solenoid "B" Stuck OFF	Neutral Condition Decision (C1 cannot engage) | Engine Speed – Input Speed | Input Speed	< 150 [rpm] > Output Speed x I_gear(*7) + 400 [rpm]	Ignition Voltage	> 9000 [mV] for 10 [msec]	{ gearRpm(*8) >= 0 AND gearRpm <= 1500 } 3.3 sec	1
					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	{ gearRpm(*8) >= 1501 AND gearRpm <= 3000 }	
					U0073 (CAN Bus-OFF)	= NOT DETECTED	{ gearRpm(*8) >= 3001 } 0.8 sec	
					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)			
					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)		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					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			
			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: **(*)** If the following conditions are met for a calibrated time period continuously, the algorithm will increment the "SL1 Stuck ON" failure Timer: Current Gear Difference between Actual Gear Ratio and Expected Gear Ratio: ATF Pressure Switch Command **Flag_SLC1drain (*)** **Flag_SLC1drain (*)** is determined to be ON when the following condition is true: SLC1 Pressure For the following time continuously:	= 4 = 1000 [msec] = 6th or 7th or 8th < 4 [%] = ON = ON <= 300 [gf/cm^2] = **Time_PSLdrain (*12)** [msec]	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,	> 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	4 sec	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)			
					P0601 (Internal Control Module Memory Checksum 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		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					Engine Torque	>= 80 [Nm]		
					Output Speed	>= 60 [rpm]		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
Pressure Control Solenoid "B" Control Circuit (SL1 Solenoid)	P0778	Pressure Control Solenoid "B" Electrical	sum_ie (*)	> 60000 [mA]	Ignition Voltage	> 9000 [mV] for 10 [msec] continuously	1 to 3 sec (cumulatively)	1
					Battery Voltage			
					Battery Voltage	> 10.2 [V]		
					The TCM has completed the read operation of its non-volatile memory	<= 32.0 [V]		
						(all 4 criteria for 2 [sec] continuously)		
			(*) 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		Battery Voltage	> 11 [V] for [> 500 msec]		
					Linear Solenoid Feedback current	< 1358 [mA]		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					P0966 (Pressure Control Solenoid "B" Control Circuit Low)	= NOT DETECTED		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			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		P0967 (Pressure Control Solenoid "B" Control Circuit High) Emergency Mode (*4)	= NOT DETECTED = NOT ACTIVE		
			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) P0966 (Pressure Control Solenoid "B" Control Circuit Low) P0967 (Pressure Control Solenoid "B" Control Circuit High) Emergency Mode (*4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
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 (*)	> 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		P0970 (Pressure Control Solenoid "C" Control Circuit Low) P0971 (Pressure Control Solenoid "C" Control Circuit High) Emergency Mode (*4)	= NOT DETECTED = NOT DETECTED = NOT ACTIVE		
			OR					
			$\mid ie \mid$ (*)	> 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. $\mid ie \mid$: Absolute value of ie ie: Difference between "commanded current" and "feedback current"		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)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
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")	= 8TH GEAR >= 500 [rpm] > 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = 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.
					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			
					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	< 4 %	Current Gear	= 8TH GEAR	5 sec	1
					Output Speed	>= 60 [rpm]		
			OR					
			Difference between actual Gear Ratio and 6th Gear Ratio	< 4 %	Input Torque	>= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during detection)		

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

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
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	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)	(4 sec for P, R, N-Range) (30 sec for D-Range)	
					Diagnostic Service Request to Disable Normal Communication U0140 (Lost Communication with Body Control Module) P0826 (Up and Down Shift Switch Circuit) P1761 (Up and Down Shift Switch Signal Circuit) P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	= NOT PRESENT = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED = 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	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)	(4 sec for P, R, N-Range) (30 sec for D-Range)	
					Diagnostic Service Request to Disable Normal Communication U0140 (Lost Communication with Body Control Module) P0826 (Up and Down Shift Switch Circuit) P1761 (Up and Down Shift Switch Signal Circuit) P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	= NOT PRESENT = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED = 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 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 U0140 (Lost Communication with Body Control Module) P1761 (Up and Down Shift Switch Signal Circuit) P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	= NOT PRESENT = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
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. 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)	Time_SwONfailw (*2) > 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	1 sec	2

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0601 (Internal Control Module Memory Checksum Error)			
					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	> 9000 [mV] for 10 [msec] continuously		
			ATF Pressure Command	>= 1600 [kPa]	Battery Voltage	> 10.2 [V]		
			ATF Pressure Switch Status	= OFF	Battery Voltage	<= 32.0 [V]		
			Engine Speed	> 500 [rpm]	Engine Speed	> 400 [RPM]		
			Time since Engine Speed exceeded threshold above	> 1000 [msec]	Engine Speed Signal Validity	= VALID		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
			Output Speed	>= 60 [rpm]	U0073 (CAN Bus-OFF)	= NOT DETECTED		
			Engine Torque without Acceleration	>= 80 [Nm]	The TCM has completed the read operation of its non-volatile memory			
			Input Speed	<= 6000 [rpm]	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]		
					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)	ALL Malfunctions = NOT DETECTED		

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		
					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	>= OT_Sw_det (*14)		
					P0713 (Transmission Fluid Temperature Sensor "A" Circuit High)	= NOT DETECTED		
					P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low)	= NOT DETECTED		
					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		
Manual Mode Switch	P085F	Up and Down Shift Switch Circuit Stuck in Range (*) The Manual Mode Switch signal level is determined as a percentage of Ignition Voltage (= Manual Mode Switch Voltage / Ignition Voltage [%])	Manual Mode Switch Signal Level (*)	10.4 [%] < Manual Switch < 14.8 [%]	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	P085F	Up and Down Shift Switch Circuit Stuck in Range (*) 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	Manual Mode Switch Signal Level (*)	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"

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

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
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
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 (*) >= 5 count_fail_SLC2MAX_usft (*) >= 5 count_fail_SLC3MAX_usft (*) >= 5 count_fail_SLC4MAX_usft (*) >= 5 count_fail_SLB1MAX_usft (*) >= 5 (*):refer to conditions A-1 to E below		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	> 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	(Shift time dependent) 300 msec to 2 sec, 5 times cumulatively.	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					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	T_GarageFin (*1)		
					Range Selector Position Switch	= D Range		
					Wheel Spin Detected	= FALSE		
					Output Speed	>= 300 [rpm]		
					ATF temperature	>= -100 [degC]		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*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 Speed change from current gear to target gear) while the engagement pressure is sufficient.					
			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 as					
			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:					

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 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 incremented as					
			for down-shifts (5-2, 5-3, 5-4, 6-4,7-3, 8-2) for down-shifts (3-2, 7-5, 7-6) for down-shifts (4-2, 4-3, 6-5) for down-shifts (8-5, 8-6, 8-7)	count_fail_SLC2MAX_usft count_fail_SLC3MAX_usft count_fail_SLC4MAX_usft count_fail_SLB1MAX_usft				
			During any of the following Down-Shifts After "Start of initial release pressure control phase" Release Pressure Control Phase Duration Applied Element Command Pressure Shifting does not begin despite of shifting commanded. (No change in inRpm eventhough the shift command is made) Min of engine flare ratio The gear ratio before shift control began is normal (*A) OR The gear ratio at the beginning of the shift is normal (*B) Input Torque (*A) This condition is met if the following is true: Difference between actual Gear Ratio and expected Gear Ratio (*B) This condition is met if the following is true: Difference between actual Gear Ratio and expected Gear Ratio	(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) = TRUE >= Time_failA_down1 (*10) AND >= Time_failA_down2 (*10) > 3.0 [kg/cm^2] when Input Torque with No Acceleration < 100 [Nm] = TRUE >= -50 [rpm] = TRUE >= 50 [Nm] OR <= -50 [Nm] < 4% < 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 as					
			for up-shifts (6-7, 6-8) for up-shifts (7-8) for up-shifts (3-4, 3-5, 4-5)	count_fail_SLC1MAX_usft count_fail_SLC4MAX_usft count_fail_SLB1MAX_usft				

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			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:					
			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 Deviation (*1) (i.e.					
			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]				

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			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				
			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 Deviation (*1) (i.e.					
			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]				

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			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]				
			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 Deviation (*1) (i.e.					
			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]				

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

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

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	P2534	Ignition Switch Run/Start Position Circuit Low	Ignition Voltage	< 9 [V]	Battery Voltage	>= 9 [V]	20 sec	1
					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	= Active		
					CAN Based Engine Running Signal	= TRUE		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					BUS OFF State from CAN controller	= Not Received		
					Receiving ECM CAN frame	= TRUE		
Ignition Switch Run/Start Position Circuit	P2535	Ignition Switch Run/Start Position Circuit High	Ignition Voltage	> 9 [V]	Battery Voltage	>= 9 [V]	3 sec	1
					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	= Inactive		
					CAN Based Engine Running Signal	= FALSE		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					BUS OFF State from CAN controller	= Not Received		
					Receiving ECM CAN frame	= 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

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			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) P2720 (Pressure Control Solenoid "D" Control Circuit Low) P2721 (Pressure Control Solenoid "D" Control Circuit High) Emergency Mode (*4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
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	> 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

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) P2729 (Pressure Control Solenoid "E" Control Circuit Low) P2730 (Pressure Control Solenoid "E" Control Circuit High) Emergency Mode (*4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = 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 (*)	> 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)	> 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	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, named "sum_ie", will be updated on every clock cycle of the microprocessor (10 msec). If the					

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			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			P2739 (Pressure Control Solenoid "F" Control Circuit High) Emergency Mode (*4)	= 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) 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	2 sec	1
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 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 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

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Torque Converter Clutch Pressure Control Solenoid Control Circuit (SLU Solenoid)	P2761	Torque Converter Clutch Pressure Control Solenoid Control Circuit/Open	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, 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		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		
			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

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

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

			ATF Temperature				
			< -20 degC	>= -20 degC > -10 degC	>= -10 degC < 20 degC	>= 20 degC	
(*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		
	2	= Maximum of the following values:		
		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	Time_failA_up1 [msec]	Input Torque [Nm]	< -10	5000	3000	2000	1000	800
			-10 ~ 40	5000	3000	3000	1900	1000
			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]	Input Torque [Nm]	-10 ~ 40	5000	1600	1400	1200	1100
		40 ~ 100	5000	1600	1400	1200	1100
		100 ~ 250	5000	1600	1400	1200	1100
		> 250	5000	1600	1400	1200	1000
Time_failA_down2 [msec]	Output Speed [rpm]	**NO_S0 (*)**	5000	1600	1400	1200	1000
		NO_S1	5000	1600	1400	1200	1000
		NO_S2	5000	1600	1400	1200	1000
		NO_S3	5000	1400	1200	1000	800
		NO_S4	5000	1400	1200	1000	800
Time_failA_down2 C [msec]	Output Speed [rpm]	**NO_S0 (*)**	3000	2800	2500	2200	2000
		NO_S1	3000	2800	2500	2200	2000
		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 to these components occurs. Therefore no DTCs are stored by the TCM when they are detected.

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.