Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre: Va	shold lue	Secondary Malfunction		Enable Conditions			Time Require	ed	Mil Illum.
Acceleration Sensor	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude Lateral accleration magnitude Lateral accleration magnitude is within the range above for	<= 3.849999905 >= 0.529999971 >= 75	gʻs gʻs Sec								Special No MIL
						Lateral accleration magnitude	<=	3.8499999	g's				
						Lateral accleration magnitude	>=	0.53	g's				
						Lateral accleration magnitude is within the range above for	>=	60	Sec				
						Diagnostic shifting override command	=	FALSE	Boolean				
						Attained Gear State	=	1st through 6th					
						Attained Gear Slip	<=	100 Clutch to	RPM				
						Transmission Type	=	Clutch Transmissi					
						High Side Driver 1 On Vehicle Speed Battery Voltage Battery Voltage Battery voltage is within the allowable limits for	= >= >= >=	TRUE 15 31.999023 9 0.1	Boolean kph Volts Volts Sec				
						Ignition Voltage	>=	9	Volts				
						Service Fast Learn (SFL) Mode Ignition voltage and SFL conditions met for	= >=	FALSE 0.1	Boolean Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: If calibi (P0716, P07 ⁻ P07BF, P070 P215C, U007 ECM: None	rated to illuminat 17, P0721, P072 C0, P077B, P077 73)	e the MIL 2, P0723, 7C, P077D,				
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	= TRUE	Boolean					>=	5	Fail Counts	One Trip

Component/	Fault	Monitor Strategy	Malfunction	Т	hreshold	Secondary Malfunction	E	nable	Ti	me	Mil
System	Code	Description	Criteria		Dicabla	Mill not Illuminated for DTC's:	TCM: D0601	nations	Keq	uirea	inturn.
					Conditions		1 GIVI. F 000 I				
					oonantonoi		ECM: None				
Transmission Control Module		Transmission Electro-Hydraulic	Non-volatile memory (static or						Runs		One Trip
(TCM)	P0603	Control Module Long-Term Memory	dynamic) checksum failure at	= TRUE	Boolean				Continously		
		Reset	Powerup						,		
					Disable	MIL not Illuminated for DTC's:	TCM: P0603				
					Conditions:						
							ECM: None				
Transmission Control Module	00/04	Transmission Electro-Hydraulic	RAM Read/Write Failure (Single	трис	Dealaan					Fail Counto	One Trip
(TCM)	P0604	Control Module Random Access	Word)	= IRUE	Boolean				>= 0	Fair Courits	
		memory									
									= 16	Sample Counts	
					Disable	MIL not Illuminated for DTC's:	TCM: P0604				
					Conditions:		ECM: Nono				
							LCIVI. NOTIC				
Termenticaire Control Madula		Transmission Electro-Hydraulic							Duna		One Trip
(TCM)	P062F	Control Module Long Term Memory	I CM NON-VOIAIlle Memory bil	= TRUE	Boolean				Continously		· ·
		Performance	incorrect hag at Powerdown						Continiously		
					Disable	MIL not Illuminated for DTC's:	TCM- D062E				
					Conditions:	mile not manimated for DTC 3.	1 GIVI. 1 0021				
							ECM: None				
Transmission Control Module		Transmission Electro-Hydraulic	Fail Case 1								One Trip
(TCM)	P0634	Control Module Internal Temperature	Substrate Lemperature	>= 146.2968	75 °C				>= 5	Fail Time (Sec)	
			Fail Case 2								1
			Substrate Temperature	>= 50	°C				>= 2	Fail Time (Sec)	
			Ignition Voltage	>= 18	Volts						
			Note: either fail case can set the								
			DTC			lan Ban Maltana La		500/004 Malla			-
						Ignition Voltage Lo	>= 8.5	090034 VOIIS			1
						Substrate Temp Lo	>= 31	0 °C			1
						Substrate Temp Hi	<=	170 °C			1
						Substrate Temp Between Temp	~-	0.25 500			1
		1				Range for Time	>=	0.20 380			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		T Re	Time auired	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				
High Side Driver 1	P0658	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (open or ground short) error flag	= TRUE Boolean			>= out	4	Fail Counts	One Trip
							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 °C supporting documents						Two Trips
			If TCM substrate temp to power up temp Δ	Refer to Table 20 in °C supporting documents						
			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)	

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction		Enable Conditions			Ti Rea	ime wired	Mil Illum.
System	Code	Description	ontena	Funce			oonanions			neq		
									Out	875	Sample Counts	
									UI		(100115 100µ)	
												4
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Accelerator Position Signal	=	TRUE	Boolean				
					Valiu Ignition Voltage Lo	×-	8 2004001	Volte				
					Ignition Voltage LU	~=	31 990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the		F	C				
					allowable limits for	>=	C	Sec				
					Brake torque active	=	FALSE					
					Below describes the brake							
					torque entry criteria							
					Engine Lorque	>=	90	N*m				
					I hrottle	>=	30.000305	Pct				
					Transmission Input Speed	<=	200	KPM Kph				
					Transmission Range	<= ±	o Park	крп				
					Transmission Range	, ≠	Neutral					
					PTO	=	Not Active					
					Set Brake Forque Active TRUE	>=	7	Sec				
					If above conditions are met for:							
					Below describes the brake							
					torque exit criteria							
					Brake torque entry criteria	=	Not Met					
							Clutch					
					Clutch hydraulic pressure	≠						
							Event					
							CeTETD e					
					Clutch used to exit brake torque	=	C3 RatlE					
					active		nbl					
					The above clutch pressure is							
					greater than this value for one	>=	600	kpa				
					loop				1			
					Set Brake Torque Active		00	0				
					FALSE if above conditions are	>=	20	Sec				
					met for:							
							Test Failed					
							This Kev		1			
					P0667 Status is	¥	On or Fault					
							Active					
									1			
1	1								1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable	Time Required	Mil Illum.
				Disabl Condition:	e 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 If TCM Substrate Temperature Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and Temp Either condition above will satisfy the fail conditions	CeTFTI_e_Vol = tageDirectPro p << -249 °C >= -249 °C >= -249 °C Conditions	Ignition Voltage Lo Ignition Voltage Lo Ignition Voltage H Engine Speed Lo Engine Speed is within the allowable limits for P0668 Status is P0668 Status is	D >= 8.5996094 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec Test Failed \neq This Key On or Fault Active TCM: None ECM: None	>= 60 Fail Timer (Sec)	Two Trips
Transmission Control Module (TCM)	P0669	TCM internal temperature (substrate) thermistor failed at a high voltage	Type of Sensor Used If TCM Substrate Temperature Sensor = Direct Proportional and Temp	CeTFTI_e_Vol = tageDirectPro p = 249 °C				Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshol Value	ld	Secondary Malfunction		Enable Conditions			Ti Reg	me uired	Mil Illum.
			If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	<= 249 °C									
			Either condition above will satisfy the fail conditions							>=	60	Fail Timer (Sec)	
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
						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 ECM: None	, P0717, P0722,	P0723				
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 °C supporting documents									Two Trips
			If transmission oil temp to power up temp Δ	Refer to Table 18 in °C supporting documents									
			Both conditions above required to increment fail counter							>=	3000	Fail Counts (100ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			T Rec	ïme quired	Mil Illum.
			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	=	TRUF	Boolean				-
					Accelerator Position Signal		TDUE	Dooloon				
					Valid	=	IKUE	DUUIEdII				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the	>=	5	Sec				
					allowable limits for		FALCE					
					Below describes the brake	=	FALSE					
					torque entry criteria							
					Engine Torque	>=	90	N*m				
					Throttle	>=	30.000305	Pct				
					Transmission Input Speed	<=	200	KPM Knb				
					Transmission Range	≠	Park	крп				
					Transmission Range	, t	Neutral					
					PTO	=	Not Active					
					Set Brake Torque Active TRUE		7					
					if above conditions are met for:	>=	1	Sec				
					Below describes the brake							1
					torque exit criteria							
					Brake torque entry criteria	=	Not Met					
							Hydraulic					
					Clutch hydraulic pressure	¥	Air Purge					
							Event					
					Clutch used to exit brake torque		CeTFTD_e					
					active	=	_C3_RatIE					
					The above clutch pressure is		ועוז					
					greater than this value for one	>=	600	kpa				
					loop							
					Set Brake Torque Active		~~	0				
					FALSE If above conditions are	>=	20	Sec				
1	1				metior.				1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Ti Rea	me uired	Mil Illum.
					P06AC Status is	¥	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658 P06AE, P07' P0722, P072 P0967, P097 P2721, P272 ECM: P0101 P0107, P010 P0175, P020 P0205, P020 P0301, P030 P0306, P030	P0668, P0669, 6, P0712, P0713 3, P0962, P0963 0, P0971, P215C 9, P2730 , P0102, P0103, 8, P0171, P0172 1, P0202, P0203 6, P0207, P0208 2, P0303, P0304 7, P0308, P0401	P06AD, , P0717, , P0966, , P2720, P0106, , P0174, , P0204, , P0300, , P0305, , P042E				
Transmission Control Module	P06AD	TCM power-up thermistor circuit	Power Up Temp	<= -59 °C					>=	60	Fail Time (Sec)	Two
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for P06AD Status is P06AD Status is must also be met Estimated Motor Power Loss greater than limit for time Lost Communication with Hybrid Processor Control Module Estimated Motor Power Loss	>= <= >= >= >= >= = =	8.5996094 31.990234 400 7500 5 Test Failed This Key On or Fault Active 0 0 0 FALSE FALSE	Volts Volts RPM Sec kW Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		T Rec	ime quired	Mil Illum.
				Disabl Conditions	e 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 °C	Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for P06AE Status is	>= 8.5996094 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec Test Failed This Key On or Fault Active	>=	60	Fail Time (Sec)	Two Trips
				Disabl Conditions	e 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 °C supporting documents Refer to Table						Two Trips
			If transmission oil temp to power up temp Δ	> 18 in °C supporting documents						
			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				1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable Conditions		Time	Mil Illum.
System	Coue	Description	ontena	Value	Accelerator Position Signal		Conditions		Required	
					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		E	500		
					allowable limits for	>=	5	Jec		
					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		
					Iransmission Range	≠	Park			
					Iransmission Range	≠	Neutral			
					PIO	=	Not Active			
					Set Brake Torque Active TRUE		-			
					if above conditions are met for:	>=	/	Sec		
					Polow describes the brake				1	-
					torque evit criteria					
					Brake torque entry criteria	_	Not Met			
					brake torque entry entena	_	Clutch			
							Hydraulic			
					Clutch hydraulic pressure	¥	Air Purge			
							Event			
							CeTFTD e			
					Clutch used to exit brake torque	=	C3 RatlE			
					active		nbl			
					The above clutch pressure is					
					greater than this value for one	>=	600	kpa		
					loop					
					Set Brake Torque Active					
					FALSE if above conditions are	>=	20	Sec		
					met for:					
							Test Failed			
					P0711 Statuc ic	±	This Key			
	1				1 07 11 510103 13	,	On or Fault			
							Active			
1	1	1	1	1	1				1	

Component/	Fault	Monitor Strategy	Malfunction	Threshold		Secondary Malfunction		Enable			Ti	me	Mil
System		Description		Conditi	sable MIL tions:	not Illuminated for DTC's:	TCM: P0658, P06AE, P071 P0722, P072 P0967, P097 P2721, P272 ECM: P0101 P0107, P010 P0175, P020 P0205, P020 P0301, P030 P0306, P030	P0668, P0669, F 6, P0712, P0713 3, P0962, P0963, 0, P0971, P215C 9, P2730 , P0102, P0103, 8, P0171, P0172, 1, P0202, P0203, 6, P0207, P0208, 2, P0303, P0304, 7, P0308, P0401,	P06AD, , P0717, P0966, , P2720, P0106, P0174, P0204, P0300, P0305, P042E				
Transmission Fluid Temperature Sensor (TFT)	P0712	Transmission fluid temperature thermistor failed at a low voltage	Type of Sensor Used If Transmission Fluid Temperature Sensor = Direct Proportional and Temp If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	CeTFTI_e_Vol = tageDirectPro p <= -74 °C >= -74 °C									Two Trips
			Either condition above will satisfy the fail conditions	5						>=	60	Fail Time (Sec)	
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for P0712 Status is	>= <= >= >= ≠	8.5996094 31.990234 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec				
					F	For Hybrids, below conditions must also be met							
					E	Estimated Motor Power Loss	>=	0	kW				
					E	Estimated Motor Power Loss greater than limit for time	>=	0	Sec				
					Lost	t Communication with Hybrid Processor Control Module	=	FALSE					
					E	Estimated Motor Power Loss Fault	=	FALSE					
1										1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Reguired	Mil Illum.
				Disable	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723		
				Conditions		ECM: None		
						EGWI. NOTE		
Transmission Fluid	00710	Transmission fluid temperature		CeTFTI_e_Vol				Two
Temperature Sensor (TFT)	P0/13	thermistor failed at a high voltage	l ype of Sensor Used	d = tageDirectPro				Trips
			If Transmission Fluid Temperature	e				
			Sensor = Direct Proportional and	d >= 174 ℃				
			If Transmission Fluid Temperature	e				
			Sensor = Indirect Proportional and	d <= 174 °C				
			Either condition above will satisfy	p				-
			the fail conditions	s			>= 60 Fail Time (Sec)	
					Ignition Voltage Lo	>= 8.5996094 Volts		
					Ignition Voltage Hi Engine Speed Lo	<= 31.990234 VOIts		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the	>= 5 Sec		
					allowable limits for			
						Test Failed		
					P0713 Status is	This Key ≠ On as Fault		
						Active		
				Disable	MIL not Illuminated for DTC's:	TCM: P0713, P0716, P0717, P0722,		
				Conditions	:	P0723		
						ECM: None		
Transmission Input Speed	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor	r >= 1350 RPM			>= 0.8 Fail Time (Sec)	One Trip
Sensor (TISS)			Drops	s				
					Engine Torque is	>= 0 N*m		
					Engine Torque Is Engine Speed	<= 8191.875 N m >= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the	>= 5 Sec		
					allowable limits for Vehicle Speed is	>- 10 Kpb		
					Throttle Position is	>= 0 Pct		
					Transmission Input Speed is	>= 0 RPM		
					The previous requirement has been satisfied for	>= 0 Sec		

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		Thr V	eshold alue		Secondary Malfunction		Enable Conditions			Ti Req	ime uired	Mil Illum.
									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 Ignition Voltage Ignition Voltage	= >= <=	TRUE 8.5996094 31.990234	Boolean Volts Volts				
									P0716 Status is not	=	Test Failed This Key On or Fault Active					
							Cc	Disable onditions:	MIL not Illuminated for DTC's:	TCM: P0717 ECM: P0101 P0122, P012	, P0752, P0973, , P0102, P0103, '3	P0974 P0121,				
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 Engine Torque is Vehicle Speed Engine Torque Signal Valid Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for P0717 Status is not	>= = >= >= >= >= >= >= >= >= >= >= >= >=	50 8191.875 16 TRUE 8.5996094 31.990234 400 7500 5 Test Failed This Key On or Fault Active	N°m N°m Boolean Volts Volts RPM RPM Sec				

Component/	Fault	Monitor Strategy	Malfunction		Tł	hreshold		Secondary Malfunction		Enable			T	ime	Mil
System	Code	Description	Chiena			value	Disable	MIL not Illuminated for DTC's:	TCM· P0722	P0723			Ket	quireu	indin.
							Conditions:		1011110722						
									ECM: P0107	, P0102, P0103					
Transmission Output Spood		Output Spood Soncor Circuit Low	Transmission Output Spood Sonsor												Ono Trin
Sensor (TOSS)	P0722	Voltage	Raw Speed	<=	35	RPN						>=	3.75	Fail Time (Se	c) One mp
,															
										Test Failed					
								P0722 Status is not	=	This Key					
										Active					
										10000					
								Transmission Input Speed	=	TRUE	Boolean				
								Check		TOUE	Deeleen				
								Engine Torque Check Throttle Position	=	5 0003052	Pct				
								Transmission Fluid	-	0.0000002	1 01				
								Temperature	>=	-40	°C				
								Disable this DTC if the PTO is	=	1	Boolean				
								active 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 Engine Speed is within the	<=	/500	RPM				
								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					
								Range Shift Status	≠	completed	ENUM				
										Park or					
								Transmission Range is	=	Neutral					
								Engine Torque is	>=	8191.75	N*m				
								Engine Forque is	<=	8191.75	N^m				
								Engine Torque Condition 2							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	T	nreshold Value	Secondary Malfunction		Enable Conditions			Ti Rea	me uired	Mil Illum.
						Engine Torque is Engine Torque is	>= <=	35 8191.75	N*m N*m				
						The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE							
						TIS Check Condition 1							
						Transmission Input Speed is	>=	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	>=	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 ECM: P0101 P0122, P012	, P0717, P0723 , P0102, P0103 3	, P0121,				
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	Driven rar	ige								
				= (R,D)									
						Range_Disable OR	=	FALSE	See Below				
						Neutral_Range_Enable	=	TRUE	See Below				

Component/ System	Fault Code	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					And Neutral_Speed_Enable are TRUE concurrently	=	TRUE	See Below		
					Transmission_Range_Enable	=	TRUE	See Below		
					Transmission_Input_Speed_En able	=	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		
					Engine Speed is	<=	400	RPM		
					Engine Speed is	<=	7500	RPM		
					allowable limits for	>=	5	Sec		_
					Enable_Flags Defined Below					
					Transmission_Input_Speed_En able is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:					-
					TIS Condition 1 is TRUE when both of the following conditions are satsified for Input Speed Delta Raw Input Speed	>= <= >=	0 4095 500	Enable Time (Sec) RPM 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		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
0,000	0000				Transmission Range is	=	Reverse/N eutral Transitonal	ENUM		
					Transmission Range is	=	Neutral/Dri ve Transitiona I	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			51111		
					Transmission Range is	=	Park Park/Rever se Transitonal	ENUM		
					Input Clutch is not	=	ON (Fully Applied)	ENUM		
					Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified for	>	1.5	Seconds		
					Transmission Output Speed	>	130	RPM		
					The loop to loop change of the Transmission Output Speed is	<	20	RPM		
					The loop to loop change of the Transmission Output Speed is	>	-10	RPM		
					Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE Transmission Range is	=	Neutral	ENUM		
					Transmission Range is	=	Reverse/N eutral Transitiona I	ENUM		
					Transmission Range is	=	Neutral/Dri ve Transitiona I	ENUM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thresh Valu	nold Ie	Secondary Malfunction		Enable Conditions			Ti Rec	ime juired	Mil Illum.
							Time since a driven range (R,D) has been selected) i >=	Table Based Time Please Refer to Table 21 in supporting documents	Sec				
							Transmission Output Speed Sensor Raw Speed Output Speed when a fault was detected		500 500	RPM RPM				
						Disable Conditions	MIL not Illuminated for DTC's:	: TCM: P0973, ECM: P0101 P0122, P012	P0974, P0976, P0102, P0103, 3	P0977 P0121,				
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be Met	>=	800	Кра					>=	2	Enable Time (Sec)	Two Trips
			(A) TCC Slip Error @ TCC On Mode	Refer >= Sup Doo	er to Table 1 in upporting ocuments	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								>=	3	TCC Stuck Off Fail Counter	
							TCC Mode Ignition Voltage Lc Ignition Voltage H Engine Speec Engine Speed is within the allowable limits for Engine Torque L Engine Torque L Throttle Position Lc Throttle Position H 2nd Gear Ratio Lc 2nd Gear Ratio High		On or Lock 8.5996094 31.990234 400 7500 5 50 8191.875 8.0001831 99.998474 2.6710205 3.072998	Volts Volts RPM Sec N*m Pct Pct Ratio Ratio				

Component/	Fault Code	Monitor Strategy	Malfunction		Th	reshold Value		Secondary Malfunction		Enable Conditions			Ti Rea	me uired	Mil Illum.
System	Coue	Description	ontena			- and -		3rd Gear Ratio Lo	>=	1.7130127	Ratio		neq	uneu	
								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	~-	6 664063	°C				
								Temperature Lo	>-	-0.004005	C				
								Transmission Fluid	/-	130	°C				
								Temperature Hi	~-	150	0				
								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					
						Disa Conditio	able M ons:	/IIL not Illuminated for DTC's:	TCM: P07 P0742, P	Active 716, P0717, P0722 2763, P2764	, P0723,				
									ECM: P0 P0107, Pi P0175, Pi P0205, Pi P0205, Pi P0301, Pi P0306, Pi	101, P0102, P010 0108, P0171, P01 0201, P0202, P020 0206, P0207, P020 0302, P0303, P030 0307, P0308, P040	3, P0106, 72, P0174, 03, P0204, 08, P0300, 04, P0305, 01, P042E				
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>=	-50	RPM									One Trip
			TCC Slip Speed	<=	13	RPM									
												>=	2.5	Fail Time (Sec)	
			If Above Conditions Have been Met												
			and Fail Timer Expired, Increment Fail Counter					TOOM		015		>=	6	Fail Counter	
								ICC Mode	=	Off					
								Enable test if Cmnd Gear = 1stFW and value true	=	1	Boolean				
				I				Enable test if Cmnd Gear = 2nd		0		1			
								and value true	=	0	Boolean				
								Engine Speed Hi	<=	6000	RPM	1			
								Engine Speed Lo	>=	500	RPM				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable		Time	Mil
System	Code	Description	Criteria	Value			Conditions	KDU	Required	intern.
					Vehicle Speed Hi	<=	511	KPH		
					Venicie Speed Lo	>=	0101.075	KPH Nex		
					Engine Torque Hi	<=	8191.875	Nm		
					Engine Torque Lo	>=	U8	NM Danas		
					Current Range	7	Neutral	Range		
						Ŧ	Reverse	Range		
						<=	130	°C		
					Temperature					
						>=	18	°C		
					Throttle Desition Livet Ligh		E 00020E2	Det		
					I hrotile Position Hyst High	>=	5.0003052	PCI		
					AND					
					Max venicle Speed to Meet	<=	8	KPH		
					Inrottie Enable					
					Once Hyst High has been met,		2 000 4272	D-4		
					the enable will remain while	>=	2.0004272	PCI		
					I hrottle Position		75	D /		
					Disable for Throttle Position	>=	/5	PCI		
					Disable if PTO active and value	=	1	Boolean		
					true					
					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 it MUND and using					
					Disable if in MUMD and value	=	1	Boolean		
					true					
					Disable if in TUTD and value	=	1	Boolean		
					true		EALCE	Deelees		
					4 Wheel Drive Low Active	=	FALSE	Boolean		
					Disable II All Purge active and	=	0	Boolean		
					Value faise		EALCE	Dealara		
					RVT Diagnostic Active	=	FALSE	Boolean		
					Ignition Voltage	>=	8.5996094	V		
					Ignition Voltage	<=	31.990234	V		
					venicie Speed	<=	511	KPH DDM		
					Engine Speed	>=	400	KPIVI DDM		
		1			Engine Speed	<=	7500	KPIVI	1	
					Engine Speed is within the	>=	5	Sec		
					allowable IIMIts for Engine Tergue Signal Valid		TDUE	Pooloor		
					Engine Forque Signal Valid	=	IKUE	BODIESU		
					Throttle Position Signal Valid	=	TRUE	Boolean		
1	I.	1	1	1					1	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Valu	hold ue	Secondary Malfunction		Enable Conditions			Re	Time quired	Mil Illum.
						P0742 Status is	¥	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716 P0741, P276 ECM: P010 P0107, P010 P0175, P020 P0205, P020 P0301, P030 P0306, P030	5, P0717, P0722, 53, P2764 1, P0102, P0103 38, P0171, P0172 31, P0202, P0203 36, P0207, P0208 32, P0303, P0304 37, P0308, P040	P0723, , P0106, 2, P0174, 3, P0204, 3, P0300, 4, P0305, 1, P042E				
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip Commanded Gear Gear Ratio	>= 400 = 1st Lock <= 1.484985352	RPM rpm					>=	0.3	Fail Tmr	Two Trips
			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 Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= <= >= <= >=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
						Transmission Fluid Transmission Fluid	>=	-6.65625	°C				
						Range Shift State	=	Range Shift Completed	ENUM				
						TPS OR	>=	0.5004883	%				
						Output Speed Throttle Position Signal Valid from ECM	>= =	36 TRUE	RPM Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions		Ti Req	me uired	Mil Illum.
						Engine Torque Signal Valid from ECM, High side driver is enabled High-Side Driver is Enabled Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	F = TRUE F = TRUE F = FALSE F = FALSE F = TRUE	Boolean Boolean Boolean Boolean			
				Co	Disable inditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722 P182E ECM: P0101, P0102, P0103 P0107, P0108, P0171, P017 P0175, P0201, P0202, P020 P0205, P0206, P0207, P020 P0301, P0302, P0303, P030 P0306, P0307, P0308, P040	, P0723, , P0106, 2, P0174, 3, P0204, 8, P0300, 4, P0305, 1, P042E			
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip Commanded Gear Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On If the above parameters are true Command 4th Gear once Output Shaft Speed	>= 400 RPM = 3rd Gear = TRUE Boolear <= 800 RPM	1				Please Refe >= to Table 16 i Supporting Documents	r n Neutral Timer (Sec)	One Trip
			If Gear Ratio	>= 4.259765625 <= 4.708251953		Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed swithin the allowable limits for High-Side Driver is Enabled	D >= 8.5996094 i <= 31.990234 >= 400 i <= 7500 ? >= 5 f = TRUE	Volts Volts RPM RPM Sec Boolean	>= 1.5 >= 5	Fail Timer (Sec) Counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Valu	hold Je	Secondary Malfunction		Enable Conditions			Tim Requir	e red	Mil Illum.
						Throttle Position Signal Valid	=	TRUF	Boolean				
						from ECM Output Speed	>=	36	RPM				
						OR		50					
						TPS	>=	0.5004883	%				
								Range					
						Range Shift State	=	Shift Completed	ENUM				
						Transmission Fluid		oompiotou					
						Temperature	>=	-6.65625	°C				
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault Default Gear Option is not	=	FALSE	Boolean				
						present	=	TRUE					
					Disable	MIL not Illuminated for DTC's:	TCM: P0716	P0717 P0722	P0723				
					Conditions:		P182E	11 07 11 1 07 221	1 07 207				
							ECM: P0101	, P0102, P0103,	P0106,				
							P0107, P010	8, P0171, P0172	2, P0174,				
							P0175, P020	1, P0202, P0203	3, P0204,				
							P0203, P020 P0301, P030	12, P0303, P0304	4, P0305,				
							P0306, P030	7, P0308, P040	1, P042E				
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gea	= 1st Locked						┣──			One Trin
	1 0700			- Tot Eboked						1	Please Refer		one mp
			Gear Box Slip	>= 400	RPM					>=	to Table 5 in	Neutral Timer	
											Supporting Documents	(Sec)	
			Intrusive Shift to 2nd	I							Documento		
			Commanded Gear Previous	= 1st Locked	Gear								
			Gear Ratio Gear Ratio	<= 3.015991211 >= 2.728027344									
			If the above parameters are true	2.720027011									
			in the above parameters are the	-							1		
										>=	3	counts	
						Ignition Voltage Lo	>=	8.5996094	Volts				-
						Ignition Voltage Hi	<=	31.990234	Volts				
						Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM				
						Engine Speed is within the	~-	5	Sec				
						allowable limits for		3	DDM				
						Output Speed	>=	30	KPIM				
						TPS	>=	0.5004883	%				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Reguired	Mil Illum.
					Range Shift State	Range = Shift ENUM Completed		
					Transmission Fluid Temperature	>= -6.65625 °C		
					Throttle Position Signal Valid	I = IRUE Boolean		
					from ECM			
					Output Speed Sensor fault	t = FALSE Boolean		
					Default Gear Option is not	t = TRUE		
					present			
				Disable	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723,		
				Conditions		P182E		
						FCM: P0101 P0102 P0103 P0106		
						P0107, P0108, P0171, P0172, P0174,		
						P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300,		
						P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042F		
		Dracoura Cantral (DC) Salanaid P	Foil Coco 1					Ono Trin
Variable Bleed Solenoid (VBS)	P0776	Stuck Off [C35R]	Case: Steady State 3rd Gear	ſ				One mp
			Commanded Gear Gearbox Slip	r = 3rd Gear >= 400 RPM				
							Please Refer	
							>= to Table 16 in Neutral Timer Supporting (Sec)	
							Documents	
			Command 4th Gear once Output Shaft Speed	t <= 800 RPM				
			If Gear Ratio) >= 1.343261719				
			And Gear Ratio	0 <= 1.484/41211			>- 3 Fail Timer (Sec)	
			It the above condiations are true, Increment 3rd gear fail counter	r r			>= 3 3rd Gear Fail Counts	
							or	
			and C35R Fail counter	r			>= 14 3-5R Clutch Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear Commanded Gear	r r = 5th Gear				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable Conditions		1	Tir Regr	me uired	Mil Illum.
	0000		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 It the above condiations are true, Increment 5th gear fail counter	Please refer to Table 3 in supporting documents				>=	3	5th Gear Fail Counts or	
			and C35R Fail counter		PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag Hydraulic System Pressurized Minimum output speed for RVT A OR B (A) Output speed enable (B) Accelerator Pedal enable	= FALSE = FALSE = FALSE = TRUE = TRUE >= 36 >= 36 >= 0.5004883	Boolean Boolean Boolean Boolean RPM RPM Pct	>=	14	3-5R Clutch Fail	-
					Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi Engine Speed Hi Engine Speed is within the allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>= 8.5996094 <= 31.990234 >= 400 <= 7500 >= 5 = TRUE = TRUE = TRUE = FALSE = FALSE = TRUE	Volts Volts RPM Sec Boolean Boolean °C Boolean Boolean				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable		Ti	me	Mil
System	Code	Description	Criteria	Value	Mill not Illuminated for DTC's			Requ	uirea	mum.
				Conditions:	MIL HOU INUTIMATED TO DICS.	D182E				
				conditions.		1 1022				
						FCM: P0101, P0102, P0103, P0106,				
						P0107, P0108, P0171, P0172, P0174,				
						P0175, P0201, P0202, P0203, P0204,				
						P0205, P0206, P0207, P0208, P0300,				
						P0301, P0302, P0303, P0304, P0305,				
						P0306, P0307, P0308, P0401, P042E				
		Droccura Control (DC) Salinaid P	Foil Coco 1							Ono Trin
Variable Bleed Solenoid (VBS)	P0777	Stuck On [C35R] (Steady State)	Case: Steady State 1st							One mp
			Attained Gear slip	>= 400 RPM						
				Table Based						
				Time Please						
			If the Above is True for Time	Refer to Table Enable Time						
				4 IN (Sec)						
				supporting						
			Intrusive test:	uocuments						
			(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	
									UI Total Fail	
							>=	3	Counts	
			Fail Case 2 Case: Steady State 2nd gear							1
				Table Based						
				value Please						
			Max Delta Output Speed Hysteresis	>= Refer to 3D Table 1 in rpm/sec						
				supporting						
				documents						
				Table Based						
				value Please						
			Min Dolta Output Speed Unstarasis	Refer to 3D						
			wiin Deita Output Speed Hysteresis	Table 2 in						
				supporting						
1	1	1		documents						

Component/	Fault Code	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Oystem	coue	Description	ontena	Table Based		Contailorito	lingunou	
				Time Please				
			If the Above is True for Time	Refer to Table				
			I the Above is the for thine	>= 17 in Sec				
				supporting				
			lateration to at	documents				
			(CB26 clutch exhausted)					
			Gear Ratio	<= 1.933959961				
			Gear Ratio	>= 1.75				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec))
							Fail Count in	
							>= 5 2nd Gear	
							or	
							>= 3 I otal Fail	
			Fail Case 3 Case: Steady State 4th gear				Counts	-
				Table Based				
				value Please				
			Max Delta Output Speed Hysteresis	<pre>Refer to 3D >= rpm/sec</pre>				
				l able 1 in				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed Hysteresis	Refer to 3D				
			win Deita Output Opeed Hysteresis	Table 2 in				
				supporting				
				Table Based				
				Time Please				
			If the Above is True for Time	Refer to Table				
			If the Above is thue for thine	>= 17 in Sec				
				supporting				
			Intrusivo tost-	documents				
			(C1234 clutch exhausted)					
			Gear Ratio	<= 1.050048828				
			Gear Ratio	>= 0.949951172				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec))
							Fail Count in 4th	n
							>= S Gear	
l	I	l	l		I	l	or	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			T Rei	ime quired	Mil Illum.
		Decemption							>=	3	Total Fail	
			Fail Case 4 Case: Steady State 6th dear						-	0	Counts	-
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to 3D Table 1 in rpm/sec								
			Min Delta Output Speed Hysteresis	supporting documents Table Based value Please Refer to 3D Table 2 in supporting documents Table Based								
			If the Above is True for Time	<pre>>= Refer to Table >= 17 in Sec</pre>								
			Intrusive test: (CP36 clutch externated)	supporting documents								
			(CB20 Clutch exhausted)	1 050040000						11	Fail Timor (Soc)	
			Gear Ratio	<= 1.030040020					>=	1.1	Fall Hiller (Sec)	
			If the above parameters are true	>= 0.949931172					>=	З	COULIES	
			ii the above parameters are the									
									>=	1.1	Fail Timer (Sec))
									>=	3	Fail Count in 6th Gear	ו
									>=	3	or Total Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed TPS validity flag HSD Enabled	= = >= = =	FALSE FALSE 6 TRUE TRUE	Boolean Boolean Boolean RPM Boolean 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 Ignition Voltage Hi Engine Speed Lo	>= <= >=	8.5996094 31.990234 400	Volts Volts RPM				

Component/ Svstem	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre Va	shold Ilue	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
						Engine Speed Hi	<=	7500	RPM		
						Engine Speed is within the	>=	5	Sec		
						if Attained Gear=1st FW					
						Accelerator Pedal enable	>=	5.0003052	Pct		
						if Attained Gear=1st FW Engine	>=	20	Nm		
						I orque Enable if Attained Gear=1st FW Engine					
						Torque Enable	<=	8191.875	Nm		
						Transmission Fluid	>=	-6.65625	°C		
						Temperature		ENICE	Pooloan		
						Output Speed Sensor fault	=	FALSE	Boolean		
						· · · · · · · · · · · · · · · · · · ·					
					Dischla	MIL not Illuminated for DTClas	TCM. D071/	00717 00700	00700		
					Conditions:	MIL not muminated for DTC S:	P182F	, PU/17, PU/22,	PU/23,		
								D0100 D0100	Data		
							ECM: P0101 P0107_P010	, PUTU2, PUTU3, 18 P0171 P017	P0106, 2 P017/		
							P0175, P020	01, P0202, P020	3, P0204,		
							P0205, P020	06, P0207, P0208	8, P0300,		
							P0301, P030	12, P0303, P0304	1, P0305, 1 P042E		
							1 0300, 1 030	77,10500,1040	1,1042L		
			Primary Offgoing Clutch is								One Trip
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B	exhausted (See Table 12 in Supporting Documents for Exhaust	= TRUE	Boolean						
			Delay Timers)								
			Primary Oncoming Clutch Pressure	_ Maximum							
			Command Status	pressurized							
			Primary Offgoing Clutch Pressure	_ Clutch exhaus	it						
			Command Status	command							
			Range Shift Status	≠ Initial Clutch							
			Attained Gear Slin	Control	RPM						
				10							
			If the above conditions are true run								
			appropriate Fail 1 Timers Below:								
			6-11 House - 1								
			Tall 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)						
I		1	,				I			1	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thr V	eshold alue	Secondary Malfunction		Enable Conditions			Tim Requi	e red	Mil Illum.
			fail timer 1	>=	0.5	Fail Time (Sec)								
			(3-4 stilling with throtie) fail timer 1	>-	0.5	Fail Time (Sec)								
			(3-4shifting with Closed Throttle) fail timer 1		0.5									
			(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								Tol = (2) Tir >= Ti F S T. F	tal Fail Time Fail 1 + Fail See Enable ners for Fail mer 1, and Reference Supporting able 15 for ail 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	<u> </u>					1 15 105		>=	5	total fail counts	
							IUI Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear	>= = = ≠	-6.65625 FALSE FALSE 1st	°C Boolean Boolean Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria	Disable Conditions:	High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled Default Gear Option is not present	= TRUE Boolean >= 100 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean = TCM: P0717, P0722, P0723, P0723, P182E	Kequirea	
						P0107, 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	>= 400 RPM Please refer to Table 3 in Supporting Documents			Please See Table 5 For Neutral Timer >= Neutral Time (Sec) Cal	One Trip
			Increment 4th Gear Fail Counter and C456 Fail Counters <u>Fail Case 2</u> Case: Steady State 5th Gear Gear slip Intrusive test: commanded 6th near	>= 400 RPM			>= 3 4th Gear Fail Count OR >= 14 C456 Fail Counts >= Table 5 For Neutral Time Cal	-

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable			Time	e red	Mil Illum
System	Code	Description	Cintenia	Please Refer			Conditions			Requi	ieu	
			If attained Gear \neq 6th for time	>= to Table 3 in Supporting								
			if the above conditions have been met	Douments								
			Increment 5th Gear Fail Counter						>=	3	5th Gear Fail Count	
			and C456 Fail Counters						>=	14	C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gear							Please See	Noutral Timor	
			Gear slip	>= 400 RPM					>=	Neutral Time Cal	(Sec)	
			Intrusive test: commanded 5th gear									
			If attained Gear ≠ 5th for time	Please refer to Table 3 in Supporting Documents								
			if the above conditions have been met	Dodiments								
			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 RVI	=	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 DDM				
					Engine Speed HI Engine Speed is within the	<=	/ 500	RPIVI				
					allowable limits for	>=	5	Sec				
					Throttle Position Signal valid	=	TRUE	Boolean				
				1	HSD Enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tim Requi	e red	Mil Illum.
Component/ System (Fault Code	Monitor Strategy Description Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Malfunction Criteria Fail Case 1 Case: Steady State 1st Attained Gear slip	Threshold Value Disable Conditions: >= 400 RPM Table Based	Secondary Mafunction Transmission Fluid Temperature Input Speed Sensor fault OutputSpeed Sensor fault Default Gear Option is not present MIL not Illuminated for DTC's:	Enable Conditions >= -6.65625 °C = FALSE Boolean = FALSE Boolean = TRUE TRUE TCM: P0716, P0717, P0722, P0723, P182E P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0301, P0302, P0308, P0401, P042E	Tim Requi	e red	Mil Illum.
		Stuck Un [C456] (Steady State)	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 <u>Fail Case 2</u> Case Steady State 2nd Max Delta Output Speed Hysteresis	>= 400 RPM Table Based Time Please Refer to Table Enable Time 4 in (Sec) supporting documents = 1.484985352 >= 1.343017578 Table Based value Please Refer to 3D Table 1 in supporting documents			>= 1.1 >= 2 >= 3	Fail Timer (Sec) Fail Count in 1st Gear or Total Fail Counts	

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable	Time	Mil Illum
System	Code	Description	Criteria	Table Based		Conditions	Kequileu	
				value Please				
			Min Delta Output Speed Hysteresis	>= Refer to 3D Table 2 in rpm/sec				
				supporting				
				documents				
				Time Please				
			If the Above is True for Time	Refer to Table				
				17 in supporting				
				documents				
			Intrusive test:					
			(CB26 clutch exhausted) Gear Ratio	<= 1.484985352				
			Gear Ratio	>= 1.343017578				
			If the above parameters are true					
							. 11 Fail Timer (Caa)	
							>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 2nd Gear	
							or	
							>= 3 Total fail counts	
			Fail Case 3 Case Steady State 3rd	T D				
				value Please				
			Max Delta Output Speed Hysteresis	Refer to 3D				
				Table 1 in supporting				
				documents				
				Table Based				
				value Please Refer to 3D				
			Min Delta Output Speed Hysteresis	>= Table 2 in rpm/sec				
				supporting				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Keier to Table Sec				
				supporting				
			Intrucivo toch	documents				
			(C35R clutch exhausted)					
			Gear Ratio	<= 1.484985352				
I	I	I	Gear Ratio	>= 1.343017578	I	l	I	I

Component/ System	Fault Code	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Ti Reg	ime wired	Mil Illum.
Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria If the above parameters are true	Threshold Value	Secondary Malfunction PRNDL State defaulted inhibit RVT IMS fault pending indication output speed TPS validity flag HSD Enabled Hydraulic_System_Pressurized A OR B (A) Output speed enable (B) Accelerator Pedal enable Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed Hi Engine Speed Hi Engine Speed Hi Engine Speed Hi Engine Speed swithin the allowable limits for if Attained Gear=1st FW Accelerator Pedal enable if Attained Gear=1st FW Engine Toroue Enable		Enable Conditions FALSE FALSE FALSE FALSE O TRUE TRUE TRUE TRUE 36 0.5004883 8.5996094 31.990234 400 7500 5 5 5.0003052 20	Boolean Boolean RPM Boolean Boolean Boolean Boolean Nm Nm Volts Volts RPM RPM Sec Pct Nm	>= >= >=	Ti Req 1.1 3 0R 3	ime Juired Fail Timer (Sec) Fail Count in 3rd Gear Total Fail Counts	Mil Illum.
					if Attained Gear=1st FW Accelerator Pedal enable if Attained Gear=1st FW Engine Torque Enable	>= >=	5.0003052 20	Pct Nm				
					if Attained Gear=1st FW Engine Torque Enable Transmission Fluid Temperature Input Speed Sensor fault	<= >= =	8191.875 -6.65625 FALSE	Nm ⁰C Boolean				
					Output Speed Sensor fault Default Gear Option is not present	=	FALSE TRUE	Boolean				

Component/	Fault Code	Monitor Strategy	Malfunction Criteria		Thresho	old	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Coue	Description	ontena		Value	Disable	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723,	Required	
						Conditions:		P182E		
								FCM- P0101 P0102 P0103 P0106		
								P0107, P0108, P0171, P0172, P0174,		
								P0175, P0201, P0202, P0203, P0204,		
								P0205, P0206, P0207, P0208, P0300,		
								P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042F		
			Primary Offgoing Clutch is							One Trip
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C	exhausted (See Lable 11 in Supporting Documents for Exhaust	= TI	RUE Bo	oolean				
		Stack On [C+30] (Dynamic)	Delay Timers)							
			Primary Oncoming Clutch Pressure	_ Max	ximum					
			Command Status	pres	surized					
			Primary Offgoing Clutch Pressure	_ Clutch	n exhaust					
			Command Status	com	nmand					
			Range Shift Status	≠ Initia	al Clutch					
			Attained Gear Slin	<=	40 RI	PM				
				~-	10 14					
			If the above conditions are true							
			increment appropriate Fail 1 Limers							
			fail timer 1		0F F	11 TI (C)				
			(4-1 shifting with throttle)	>=	0.5 Fa	all Time (Sec)				
			fail timer 1	>= (0.5 Fa	ail Time (Sec)				
			(4-1 Shirung Without throtte) fail timer 1							
			(4-2 shifting with throttle)	>=	0.5 Fa	ail Time (Sec)				
			fail timer 1	>=	0.5 Fa	ail Time (Sec)				
			(4-2 Shirting Without throttie) fail timer 1			. ,				
			(4-3 shifting with throttle)	>=	0.5 Fa	ail Time (Sec)				
			fail timer 1	>=	0.5 Fa	ail Time (Sec)				
			(4-3 shifting without throttle)							
			(5-3 shifting with throttle)	>=	0.5 Fa	ail Time (Sec)				
			fail timer 1	>- 1	0.5 Ea	ail Time (Sec)				
			(5-3 shifting without throttle)	/-	0.5 10					
			(6-2 shifting with throttle)	>= (0.5 Fa	ail Time (Sec)				
			fail timer 1		05 5	ail Timo (Soc)				
			(6-2 shifting without throttle)	>=	U.U F2	an Time (Sec)			1	
Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.		
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			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and sec Reference Supporting Table 15 for Fail Timer 2			
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter							
			4th gear fail counter				>= 3 Fail Counter From 4th Gear OR			
			5th gear fail counter				>= 3 Fail Counter From 5th Gear OR			
			6th gear fail counter				>= 3 Fail Counter >= 3 From 6th Gear OR Total Fail			
			Total fail counter		TUT Fushis to me and me	((5())5	>= 5 Counter	_		
					I UT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.65625 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = 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				

Component/	Fault	Monitor Strategy	Malfunction	1	Thr	eshold	Secondary	Enable	_	Time	Mil
System	Code	Description	Criteria	┢──	V	alue	Maifunction	Conditions	R	equired	ilium.
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					
			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					
			Position in Neutral Enabled	=	0	Boolean					
			Position in Park Enabled	=	0	Boolean					
			Position in Reverse Enabled	=	0	Boolean					
			NOTE: Both Failcase1 and Failcase	;	TRUE	Boolean			>= 600	Fail Time (Sec)	
			2 Must Be Met	-							-

Component/	Fault	Monitor Strategy	Malfunction	Т	hreshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
oyatem	Code	Description							Enable Time		
						Time Since Last Range Change Ignition Voltage Lo	>= >= <=	1 8.5996094 31 990234	(Sec) Volts		
						Engine Speed Lo Engine Speed Hi Engine Speed s within the	>= <=	400 7500	RPM RPM		
						allowable limits for	>=	5 Test Failed	Sec		
						P0815 Status is	¥	This Key On or Fault Active			
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0816, F P1877, P1915,	P0826, P182E, P1761	P1876,		
							ECM: None				
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in th Down Position in Range 1 Enable	ed = 0	Boolean						Special No MIL
			Tap Down Switch Stuck in th Down Position in Range 2 Enable	ed = 0	Boolean						
			Tap Down Switch Stuck in th Down Position in Range 3 Enable	ed = 0	Boolean						
			Tap Down Switch Stuck in th Down Position in Range 4 Enable	ed = 0	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 5 Enable	ed = 0	Boolean						
			Tap Down Switch Stuck in th Down Position in Range 6 Enable	ed = 0	Boolean						
			Tap Down Switch Stuck in ti Down Position in Range Neutr Enable	al = 1 ed	Boolean						
			Tap Down Switch Stuck in ti Down Position in Range Pa Enabli	e rk = 1 ed	Boolean						
			Tap Down Switch Stuck in th Down Position in Range Rever Enable	e = 0 ed	Boolean						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	٦	hreshold Value	Secondary Malfunction	c	Enable onditions		Time Required		Mil Illum.
Gystem	ooue	Description	Tap Down Switch ON	= TRUE	Boolean				>=	1	sec	
			5 11 0 0						 			
			Tap Down Switch Stuck in the	= 1	Boolean							
			Down Position in Range 1 Enabled		Doolean							
			Tap Down Switch Stuck in the									
			Down Position in Range 2 Enabled	= 1	Boolean							
			Tan Down Switch Stuck in the									
			Down Position in Range 3 Enabled	= 1	Boolean							
			Tap Down Switch Stuck in the	= 1	Boolean							
			Down Position in Range 4 Enabled									
			Tap Down Switch Stuck in the	= 1	Boolean							
			Down Position in Range 5 Enabled		Doolean							
			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	0	Declean							
			Down Position in Reverse Enabled	= 0	Boolean							
			Tap Down Switch ON	= TRUE	Boolean							
			NOTE: Both Failcase1 and Failcase						>=	600	sec	
			2 Must Be Met						<u> </u>			-
								Enable Time				-
						Time Since Last Range Change	>=	1 (Sec)				
						Ignition Voltage Lo	>=	8.5996094 Volts				
						Ignition Voltage Hi Engine Speed Lo	<=	31.990234 Volts 400 DDM	1			
		1				Engine Speed L0 Engine Speed Hi	>= <=	7500 RPM	1			
		1				Engine Speed is within the	-		1			
						allowable limits for	>=	5 Sec	1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thr V	eshold alue	Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mil Illum.
						P0816 Status is	¥	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815 P1877, P191 ECM: None	, P0826, P182E, I 5, P1761	P1876,				
Tap Up Tap Down Switch	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	= TRUE	Boolean					>=	60	Fail Time (Sec)	Special No MI
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
						P0826 Status is	¥	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1761 ECM: None						
Variable Bleed Solenoid (VBS)	P0961	Pressure Control (PC) Solenoid A Control Circuit Rationality Test	The HWIO reports an invalid voltage (out of range) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	Two Trips
		(Line Pressure VDS)								out of	5	Sample Time (Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Th	reshold /alue	Secondary Malfunction		Enable Conditions			Ti Rea	me uired	Mil Illum.
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					>= out	1.5	Fail Time (Sec) Sample Time	One Trip
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= <=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec	of	1.875	(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
										out of	5	Sample Time (Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= <= >=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
						Ignition Voltage		8 5006004	Volte	out of	0.375	Sample Time (Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	31.990094 31.990234 400 7500 5	Volts RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thr	eshold alue	Secondary Malfunction		Enable Conditions			Ti Rea	me uired	Mil Illum.
						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					>= out	0.3	Fail Time (Sec) Sample Time	One Trip
					Disable Conditions:	Ignition Vollage Ignition Vollage Engine Speed Engine Speed is within the allowable limits for P0967 Status is not MIL not Illuminated for DTC's:	>= <= >= = TCM: None	8.5996094 31.990234 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec	of	0.375	(Sec)	-
Variable Bleed Solenoid (VBS)	P0970	Pressure Control (PC) Solenoid C Control Circuit Low Voltage (C456/CBR1 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip
						P0970 Status is not	=	Test Failed This Key On or Fault Active				(000)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed	>= <= >= <=	8.5996094 31.990234 400 7500	Volts Volts RPM RPM				

Component/	Fault Code	Monitor Strategy	Malfunction Criteria	Thr V	eshold alue	Secondary Malfunction		Enable Conditions			T	ime wired	Mil Illum.
Jystem	Code	Description	Citera			Engine Speed is within the allowable limits for	>=	5	Sec		Kee	uncu	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0971	Pressure Control (PC) Solenoid C Control Circuit High Voltage (C456/CBR1 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
						P0971 Status is not	=	Test Failed This Key On or Fault Active		of	0.375	(Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Shift Solinoid	P0973	Shift Solenoid A Control Circuit Low (Mode 2 Solenoid)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out of	1.2 1.5	Fail Time (Sec) Sample Time (Sec)	One Trip
						P0973 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Т	hreshold Value	Secondary Malfunction	Enab Conditi	e ons		Ti Req	me uired	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None					
Shift Solinoid	P0974	Shift Solenoid A Control Circuit High (Mode 2 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean				>=	1.2	Fail Time (Sec)	Two Trips
									out of	1.5	Sample Time (Sec)	
						P0974 Status is not	Test Fa This F On or F Activ	iled ey ault e				
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= 8.5996 <= 31.990 >= 400 <= 750 >= 5	094 Volts 234 Volts RPM 0 RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None					
Mode 3 Multiplex Valve	P0977	Shift Solenoid B Control Circuit High (Mode 3 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean				>=	1.2	Sec	One Trip
									out of	1.5	Sec	-
						P0977 Status is not	Test Fa This k On or F Activ	iled ey ault e				
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= 8.5996 <= 31.990 >= 400 <= 750 >= 5	094 Volts 234 Volts RPM 0 RPM Sec				

Component/ System	Fault Code	Monitor Strategy	Malfunction Criteria		Thr V	eshold alue	Secondary Malfunction		Enable Conditions			Tir Reau	me Jired	Mil Illum.
Cycloni		Decemption				Disable	MIL not Illuminated for DTC's:	TCM: None						
						Conditions:		ECM: Nono						
								LCIVI. NOTIC						
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				
							allowable limits for	>=	5	Sec				
						Disable	MIL not Illuminated for DTC's:	TCM: None						
						Conditions:		ECM: None						
								ECIVI. NOTIC						
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
		out.	The following events must occur Sequentially											
			Initial Engine speed	<=	50	RPM					>=	0.25	Enable Time (Sec)	
			Then Engine Speed Between Following											
			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				
							(enables above this value)	>=	5	V				
							Ignition Voltage Hyst Low	<=	2	V				
							(disabled below this value) Transmission Output Speed	<=	90	rpm				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thr V	eshold /alue	Secondary Malfunction		Enable Conditions			Ti Req	ime uired	Mil Illum.
						P1915 Status is	¥	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, ECM: None	P0723					
Transmission Control Module (TCM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below) Ignition Voltage High Hyst (run crank goes true when above this value)	= FALSE	Boolean Volts					>=	280	Fail Counts (25ms loop)	One Trip
			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 ECM run/crank active status	=	TRUE TRUE	Boolean 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) Ionition Voltage High Hyst (run	= TRUE	Boolean								One Trip
			crank goes true when above this value)	5	Volts					>=	280	Fail Counts (25ms loop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)	2	Volts					Out of	280	Sample Counts (25ms loop)	
						ECM run/crank active status available ECM run/crank active status	=	TRUE	Boolean Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None	I ALUL	DUUICAII				
Variable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D	Fail Case 1 Case: Steady State 2nd Gear				ECM: None						One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Tim Requ	ne ired	Mil Illum.
			Gear slip	>= 400 RPM					Please See Table 5 For Neutral Time	Neutral Timer (Sec)	
			Intrusive test: commanded 3rd gear						Cal		
			If attained Gear = 3rd for Time	Table Based Time Please >= see Table 2 in Supporting Documents							
			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						Please See		
			Gear slip	>= 400 RPM					>= 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							
			If Above Conditions have been met, Increment 5th gear fail counter						>= 3	5th Gear Fail Count	
			and CB26 Fail Count						>= 14	or CB26 Fail Count	
					PRNDL State defaulted	=	FALSE	Boolean			
					INNIBIT RV I IMS fault pending indication TPS validity flag	= = =	FALSE FALSE TRUE	Boolean Boolean 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			

Component/	Fault Code	Monitor Strategy	Malfunction Criteria	Thr V	eshold alue	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
Oyatem	coue	Description	onchu		uiuo	Common Enable Criteria		oonantono		required	
						Ignition Voltage Lo) >=	8.5996094	Volts		
						Ignition Voltage Hi	i <=	31.990234	Volts		
						Engine Speed Lo) >=	400	RPM		
						Engine Speed Hi	<=	7500	RPM		
						Engine Speed is within the	>=	5	Sec		
						Throttle Desition Signal valid	_	TDUE	Pooloan		
						HSD Enabled	_	TRUE	Boolean		
						Transmission Fluid			Doolean		
						Temperature	>=	-6.65625	°C		
						Input Speed Sensor fault	t =	FALSE	Boolean		
						Output Speed Sensor fault	t =	FALSE	Boolean		
						Default Gear Option is not	=	TRUE			
						present	t	INCE			
					Disable	MIL not Illuminated for DTC's:	TCM: P0716	P0717 P0722	P0723		
					Conditions:		P182F	10/17,10/22	,10723,		
							ECM: P0101,	P0102, P0103	, P0106,		
							P0107, P0108	3, P0171, P017	2, P0174,		
							P0175, P0201	I, P0202, P020	3, P0204,		
							P0205, P0206), PUZU7, PUZU 0, DO2O2, DO2O	8, PU300,		
							P0301, P0302 P0306 P0307	2, P0303, P030 7 P0308 P040	4, P0303, 1 P042F		
							1 0000, 1 0007	,10000,1010	1,10126		
			Primary Offgoing Clutch is								One Trip
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D	exhausted (See Table 13 in	- TRUE	Boolean						
	12/15	Stuck On [CB26] (Dynamic)	Supporting Documents for Exhaust	- 1102	Dooican						
			Delay Timers)								
			Primary Uncoming Clutch Pressure	= Maximum	J						
			Commanu Status	pressurized	1						
			Primary Offgoing Clutch Pressure	_ Clutch exhau	ıst						
			Command Status	command							
			Dango Shift Status	→ Initial Clutc	n						
			Range Shin Status	Control							
			Attained Gear Slip	<= 40	RPM						
			II above coulions are line, increment appropriate Fail 1 Timers								
			Relow-								
			fail timer 1		5 II 7 (0)						
			(2-1 shifting with throttle)	>= 0.5	Fail Time (Sec)						
			fail timer 1	. ОГ	Fail Time (See)						
			(2-1 shifting without throttle)	>= U.5	raii rime (Sec)						
			fail timer 1	>= 0.5	Fail Time (Sec)						
	I	1	(2-3 shifting with throttle)	. 0.0	. an mile (000)					I	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Th	reshold Value	Secondary Malfunction	En Con	able ditions		Tim Regu	ne iired	Mil Illum.
			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)							
			(6-5 shifting without throttle)	>= 0.5	Fail Time (Sec)							
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers						Tc = 2) Tii >= T : : : F	tal Fail Time (Fail 1 + Fail See Enable mers for Fail imer 1, and Reference Supporting Table 15 for Fail Timer 2	e I 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	
			6th gear fail counter						>=	3	OR Fail Counter From 6th Gear OR	
			total fail counter						>=	5	l otal Fail Counter	
						l'UT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6, = F, = F, = T >= = F, = F, = F, = T	65625 °C ALSE Boolean ALSE Boolean Ist Boolean RUE Boolean 100 RPM 200 RPM ALSE Boolean ALSE Boolean ALSE Boolean RUE Boolean				

Component/ System	Fault Code	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		T Rer	ime quired	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 Enable Time 4 in (Sec) supporting documents = 3.015991211 >= 2.728027344			>= >= >=	1.1 5 5	Fail Timer (Sec) Fail Count in 1st Gear or Total Fail Counts	One Trip
			Fail Case 2 Case: Steady State 3rd Gear Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis	Table Based value Please Refer to 3D Table 1 in supporting documents Table Based value Please Refer to 3D Table 2 in supporting documents					Counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
	0008	Description	If the Above is True for Time Intrusive test: (C35R clutch exhausted) Gear Ratio	Table Based Time Please Refer to Table 17 in Sec supporting documents <= 3.015991211				
			Gear Ratio	>= 2.728027344				
							>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 3rd Gear	
							>= 5 Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gear	Table Based				
			Max Delta Output Speed Hysteresis	>= Refer to 3D Table 1 in supporting				
			Min Delta Output Speed Hysteresis	documents Table Based value Please Refer to 3D Table 2 in supporting documents Table Based				
			If the Above is True for Time	Time Please Refer to Table 17 in Sec supporting				
			Intrusive test: (C1234 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	documents <= 0.779052734 >= 0.704956055				
							>= 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			T Rec	ime uuired	Mil Illum.
e yotom		Dooripiton							~-	5	Total Fail	
			Fail Case 4 Cases Steady State 5th Case						/-	J	Counts	
			<u>Fair Case 4</u> Case: Steady State 5th Gear	Table Based								
				value Please								
			Max Delta Output Speed Hysteresis	>= Refer to 3D rpm/sec								
				supporting								
				documents								
				Table Based								
				Refer to 3D								
			Min Delta Output Speed Hysteresis	>= Table 2 in rpm/sec								
				supporting								
				Table Based								
				Time Please								
			If the Above is True for Time	>= Refer to Table Sec								
				supporting								
				documents								
			Intrusive test: (C35R clutch exhausted)									
			Gear Ratio	<= 0.779052734								
			Gear Ratio	>= 0.704956055								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
											Fail Count in 5th	
									>=	3	Gear	
											Or Total Fail	
									>=	5	Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					Inhibit RVI IMS fault pending indication	=	FALSE FALSE	Boolean Boolean	1			
					output speed	>=	0	RPM	1			
					TPS validity flag	=	TRUE	Boolean				
						=	IKUE	DUUIEAII	1			
					Hydraulic_System_Pressurized	=	IRUE	Boolean	1			
					A OR B	\-	36	Nm	1			
					(P) Accolorator Dodal arabia	>=	0 5004000	Nm	1			
					(b) Accelerator Pedal enable	>=	0.5004883		1			
					Ignition Voltage Lo	>= <=	8.5996094 31.990234	Volts Volts	1			
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM	1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	T	ime quired	Mil Illum.
System	Code	Description	Criteria	Value	Malfunction Engine Speed is within the allowable limits for if Attained Gear=1st FW Accelerator Pedal enable if Attained Gear=1st FW Engine Torque Enable if Attained Gear=1st FW Engine Torque Enable Transmission Fluid Temperature Input Speed Sensor fault	Conditions >= 5 Sec >= 5.0003052 Pct >= 20 Nm <=	Rec	<u>juired</u>	Illum.
				Disabl Conditions	Output Speed Sensor fault Default Gear Option is not present e MIL not Illuminated for DTC's:	 FALSE Boolean TRUE TRUE 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 out 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip
					P2770 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	Test Failed This Key On or Fault Active >= 8.5996094 Volts <=			

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	t	Secondary Malfunction		Enable Conditions			Tim Requi	e red	Mil Illum.
- Oystenii	ooue	Description			Disable	MIL not Illuminated for DTC's:	TCM: None						
					Conditions:		ECM: Nono						
							LCIVI. NOTIC						
Variable Blood Selensid (VBS)	D1711	Pressure Control (PC) Solenoid D	The HWIO reports a high voltage		loop						0.2	Fail Time (See)	One Trip
	P2/21	(CB26 VBS)	(open or power short) error flag	= IRUE DUU	леан					>=	0.5	rali fille (Sec)	
										out of	0.375	Sample Time (Sec)	-
						P2721 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed	>= <= >=	8.5996094 31.990234 400	Volts Volts RPM				
						Engine Speed	<=	7500	RPM				
						allowable limits for	>=	5	Sec				
					Disable	MIL not Illuminated for DTC's:	TCM: None						
					Conditions:		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 RPN	M					>= N	Table 5 For Leutral Time	Neutral Timer (Sec)	
			Intrusive test: commanded 2nd gear	Please refer to							our		
			If attained Gear ≠ 2nd for Time	>= Table 3 in Supporting Documents	ft Time (Sec)								
			If Above Conditions have been met, Increment 1st gear fail counter							>=	3	1st Gear Fail Count	
			and C1234 fail counter							>=	14	or C1234 Clutch Fail Count	
			Fail Case 2 Case: Steady State 2nd Gear Gear slip	>= 400 RPM	М					 >= N	Please See Fable 5 For leutral Time Cal	Neutral Timer (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Requir	ed	Mil Illum.
			Intrusive test: commanded 3rd gear If attained Gear ≠ 3rd for Time	Please refer to >= Table 3 in Supporting Documents					
			If Above Conditions have been met, Increment 2nd gear fail counter				>= 3	2nd Gear Fail Count	
			and C1234 fail counter				>= 14	or C1234 Clutch Fail Count	
			Fail Case 3 Case: Steady State 3rd Gear Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time	Neutral Timer (Sec)	
			Intrusive test: commanded 4th gear	Please refer to			Cai		
			If attained Gear ≠ 4th for time	>= Supporting Documents					
			If Above Conditions have been met, Increment 3rd gear fail counter				>= 3	3rd Gear Fail Count	
			and C1234 fail counter				>= 14	or 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	Please refer to					
			If attained Gear = 5th For Time	>= Table 3 in Supporting Documents					
			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 inhibit RVT IMS fault pending indication TPS validity flag	= FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val	hold ue	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
						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		0.500/00/			
						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		Б	Soc		
						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 Ontion is not		THEOL	Booloan		
						nresent	=	TRUE			
						present					
			Drimony Offsning Clutch is		Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716 P182E ECM: P0101 P0107, P010 P0175, P020 P0205, P020 P0301, P030 P0306, P030	, P0717, P0722, , P0102, P0103)8, P0171, P017)1, P0202, P020)6, P0207, P020)2, P0303, P030)7, P0308, P040	P0723, .P0106, 2, P0174, 3, P0204, 8, P0300, 4, P0305, 1, P042E		One Trip
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status	= TRUE = Maximum pressurized	Boolean						Une mp
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command							
			Range Shift Status	≠ Initial Clutch Control							
	l	1	Attained Gear Slip	<= 40	RPM					1	

Disco Disco Understand If the date containers are the increment spectrate in a line of the spectrate in	Component/	Fault	Monitor Strategy	Malfunction		Thre	eshold alue	Secondary Malfunction		Enable Conditions			Tim Requi	e red	Mil Illum.
incoment appropriate fait Timers > 0.5 56. (2.5 shifting with out intege > 0.5 56. (2.6 shifting with out intege > 0.5 56. <	Oystem	coue	Description	If the above conditions are true						C CHARTER I			qu		
Billow J 0.5 sec (2 - shilling shith motil) - 0.5 sec (2 - shilling shith motil) - 0.5 sec (2 - shilling shith motil) - 0.5 sec (3 - shilling shith motil) - 0.5 sec (4 - shilling shith motil) - 0.5 sec (5 - shilling shith motil) -			1	increment appropriate Fail 1 Timers											
1 1			1	Below:											
1 1 0			1	fail timer 1		0.5	600								
Image: Section of the section of th			1	(2-6 shifting with throttle)	>=	0.5	Sec								
(2-5 shrling with notes) 10			1	fail timer 1	>=	0.5	Sec								
1 10			1	(2-6 shifting without throttle)	· -	0.0	300								
Image: Section of the section of th			1	fail timer 1	>=	0.5	Sec								
Image: Section of the section of th			1	(3-5 Shilling with thouse)											
Initiation of the source of			1	(3.5 shifting without throttle)	>=	0.5	sec								
Image: Section of Sectio			1	fail timer 1											
Initiant Initiant Initiant			1	(4-5 shifting with throttle)	>=	0.5	Sec								
(4-5 shiling without throution) 2 0.5 sec (4-6 shiling with throution) 2 0.5 sec (4-6 shiling with throution) 2 0.5 sec (4-6 shiling with throution) 2 0.5 sec (4-6 shiling without throution) 2 0.5 sec (4-7 shiling without throution) 2 3 Fail Counter (4-6 shiling without throution) 2 3 Fail Counter (4-6 shiling without throution) 2 3 Fail Counter 2 2nd gear fail counter 2 3 Fail Counter 2nd gear fail counter 4th gear fail co			1	fail timer 1		0.5	600								
Image: Section of a			1	(4-5 shifting without throttle)	>=	0.5	SEL								
Image: A shifting with hould reading a fail counter increment corresponding gear fail counter 0.5 sec If Attained Gear Slip is Less than Above Cal Increment Fail Timers - 0.5 sec If Attained Gear Slip is Less than Above Cal Increment Fail Timers - - - - If Attained Gear Slip is Less than Above Cal Increment Fail Timers - - - - - If Attained Gear Slip is Less than Above Cal Increment Fail Timers - <t< th=""><th></th><th></th><th>1</th><th>fail timer 1</th><th>>=</th><th>0.5</th><th>Sec</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>			1	fail timer 1	>=	0.5	Sec								
Image: Constraint of the shifting without throuting is a 0.5 sec Image: Constraint of the shifting without throuting is a constraint of the shifting witho			1	(4-6 shifting with throttle)											
Image: Constraint of the constraint			1	Tall timer 1	>=	0.5	sec								
If Atlained Gear Slip is Less han Above Cal Increment Fail Timers If Atlained Gear Slip is Less han Above Cal Increment Fail Timers If Atlained Gear Slip is Less han Above Cal Increment Fail Timers If fail timer is greater than threshold increment corresponding gear fail counter If fail timer is greater than threshold increment corresponding gear fail counter If fail timer is greater than threshold increment corresponding gear fail counter If fail timer is greater than threshold increment corresponding gear fail counter If fail timer is greater than threshold increment corresponding gear fail counter If fail timer is greater than threshold increment corresponding gear fail counter If fail timer is greater than threshold increment corresponding gear fail counter If fail timer is greater than threshold increment corresponding gear fail 			1												
If Attained Gear Slip is Less than Above Cal Increment Fall Timers If fall timer is greater than threshold increment corresponding gear fall counter and total fail counter 2nd gear fail counter 3nd gear fail counter 4th gear fail counter 4th gear fail counter			1									To	tal Fail Time		
If Attained Gear Slip is Less than Above Cal Increment Fail Timers If fail timer is greater than threshold increment corresponding gear fail counter If fail timer is greater than threshold increment corresponding gear fail counter 2nd gear fail counter 2nd gear fail counter 3rd gear fail counter 4th gear fail counter 2nd gear fail counter 3rd gear fail counter 3r			1									= (Fail 1 + Fail		
If Attained Gear Slip is Less than Above Cal Increment Fail Timers If Attained Gear Slip is Less than Above Cal Increment Fail Timers >= Timer 1, ad sec Supporting Table 15 for Fail Timer 2 If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter = 3 Fail Counter From 2nd Gear If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter = 3 Fail Counter From 2nd Gear If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter = 3 Fail Counter From 2nd Gear If fail timer is greater than threshold increment corresponding gear fail counter = 3 Fail Counter From 2nd Gear If fail timer is greater than threshold increment total fail counter = 3 Fail Counter From 2nd Gear If fail timer is greater than threshold increment total fail counter = 3 Fail Counter From 3rd Gear If fail timer is greater than threshold increment total fail counter = 3 Fail Counter From 3rd Gear			1									2)	See Enable		
Image: Above Cal Increment Fail Timers >= Timer 1, and sec sec Above Cal Increment Fail Timers Sec Reference Supporting If fail timer is greater than threshold increment corresponding gear fail Counter and total fail counter >= 3 Fail Counter 2nd gear fail counter >= 3 Fail Counter 3rd gear fail counter >= 3 Fail Counter 4th gear fail counter >= 3 Fail Counter From 3rd Gear >= 3 Fail Counter Sec Reference Sec Sec Sec 2nd gear fail counter >= 3 Fail Counter Sec Sec Sec Sec Sec Sec 3rd gear fail counter >= 3 Fail Counter Sec Sec Sec Sec Sec Sec 3rd gear fail counter >= 3 Fail Counter Sec Sec Sec Sec Sec Sec			1	If Attained Gear Slin is Less than								Tir	mers for Fail		
If fail timer is greater than threshold increment corresponding gear fail counter > 3 Fail Counter From 2nd Gear 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 3rd Gear 3 Fail Counter From 3rd Gear > 3 Fail Counter From 3rd Gear			1	Above Cal Increment Fail Timers								>= Ti	imer 1, and	Sec	
If fail timer is greater than threshold increment corresponding gear fail counter If fail timer is greater than threshold increment corresponding gear fail counter If fail timer is greater than threshold increment corresponding gear fail counter Image: Supponter Image: Supponter 2nd gear fail counter 2nd gear fail counter Image: Supponter Image: Supponter Image: Supponter Image: Supponter 3rd gear fail counter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter 4th gear fail counter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter 4th gear fail counter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supponter Image: Supp			1										Reference		
If fail timer is greater than threshold increment corresponding gear fail counter If fail timer is greater than threshold increment corresponding gear fail counter Image: State is state			1									т	Supporting		
If fail timer is greater than threshold increment corresponding gear fail counter If fail timer is greater than threshold increment corresponding gear fail counter Image: Counter and total fail counter 2nd gear fail counter Image: Counter and total fail counter Image: Counter and total fail counter Image: Counter and total fail counter 3rd gear fail counter Image: Counter and total fail counter Image: Counter and total fail counter Image: Counter and total fail counter 4th gear fail counter Image: Counter and total fail counter Image: Counter and total fail counter Image: Counter and total fail counter 4th gear fail counter Image: Counter and total fail counter Image: Counter and total fail counter Image: Counter and total fail counter 4th gear fail counter Image: Counter and total fail counter Image: Counter and total fail counter Image: Counter and total fail counter 4th gear fail counter Image: Counter and total fail counter Image: Counter and total fail counter Image: Counter and total fail counter Image: Counter and total fail counter Image: Counter and total fail counter Image: Counter and total fail counter Image: Counter and total fail counter Image: Counter and total fail counter Image: Counter and total fail counter Image: Counter and total fail counter Image: Counter Image: Counter			1									F	ail 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 3 Fail Counter 3 Fail Counter 4th gear fail counter -= 3 Fail Counter -= 3 Fail Counter -= 3 Fail Counter -= -= 3 Fail Counter -= -= 3 Fail Counter -= <t< th=""><th></th><th></th><th>1</th><th> </th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>			1												
In rail utilities is greater that it the should increment corresponding gear fail counter Counter and total fail counter 2nd gear fail counter 3rd gear fail counter 4th gear fail counter + 3 Fail Counter From 3rd Gear + - 3 Fail Counter - - <			1	If fail times is greater then threshold											
Indefinite onesponding gear fail Counter and total fail counter 2nd gear fail counter 3rd gear fail counter 4th gear fail counter >= 3 Fail Counter Fail Counter Fail Counter From 3rd Gear >= 3 Fail Counter Fail Counter From 3rd Gear >= 3 Fail Counter From 3rd Gear			1	increment corresponding dear fail											
2nd gear fail counter 3rd gear fail counter 4th gear fail counter 2nd gear fail counter 3rd gear fail counter 2nd gear fail counter 3rd gear fail counter 4th gear fail counter >= 3 Fail Counter Fail Counter >= 3 Fail Counter From 3rd Gear >= 3 Fail Counter From 3rd Gear			1	counter and total fail counter											
2nd gear fail counter 3rd gear fail counter 4th gear fail counter >= 3 Fail Counter From 3rd Gear += 3 Fail Counter From 3rd Gear += 3 Fail Counter From 3rd Gear			1												
2nd gear fail counter >= 3 From 2nd Gear 3rd gear fail counter >= 3 Fail Counter 4th gear fail counter >= 3 Fail Counter From 3rd Gear >= 3 Fail Counter From 4th Gear >= 3 Fail Counter			1	2nd dear fail counter								~-	3	Fail Counter	
3rd gear fail counter 4th gear fail counter >= 3 Fail Counter Fail Counter >= 3 Fail Counter Fail Counter See Fail Counter Fail Counter Fail Counter Fail Counter Fail Counter From 4th Gear			1	2nu gear fair counter								>=	3	From 2nd Gear	
3rd gear fail counter >= 3 Fail Counter 4th gear fail counter >= 3 Fail Counter From 3rd Gear >= 3 Fail Counter			1												
4th gear fail counter >= 3 From 3rd Gear From 4th Gear From 4th Gear			1	2rd goar fail counter									2	Fail Counter	
4th gear fail counter From 4th Gear			1	Sid gear fair counter								/-	5	From 3rd Gear	
4th gear fail counter >= 3 Fail Counter From 4th Gear			1											E-II Country	
			1	4th gear fail counter								>=	3	Fall Counter	
				1										i i uni 411 Ocdi	
total fail counter				total fail countar									Б	Total Fail	
ioiai iai counter				totai iaii counter								>=	J	Counter	
TUT Enable temperature >= -6.65625 °C				1				IUI Enable temperature	>=	-6.65625	°C Booloor				
Input Speed Sensor fault = FALSE BOULEAN Output Speed Sensor fault = FALSE Boulean			1	1				Output Speed Sensor fault	=	FALSE FAI SF	Boolean				
Command / Attained Gear ≠ 1st Boolean			1	1				Command / Attained Gear	¥	1st	Boolean				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable	Time	Mil Illum.
System	Coue	Description	ontena	Value	Hiah Side Driver ON	= TRUE Boolean	Required	
					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 Wode HSD Enabled	– TRUE Boolean		
					TISD Ellabled	- INCE DOOLEAIT		
				Disat	le MIL not Illuminated for DTC's:	TCM: P0/16, P0/17, P0/22, P0/23,		
				Condition	5.	PTOZE		
						ECM: P0101, P0102, P0103, P0106,		
						P0107, P0108, P0171, P0172, P0174,		
						P0175, P0201, P0202, P0203, P0204,		
						P0205, P0206, P0207, P0208, P0300,		
						P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042F		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E	Fail Case 1 Case: 5th Gear					One Trip
		Stuck On (Steady State)		Table Danad				
				Table Based				
				Refer to 3D				
			Max Delta Output Speed Hysteresis	>= Table 1 in rpm/sec				
				supporting				
				documents				
				l able Based				
				Refer to 3D				
			Min Delta Output Speed Hysteresis	>= Table 2 in rpm/sec				
				supporting				
				documents				
				Time Please				
				Refer to Table				
			If the Above is True for Time	>= 17 in Sec				
				supporting				
			Intrucivo torti	documents				
			(C35R clutch exhausted)					
			Gear Ratio	<= 1.484985352				
			Gear Ratio	>= 1.343017578				
			If the above parameters are true					
			· · · ·					
							>= 1.1 Fail Timer (Sec))
							Fail Count in 5th	h
		l	I	l	1	l	Gear	I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			T Rec	ime luired	Mil Illum.
e jotom		Decemption									OR	
									>=	3	Total Fail	
			Fail Case 2 Case: 6th Gear						<u> </u>		Counts	-
				Table Based								
				value Please								
			Max Delta Output Speed Hysteresis	>= Table 1 in rpm/sec								
				supporting								
				documents								
				value Please								
			Min Delta Outnut Speed Hysteresis	Refer to 3D								
			win beita output Speeu Hysteresis	Table 2 in								
				documents								
				Table Based								
				Time Please								
			If the Above is True for Time	>= Refer to Table Sec								
				supporting								
				documents								
			Intrusive test: (CB26 clutch exhausted)									
			Gear Ratio	<= 1.484985352								
			Gear Ratio	>= 1.343017578								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
										n	Fail Count in 6th	
									>=	3	Gear	
											OR Total Fail	
									>=	3	Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					Innibit RVI IMS fault pending indication	=	FALSE 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 epable	>-	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	1			I

Component/	Fault Code	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tiı Regi	me uired	Mil Illum.
Oyatem	Coue	Description	ontena	, and a second sec	Engine Speed Hi	i <=	7500	RPM				
					Engine Speed is within the	>=	5	Sec				
					allowable limits for		0	000				
					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	<=	8191 875	Nm				
					Torque Enable		0171.070					
					Tansmission Fluid	>=	-6.65625	°C				
					Input Speed Sensor fault	t =	FALSE	Boolean				
					Output Speed Sensor fault	t =	FALSE	Boolean				
					Default Gear Option is not	t =	TRUF					
					present	t	INCL					
				Disabl	e MIL not Illuminated for DTC's:	TCM: P0716	, P0717, P0722,	P0723,				
				Conditions	:	P182E						
						ECM: D0101	D0102 D0102	D010/				
						P0107 P0101	, PUTUZ, PUTU3, 8 P0171 P017	PU106, 2 P0174				
						P0175, P020	1, P0202, P020	3, P0204,				
						P0205, P020	6, P0207, P020	8, P0300,				
						P0301, P030	2, P0303, P030	4, P0305,				
						P0306, P030	7, P0308, P040	1, P042E				
		Pressure Control (PC) Solenoid F										One Trip
Variable Bleed Solenoid (VBS)	P2729	Control Circuit Low	The HWIO reports a low voltage	= TRUE Boolean					>=	0.3	Fail Time (Sec)	ono mp
		(C1234 VBS)	(ground short) error hag									
									out	0.375	Sample Time	
									of		(Sec)	-
							Test Failed					
					Dozoo Chatua ia ant		This Key					
					P2729 Status is not	. =	On or Fault					
							Active					
					Ignition Voltage		0 5004004	Volt				
						>= <=	31 990234	Volt				
					Engine Speed	>=	400	RPM				
					Engine Speed	<=	7500	RPM				
					Engine Speed is within the	>=	5	Sec				
					allowable limits for		-					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thr V	eshold alue	Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mil Illum.
					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					>= out of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip
						P2730 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.990234 400 7500 5	Volt Volt RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						

Component/	Fault Code	Monitor Strategy	Malfunction		Thr	eshold alue	Secondary Malfunction		Enable Conditions			Tim Requi	e red	Mil Illum.
Transmission Control Module	C124E	The lateral accleration signal is stuck			2 05	alc			Conditionio			105	cocondo	Special No MI
(TCM)	C124F	because of a low circuit	Lateral accieration magnitude	>=	-3.80	ys					>=	105	Seconds	INO IVIIL
			Lateral accleration magnitude is within the range above for	>=	120	Sec					out of	120	sample	
														-
							Lateral accleration magnitude	×-	3.85	a's				
							Eateral accertation magnitude		-3.03	y s				
							Lateral accleration magnitude is within the range above for	>=	105	Sec				
							Sensor Type	. =	Voltage Directional Proportion					
									ate					
							Transmission Type		Clutch to Clutch Transmissi					
							Lateral acceleration sensor	=	TRUE	Boolean				
							circuit low diagnostic enable Battery Voltage	e <=	31.99902	Volts				
							Battery Voltage	>=	9	Volts				
							allowable limits for	>=	0.1	Sec				
							Ignition Voltage	e <= e >=	31.99902 9	Volts Volts				
							Service Fast Learn (SFL) Mode	=	FALSE	Boolean				
							Ignition voltage and SFL	>=	0.1	Sec				
						Disab Condition	e MIL not Illuminated for DTC's	TCM: If calibr (U0073, U01)	rated to illuminat 00)	e the MIL				
								ECM: None						
								ļ						
Transmission Control Module (TCM)	C1250	at a high magnitude out of range	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	

Component/ System	Fault Code	Monitor Strategy	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions			Tir Reau	me uired	Mil Illum.
Gystein	oout	Description				Lateral accleration magnitude	>=	3.85	g's				
						Lateral accleration magnitude is within the range above for	>=	105	Sec				
						Sensor Type	=	Voltage Directional Proportion ate					
						Transmission Type	=	Clutch to Clutch Transmissi on					
						Lateral acceleration sensor circuit high diagnostic enable	=	TRUE	Boolean				
						Battery Voltage Battery Voltage	<= >=	31.99902 9	Volts Volts				
						Battery voltage is within the allowable limits for	>=	0.1	Sec				
						Ignition Voltage Ignition Voltage	<= >=	31.99902 9	Volts 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 calibra (U0073, U010	ated to illuminat 10)	e the MIL				
							ECIM. NOTE						
Mode Switch	P071A	Transmission Mode Switch A Circuit	Tow Haul Mode Switch state	= TRU	E Boolean					>=	600	Fail Time (Sec)	Special No MIL
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed is within the Allowable limits for	>= <= >= <=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1762 ECM: None						

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
			Fail Case 1	Transition 1				One Trip
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Current range	e = (bit state Range				
				1110)				
			Previous range	\neq CerkGk_e_P Range				
			-	RNDL_Drive6				
			Previous range	∠CeTRGR_e_P Z				
				RNDL_Drive4				
				Range Shift				
			Range Shift State	e = Completed ENUM				
			Absolute Attained Gear Slip	<= 50 rpm				
			Attained Gear	<= Sixth				
			Attained Gear	r>= First				
			Throttle Position Available	= TRUF				
			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	r			>= 1 Fail Seconds	
			If Fail Timer has Expired then					
			Increment Fail Counter	r			>= 5 Fail Counts	
			Fail Case 2 Output Speed	<= 70 rpm				-
			The following PRNDL sequence	2				
			events occur in this exact order:	:				
				Drive 6 (bit				
			PRNDL state	e = state 0110) Range				
			PRNDL state = Drive 6 for	>= 1 Sec				
				Transition 8				
			PRNDL state	e = (bit state Range				
				0111)				
				Drive 6 (bit				
			PRNDL state	state 0110) Range				
				Transition 1				
			PRNDL state	e = (bit state Range				
				1110)				
			Above sequencing occurs in	<= 1 Sec				
			Neutral Idle Mode	e = Inactive				
			If all conditions above are met	t				
			Increment delay Timer	r				
			If the below two conditions are met	t				
			Increment Fail Timer	r			>= 3 Fail Seconds	
			delav timer	r >= 1 Sec				
			Input Speed	1>= 400 Sec				
			If Fail Timer has Expired then	1				
			Increment Fail Counter	r			>= 2 Fail Counts	
•				•		•	•	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thre: Va	shold lue	Secondary Malfunction		Enable Conditions			Tim Requ	ne lired	Mil Illum.
			Fail Case 3 Current range	=	Transition 13 (bit state 0010)	Range	Previous range	¥	CeTRGR_ e_PRNDL_ Drive4			i		
			Engine Torque	>=	-8192	Nm	Previous range	≠	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	ŗ							>=	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 Steady State Engine Torque If the above conditions are met then Increment Fail Timer	>= <=	30 8191.75	Nm Nm	ч <i>-</i>				>=	0.225	Seconds	
			If the above Condtions have been met, Increment Fail Counter								>=	15	Fail Counts	
			Fail Case 5 Throttle Position Available The following PRNDL sequence events occur in this exact order:	=	TRUE	Boolean								
			PRNDL State	=	Reverse (bit state 1100) Transition 11	Range								
			PRNDL State	. =	(bit state 0100)	Range								
			PRNDL State	=	Neutral (bit state 0101) Transition 11	Range								
			PRNDL State	=	(bit state 0100)	Range								
			Above sequencing occurs in Then delay timer increments Delay timer	<=	1 5	Sec								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tim Requi	ie ired	Mil Illum.
Gystem	ooue	Description	Range Shift State	Range Shift								
			Absolute Attained Gear Slip	<pre>Complete <= 50 rpm</pre>								
			Attained Gear	<= Sixth								
			Attained Gear	>= First								
			Throttle Position	>= 8.000183105 pct								
			If the above conditions are met	>= 200 ipm								
			Increment Fail Timer						>=	20	Seconds	
			Fail Case 6	Illegal (bit	A Open Circuit Definition (flag						-	
			Current range	= state 0000 or	set false if the following							
				1000 or 0001)	conditions are met):							
							Transition					
			and		Current Range	¥	11 (bit					
							state 0100)					
			A Open Circuit (See Definition)	= FALSE Boolean	or							
							Neutral (hit					
					Last positive state	¥	state 0101)					
					or							
					01		Transition					
					Previous transition state	≠	8 (bit state					
					Enil caso E dolay timor		0111)	600				
			If the above Condtions are met		Fall Case 5 delay timer	=	0	Sec				
			then, Increment Fail timer						>=	6.25	Seconds	
			Fail Case 7	PRNDL circuit								
			Current PRNDL State	ABCP = 1101 Range								
			and									
				PRNDL circuit								
			Previous PRNDL state	= 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						>=	6.25	Seconds	
									<u> </u>			1
												4
			P182E will report test fail when any									
			of the above 7 fail cases are met									
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Engine Speed Lo	<=	31.990234 400	RPM				
l	•	I	I	I	Engine Speed E0		007	111 111	1			1

Component/ Svstem	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresho Value	old	Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mil Illum.
						Engine Speed Hi Engine Speed is within the allowable limits for Engine Torque Signal Valid	<= >= =	7500 5 TRUE	RPM Sec Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716 P07C0, P07E ECM: P0101 P0107, P010 P0175, P020 P0205, P020 P0301, P030 P0306, P030	P0717, P0722, 3F, P077C, P077 , P0102, P0103 8, P0171, P0172 1, P0202, P0203 6, P0207, P0208 2, P0303, P0304 7, P0308, P040	P0723, 7D 2, P0106, 2, P0174, 3, P0204, 3, P0300, 4, P0305, 1, P042E				
Tap Up Tap Down Switch (TUTD)	P1876	Tap Up and Down Enable Switch Circuit	Current range TUTD Enable Switch is Active	Park or = Reverse or Ra Neutral = TRUE Ba	ange State oolean Disable Conditions:	Ignition Voltage Lo Ignition Voltage Hi Vehicle Speed Lo Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for P1876 Status is MIL not Illuminated for DTC's:	>= <= <= >= ≠ TCM: P0815 P1825, P187 ECM: None	8.5996094 31.990234 511 400 7500 5 Test Failed This Key On or Fault Active P0816, P0826, 7, P1915, U0100	Volts Volts KPH RPM RPM Sec P1761,	>= >=	3 5	Fail Time (Sec) Fail Counts	Special No MIL

- 1

Table 1										
	Axis	0.00	64.00	128.00	192.00	256.00	320.00	384.00	448.00	512.00 N*m
	Curve	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00 RPM
Table 2										
	Axis	-6.67	-6.66	40.00 °C						
	Curve	409.59	2.00	2.00 Se	С					
Table 3	_									
	Axis	-6.67	-6.66	40.00 °C	C					
	Cuive	+03.03	4.00	4.00 00	0					
Table 4	Avis	-6.67	-6 66	40.00 °C						
	Curve	409.59	2.00	2.00 Se	С					
	-									
Table 5										
	Axis	-6.67	-6.66	40.00 °C						
	Curve	409.59	3.00	3.00 Se	С					
Table 6	_									
	Axis	-6.67	-6.66	40.00	80.00	120.00 °C				
	Curve	409.00	3.60	1.60	1.40	1.40 56	C			
Table 7	Avia	6.67	6.66	40.00	80.00	120.00000				
	Curve	409.00	3.40	1.40	1.30	1.20 Se	C			
				-						
Table 8										
	Axis	-6.67	-6.66	40.00	80.00	120.00 °C				

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	Curve	409.00	3.60	1.60	1.50	1.40 Sec				
	_									
.										
Table 9	A t a	0.07	0.00	40.00	00.00	100.00				
	AXIS	-6.67	-6.66	40.00	80.00	120.00 °C				
	Curve	409.00	3.30	1.30	1.20	1.10 Sec				
Table 10										
<u></u>	Axis	-40.00	-20.00	0.00	30.00	110.00 °C				
	Curve	3.10	1.90	1.10	0.80	0.60 Sec				
				I						
Table 11										
	Axis	-40.00	-20.00	0.00	30.00	<u>110.00</u> °C				
	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 °C				
	Curve	2.20	1.40	0.90	0.70	0.40 Sec				
				0.00	0.1.0	0.10				
Table 13										
	Axis	-40.00	-20.00	0.00	30.00	110.00 °C				
	Curve	2.60	1.00	0.50	0.30	0.20 Sec				
Table 44										
1 able 14	Avia	40.00	20.00	0.00	20.00	110.00000				
	AXIS	-40.00	-20.00	0.00	30.00	0.20 500				
	Curve	3.00	0.90	0.50	0.30	0.20 360				
Table 15										
	Axis	-40.00	-30.00	-20.00	-10.00	0.00	10.00	20.00	30.00	40.00 °C
	Curve	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 Sec

<u>Table 16</u>

Axis	-6.67	-6.66	40.00	⁰С
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	٥C
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	⁰С
Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00	⁰С

<u> Table 20</u>

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	Ъ
Curve	5.00	3.00	1.00	Sec

3D_Table 1

K-Axis Calibration	%		0.00	2.00	5.00	25.00	10
Y-Axis Calibration	°C	-6.67	8191.75	8191.75	8191.75	8191.75	819
Table Calibration	RPM/Sec	-6.66	8191.75	8191.75	8191.75	8191.75	819
		40.00	8191.75	8191.75	8191.75	8191.75	819

3D_Table 2

X-Axis Calibration	%		
Y-Axis Calibration	°C	-1	6.67
Table Calibration	RPM/Sec		6.66

	0.00	2.00	5.00	25.00	100.00			
-6.67	8191.75	8191.75	8191.75	8191.75	8191.75			
-6.66	500.00	500.00	300.00	300.00	300.00			
40.00	500.00	500.00	300.00	300.00	300.00			
Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
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System	Code	Description					Required	Illum.
Lateral Acceleration Sensor Signal	C124F	Lateral Acceleration Sensor Circuit	Lateral Acceleration Sensor Signal Value	<= -3.85 [G]	Ignition Voltage	> 9000 [mV] for 3 sec continuously	180 sec	No MIL
		Low			Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V]		C"
					memory	(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	Lateral Acceleration Sensor Signal Value	>= 3.85 [G]	Ignition Voltage	> 9000 [mV] for 3 sec continuously	180 sec	No MIL "Special
		i ngit			Ignition Voltage Battery Voltage	> 9000 [mV] for 10 [msec] continuously		C"
					Battery Voltage	<= 32.0 [V]		
					The TCM has completed the read operation of its non-volatile	(all 4 criteria for 2 [sec] continuously)		
					Diagnostia Sopias Request to Diaghla Normal Communication			
					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	Lateral Acceleration Sensor Signal Value	= unchanged	Ignition Voltage	> 9000 [mV] for 3 sec continuously	240 msec	No MIL
		renomance			Ignition Voltage Battery Voltage Battery Voltage The TCM bas completed the read operation of its pon-volatile	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V]		C"
					memory	(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) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse)	= NOT DETECTED = NOT DETECTED - NOT DETECTED		
					Vehicle Speed	>= 15 [kph]		
					Absolute Value of Lateral Acceleration Sensor Signal Value CAN signal	0.53 [G] < "Value" < 3.85 [G]		
System Voltage	P0563	System Voltage High	Battery Voltage	> 18 [V]	Ignition Voltage	> 9000 [mV]	10 sec	1
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					Input Speed	> 400 [rpm] for [> 2 sec]		
					P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)	= NOT DETECTED = NOT DETECTED = NOT DETECTED		
					OR			
					Ignition Voltage	> 9000 [mV]	I	
					Engine speed	> 400 [rpm] for [> 2 sec]		
					Engine speed signal validity	= VALID		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description		1		-	Required	Illum.
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
Internal Control Module Memory	P0601	Internal Control Module Memory Checksum Error	Read each memory location in the Flash ROM and calculate the checksum. Compare the calculated checksum to the checksum originally stored in Flash ROM.	Checksums do not match	Ignition Voltage (Diagnostic test is only executed during TCM initialization, immediately after the TCM is powered up)	> 9000 [mV]	100 msec	1
Internal Control Module Memory Keep Alive Memory (KAM)	P0603	Internal Control Module Keep Alive Memory (KAM) Error	Compare calculated checksum with stored checksum.	Checksums do not match	Ignition Voltage (Diagnostic test is only executed during TCM initialization, immediately after the TCM is powered up)	> 9000 [mV]	100 msec	1
Internal Control Module Random Access Memory (RAM)	P0604	Internal Control Module Random Access Memory (RAM) Error	Compare memory location with expected value that was written to it (0x55555555 or 0xAAAAAAA)	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 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	= TRUE = TRUE	(none)	(none)	10 msec	1

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
			RAM Check malfunction confirmed Program Flow Check malfunction confirmed	= 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 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
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 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)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] < 32.0 [V] > 400 [RFM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously) = NOT ACTIVE	30 sec	1

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description			-		Required	Illum.
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. If the Value determine that the ATF temperature is not	> Difference_Temp_Map (*13)	Ignition Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] < 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously)	10 msec	2
			rational and that a malfunction has occurred.		ATF Temperature at Power-up ATF Temperature Vehicle Speed Change in Engine Coolant temperature	-55 [deg C] < ATF Temp < 200 [deg C] > 20 [deg C] > 24 [km/h], for [400 sec cumulatively] > +5 [deg C]		
					Propulsion System Off Time Propulsion System Off Time Validity	> 8 [hours] = VALID		
					Engine Coolant Temperature Signal Status U0073 (CAN Bus-OFF)	= Signal OK for 400 [sec] = NOT DETECTED		
					U0100 (Lost Communication with ECM/PCM "A") P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor No Pulse) P0722 (Output Speed Sensor No Pulse) P0732 (Creamiscing Fully Tomparture Sensor "A" Circuit	 NOT DETECTED NOT DETECTED NOT DETECTED NOT DETECTED NOT DETECTED 		
					High) P0712 (Transmission Fluid Temperature Sensor *A" Circuit Low)	= NOT DETECTED		
					Emergency Mode (*4) Solenoid Cut Condition (*Note 3)	= NOT ACTIVE = NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has been INACTIVE	> 8 [sec]		
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 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 mafunction if the actual ATF temperature at TCM power-up is less than the aforementioned threshold value.</detection1>	<= 20 [deg C]	Ignition Voltage Battery Voltage Battery Voltage 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 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 Circuit) P0706 (Transmission Range Switch Performance) Vehicle speed Emergency Mode ("4) Solenoid Cut Condition ("Note 3)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] < 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously) -55 [deg C] < ATF Temp < 200 [deg C] = NOT DETECTED = NOT ACTIVE = NOT ACTIVE	10 min	2

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria 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 The value by analyzing the estimated torque converter (T/C) Heat Load (*) over time. 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)	Threshold Value	Secondary Parameters Time since Solenoid Cut ("Note 3) control has been INACTIVE Ignition Voltage Battery Voltage Battery Voltage Battery Voltage Battery Voltage Battery Voltage Battery Voltage Company Battery Voltage Battery Voltage Battery Voltage Company Engine Speed Signal Validity U00073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory 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	Enable Conditions > 8 [sec] > 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously) -55 [deg C] < ATF Temp < 200 [deg C] = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT ACTIVE = VALID = VALID = VALID	Time Required	MIL Illum.
Transmission Fluid Temperature Sensor "A" Circuit	P0712	Transmission Fluid Temperature Sensor "A" Circuit Low	 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 minimum threshold. Transmission Fluid Temperature Sensor Value 	> 200 [degC]	Ignition Voltage Battery 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

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description			-		Required	Illum.
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 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 Drive Time (*)	> 9000 [mV] for 10 [msec] continuously > 10.2 [v] <= 32.0 [v] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously) > 1 [minute] (cumulative)	12 sec	1
					(*) Drive Time is defined as follows:		-	
					Range Selector Position Switch	= D Range		
					P0705 (Range Selector Switch B+ Short / Open)	= NOT DETECTED		
				0500	P0706 (Range Selector Switch GND Short)	= NOT DETECTED		
Circuit		No Signal	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.		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	 a 10.2 [V] a 22.0 [V] a 20.0 [V] a VALID a VALID a NOT DETECTED a NOT DETECTED (all 8 criteria for 2 [sec] continuously) 	At Min Output 2.4 [sec] At Min Output Speed: 54.2 [sec]	
					Emergency Mode (*4) Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shit 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 C2 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) P0722 (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor Circuit High) P0973 (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, P0962, P2763, P0966, P0970, P2720, P2729, P2734, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07CD (Input/Turbine Speed Sensor *A* Circuit High) P07EF (Innut/Turbine Speed Sensor *A* Circuit High)	<pre>NOT ACTIVE = NAT 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</pre>		
					P0717 (Input/Turbine Speed Sensor *A* Circuit No Signal) Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE	= NOT DETECTED = NOT ACTIVE >= 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.	>= 13000 pulses	Ignition Voltage Battery Voltage Battery Voltage	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V]	At Max Input Speed: 8.9 [sec]	1

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description			,		Required	Illum.
			The time to complete the test is a function of input shaft speed.		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	> 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously)	At Idle Input Speed: 108.3 [sec]	
					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 C1 OFF Control has been INACTIVE for this amount of time continuously C2 OFF Control has been INACTIVE for this amount of time continuously C2 OFF Control has been INACTIVE for this amount of time continuously C2 OFF Control has been INACTIVE for this amount of time continuously C2 OFF Control has been INACTIVE for this amount of time continuously P07C0 (Input/Turbine Speed Sensor *A* Circuit High) P07F17 (Input/Turbine Speed Sensor *A* Circuit No Signal) P0974 (Shift Solenoid *A* Control Circuit Hugh) P0973 (Shift Solenoid *A* Control Circuit Hugh) P0973, (Shift Solenoid *A* Control Circuit Hugh) P0970, P071, P2721, P2738, P0962, P2739, P0963, P0768, P0970, P2716, P2725, P2734, P0748, P2761)	 NOT ACTIVE D Range NOT DETECTED NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) T_C1ctrlFin (*1) T_C3ctrlFin (*1) NOT DETECTED 		
					Output Speed calculated by Input Speed sensor P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE	>= 300 [rpm] = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
Gear Ratio (6th Gear)	P0729	Gear 6 Incorrect Ratio	Difference between actual Gear Ratio and 6th 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) The TCM has completed the read operation of its non-volatile memory	= 6TH GEAR = 500 [rpm] > 9000 [mV] for 10 [msec] > 10.2 [V] < 32.0 [V] > 400 [RPM] = VALID = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously)	12 sec (cumulatively)	1
					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, P2738, P0962, P2764, P0778, P0986, P0970, P2720, P2728, P2738, P0962, P2764, P0778, P0798,	= NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description	1	1		1	Required	Illum.
					 P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit Low) P0772 (Output Speed Sensor Circuit Low) P0772 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) ("Note 1) P0593 (System Voltage High) P2535 (Ignition Switch Runx/Start Position Circuit High) P0601 (Internal Control Module Memory Checksum Error) P0602 (Control Module Programming Error) P0604 (Internal Control Module Random Access Memory (RAM) Error) U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM "A") Accelerator Effective Position malfunction ("Note 2) Non-Transmission Regulated Steady State Torque malfunction ("Note 2) Engine Actual Steady State Torque malfunction ("Note 2) Engine Speed malfunction ("Note 2) 			
					Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE = -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE		
					AND the following conditions a	are NOT satisfied		
					Difference between actual Gear Ratio and 7th Gear Ratio	for 1 [sec] continuously		
Gear Ratio (6th Gear Stuck)	P0729	Gear 6 Incorrect Ratio	Difference between actual Gear Ratio and 7th	< 4 %	Current Gear	= 6TH GEAR	5 sec	1
			Gear Ratio		Output Speed	~ 60 (rom)		
					Input Torque	>= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during detection)		
					Ignition Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF)	> 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
					The TCM has completed the read operation of its non-volatile memory	(all 8 criteria for 2 [sec] continuously)		
					Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE	= NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 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) P07D9 (Input/Turbine Speed Sensor "A" Circuit High) P07B7 (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit High) P077E (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor Circuit High) P0523 (System Voltage High) P0563 (System Voltage High) P0661 (Internal Control Module Memory Checksum Error) P0604 (Internal Control Module Random Access Memory (RAM) Error) U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM "A") Accelerator Effective Position malfunction ("Note 2) Engine Actual Steady State Torque malfunction ('Note 2) Engine Speed malfunction ("Note 2)	ALL Malfunctions = NOT DETECTED		
					Range Selector Position Switch P0706 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShitFin (*1) = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE		
Gear Ratio (1st Gear Stuck)	P0731	Gear 1 Incorrect Ratio	Difference between actual Gear Ratio and 2nd	< 4 [%]		107.0540	2.25 sec	1
, , , , , , , , , , , , , , , , , , , ,			Gear Ratio		Current Gear	= 1ST GEAR		
I			OR		Output Speed	>= 60 [rpm]		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
			Difference between actual Gear Ratio and 3rd Gear Ratio	< 4 [%]	Input Speed	<= 6000 [rpm]		
			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 Battery Voltage Battery Voltage	> 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V]		
			Difference between actual Gear Ratio and 5th Gear Ratio	< 4 [%]	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	> 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously)		
					Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE	= NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 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), P0716 (Duput/Turbine Speed Sensor *A* Circuit High) P07DF (Input/Turbine Speed Sensor *A* Circuit No Signal) P07717 (Duput Speed Sensor Circuit Low) P07717 (Duput Speed Sensor Circuit High) P0722 (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor Circuit High) P0753 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2653 (System Voltage High) P2653 (Ignition Switch Run/Start Position Circuit High) P0601 (Internal Control Module Memory Checksum Error) P0602 (Control Module Programming Error) P0602 (Control Module Programming Error) P0603 (Internal Control Module Random Access Memory (RAM) Error) U0073 (CAN Bus-OFF) U0100 (Loct Communication with ECM/PCM *A*') Accelerator Effective Position malfunction (*Note 2) Engine Actual Steady State Torque malfunction (*Note 2) Engine Speed malfunction (*Note 2)	ALL Malfunctions = NOT DETECTED		
					Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shit Control has been INACTIVE for this amount of time continuously	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed	T_ShiftFin (*1) = TRUE		
					Sensor The Output Speed signal is available from the Output Speed Sensor	= TRUE		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
					ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this amount of time	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to			
					Safe Gear Control.	= TRUE		
Gear Ratio (2nd Gear)	P0732	Gear 2 Incorrect Ratio	Difference between actual Gear Ratio and 2nd Gear Ratio	> 20 [%]	Current Gear	= 2ND GEAR	12 sec (cumulativelv)	1
					Output Speed	>= 500 [rpm]	(
					Ignition Voltage	> 9000 [mV] for 10 [msec]		
					Battery Voltage	> 10.2 [V]		
					Engine Speed	> 400 [RPM]		
					Engine Speed Signal Validity			
					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)			
					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)	ALL Malfunctions = NOT DETECTED		
					P0973 (Shift Solenoid "A" Control Circuit Low)			
					(P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966,			
					P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798,			
					P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High)			
					P07BF (Input/Turbine Speed Sensor "A" Circuit Low)			
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low)			
					P077C (Output Speed Sensor Circuit High)			
					P0722 (Output Speed Sensor No Pulse)			
					P0592 (System Voltage Low Supply 2) (Note 1) P0563 (System Voltage High)			
					P2535 (Ignition Switch Run/Start Position Circuit High)			
					P0601 (Internal Control Module Memory Checksum Error) P0602 (Control Module Programming Error)			
					P0604 (Internal Control Module Random Access Memory			
					(RAM) Error) LI0073 (CAN Bus-OFF)			
					U0100 (Lost Communication with ECM/PCM "A")			
					Accelerator Effective Position malfunction (*Note 2)			
					Non-Transmission Regulated Steady State Torque malfunction (Note 2)			
					(*Note 2) Engine Speed malfunction (*Note 2)			
					Engine Speed mainunction (Note 2)			
					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)		
I contraction of the second seco	I	1	1	1	and contandodaly		1	I

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	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 a	re NOT satisfied		
					Difference between actual Gear Ratio and 3rd Gear Ratio	< 4 [%] for 1 [sec] continuously		
					Difference between actual Gear Ratio and 4th Gear Ratio	< 4 [%] for 1 [sec] continuously		
					Difference between actual Gear Ratio and 7th Gear Ratio	< 4 [%] for 1 [sec] continuously		
					Difference between actual Gear Ratio and 8th Gear Ratio	< 4 [%] for 1 [sec] continuously		
Gear Ratio (2nd Gear Stuck)	P0732	Gear 2 Incorrect Ratio	Difference between actual Gear Ratio and 3rd Gear Ratio	< 4 %	Current Gear	= 2ND GEAR	5 sec	1
					Output Speed	>= 60 [rpm]		
			OR Difference between actual Gear Ratio and 4th Gear Ratio	< 4 %	Input Torque	>= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during detection)		
					Ignition Voltage Battery Voltage	> 9000 [mV] for 10 [msec] > 10.2 [V]		
			Difference between actual Gear Ratio and 8th	< 4 %	Battery Voltage Engine Speed	<= 32.0 [V] > 400 [RPM]		
			Gear Ratio		Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A")	= VALID = NOT DETECTED		
					U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile	= NOT DETECTED		
					memory	(all 8 criteria for 2 [sec] continuously)		
					Emergency Mode (*4)	= NOT ACTIVE		
					Neutral Avoidance Control Solenoid Cut Condition (*Note 3)	= NOT ACTIVE = 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)	ALL Malfunctions = NOT DETECTED		
					(P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P0971, P2721, P2730, P2739, P0963, P2764, P0779, P0709			
					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) P2553 (Ignition Switch Run/Start Position Circuit High)			
					P0601 (Internal Control Module Memory Checksum Error)			

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
					Pubu2 (Lontrol Module Programming Error) P0604 (Internal Control Module Random Access Memory (RAM) Error) U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM "A") Accelerator Effective Position malfunction ("Note 2) Engine Actual Steady State Torque malfunction ("Note 2) Non-Transmission Regulated Steady State Torque malfunction ('Note 2) Engine Speed malfunction ("Note 2)			
					Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE		
Gear Ratio (3rd Gear)	P0733	Gear 3 Incorrect Ratio	Difference between actual Gear Ratio and 3rd	> 20 [%]			12 sec	1
			Gear Ratio		Current Gear Output Speed Ignition 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	= 3RD GEAR >= 500 (rpm] > 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)	(cumulatively)	
					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, P2726, P2724, P0738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor *A* Circuit High) P07FF (Input/Turbine Speed Sensor *A* Circuit Low) P0717 (Input/Turbine Speed Sensor *A* Circuit No Signal)	= NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description			-		Required	Illum.
					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) P0602 (Control Module Remory Checksum Error) P0604 (Internal Control Module Remory Checksum Error) P0604 (Internal Control Module Random Access Memory (RAM) Error) U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM "A") Accelerator Effective Position malfunction (*Note 2) Engine Actual Steady State Torque malfunction (*Note 2) Non-Transmission Regulated Steady State Torque malfunction (*Note 2)			
					Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShitFin (*1) = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE		
					AND the following conditions a	are NOT satisfied		
					Difference between actual Gear Ratio and 7th Gear Ratio	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 Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory	> 9000 (mV] for 10 (msec] > 10.2 (V) <= 32.0 (V] > 400 (RPM] = VALID = NOT DETECTED = NOT DETECTED (all & criteria for 2 (sec) continuously)		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
System	Code	Description			Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE P0973 (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, P2734, P0748, P2761) P0700 (Input/Turbine Speed Sensor *A* Circuit High) P0775 (Input/Turbine Speed Sensor *A* Circuit Low) P0777 (Iouput Speed Sensor C*A* Circuit No Signal) P077D (Output Speed Sensor C*A* Circuit No Signal) P077D (Output Speed Sensor C*A* Circuit No Signal) P0772 (Output Speed Sensor C*Curcuit No Signal) P0772 (Output Speed Sensor No Pulse) P0583 (system Voltage Low Supply 2) (*Note 1) P0663 (system Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) P0602 (Control Module Random Access Memory (RAM) Error) U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM *A*) Accelerator Effective Position malfunction (*Note 2) Engine Actual Steady State Torque malfunction (*Note 2) Non-Transmission Regulated Steady State Torque malfunction (*Note 2) Engine Speed malfunction (*Note 2)	= NOT ACTIVE = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	Required	
					Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1)		
Gear Ratio (4th Gear)	P0734	Gear 4 Incorrect Ratio	Difference between actual Gear Ratio and 4th Gear Ratio	> 20 [%]	Current Gear Output Speed Ignition Voltage	= 4TH GEAR >= 500 [rpm] > 9000 [mV] for 10 [msec]	12 sec (cumulatively)	1

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
					Battery Voltage Battery Voltage 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	> 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously)		
					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,	= NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED		
					P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor 'A' Circuit High) P07BF (Input/Turbine Speed Sensor 'A' Circuit Low) P07T7 (Duptuf Speed Sensor Circuit Low) P07T2 (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0532 (System Voltage Low Supply 2) ('Note 1) P05632 (System Voltage Low Supply 2) ('Note 1) P0563 (System Voltage High) P0604 (Internal Control Module Memory Checksum Error) P0604 (Internal Control Module Memory Checksum Error) P0604 (Internal Control Module Random Access Memory (RAM) Error) U0100 (Lost Communication with ECM/PCM "A") Accelerator Effective Position mitfunction ('Note 2) Engine Actual Steady State Torque malfunction ('Note 2) Engine Speed malfunction ("Note 2)			
					Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shit Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE = TRUE = -20 [deg C] = FALSE Implicit de GE (*1)		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
					AND the following conditions a	re NOT satisfied		
					Difference between actual Gear Ratio and 3rd Gear Ratio	for 1 [sec] continuously		
					Difference between actual Gear Ratio and 6th Gear Ratio	for 1 [sec] continuously < 4 [%]		
					Difference between actual Gear Ratio and 7th Gear Ratio	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 Difference between actual Gear Ratio and 6th Gear Ratio	< 4 %	Input Torque	>= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during detection)		
					Ignition Voltage Battery Voltage Eartery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously)		
					Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE	= NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 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, P0963, P2763, P0966, P0970, P2720, P2728, P2738, P0962, P2764, P0778, P0788, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07DF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit High) P072C (Output Speed Sensor Circuit High) P072C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor Nor Pulse) P0593 (System Voltage High) P2533 (Gynition Switch Run/Start Position Circuit High) P0601 (Internal Control Module Memory Checksum Error) P0602 (Control Module Programming Error) P0602 (Control Module Programming Error) P0602 (Control Module Programming Error) P0602 (Control Module Sendor ACcess Memory (RAM) Error) U0073 (CAN Bus-OFF) U00100 (Lots Communication with ECM/PCM "A") Accelerator Effective Position malfunction ("Note 2) Engine Actual Steady State Torque malfunction ('Note 2) Engine Speed malfunction ("Note 2)	ALL Malfunctions = NOT DETECTED		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description		1		1	Required	Illum.
					Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE		
Gear Ratio (5th Gear)	P0735	Gear 5 Incorrect Ratio	Difference between actual Gear Ratio and 5th Gear Ratio	> 20 [%]	Current Gear Output Speed Ignition Voltage Battery Voltage Battery Voltage Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0103 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory	= 5TH GEAR >= 500 [rpm] > 9000 [mV] for 10 [msec] > 10.2 [V] < 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously)	12 sec (cumulatively)	1
					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) P070C (Input/Turbine Speed Sensor *A* Circuit High) P07FF (Input/Turbine Speed Sensor *A* Circuit No Signal) P077D (Output Speed Sensor Circuit High) P077Z (Output Speed Sensor Circuit High) P0772 (Output Speed Sensor Circuit High) P0722 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P0602 (Control Module Renory Checksum Error) P0602 (Control Module Rondom Access Memory (RAM) Error) U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM *A") Accelerator Effective Position malfunction (*Note 2)	= NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
					Engine Actual Steady State Torque malfunction (*Note 2) Non-Transmission Regulated Steady State Torque malfunction (*Note 2) Engine Speed malfunction (*Note 2)			
					Range Selector Position Switch P0705 (Transmission Range Switch Circuiti) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE		
					AND the following conditions a	are NOT satisfied		
					Difference between actual Gear Ratio and 6th Gear Ratio Difference between actual Gear Ratio and 7th Gear Ratio	< 4 [%] for 1 [sec] continuously < 4 [%] for 1 [sec] continuously < 4 [%]		
					Difference between actual Gear Ratio and 8th Gear Ratio	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 Output Speed	= 5TH GEAR >= 60 [rpm]	5 sec	1
			OR Difference between actual Gear Ratio and 7th Gear Ratio OR Difference between actual Gear Ratio and 8th Gear Ratio	< 4 %	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 non-volatile memory	>= 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 DETECTED (all 8 criteria for 2 [sec] continuously)		
					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)	= NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description	1	1	· · (Required	Illum.
					P0973 (Shift Solenoid *A* Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P0750 (Input/Turbine Speed Sensor *A* Circuit High) P075F (Input/Turbine Speed Sensor *A* Circuit Low) P0777 (Output Speed Sensor Circuit High) P0772 (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor Ne Diele) P0583 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P0602 (Control Module Random Access Memory (RAM) Error) U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM *A*) Accelerator Effective Position malfunction (*Note 2) Engine Actual Steady State Torque malfunction (*Note 2) Non-Transmission Regulated Steady State Torque malfunction (*Note 2) Engine Speed malfunction (*Note 2)			
					Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shit Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE		
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 Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OCF) The TCM has completed the read operation of its non-volatile memory Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition ("Note 3)	> 9000 [mV] for 10 [msec] > 10.2 [v] < 32.0 [v] > 400 [RPM] = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously) = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE	12 sec (cumulatively)	2

System Code Description Time since Solenoid Cut (Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit High) P0972 (P2720, P2730, P2730, P268, P2764, P0966, P0971, P2721, P2730, P	Required	Illum.
Time since Solenoid Cut (*Note 3) control has been INACTIVE > 8 [sec] P0974 (Shift Solenoid *A* Control Circuit High) ALL Malfunctions = NOT DETECTED P0973 (Shift Solenoid *A* Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P0963, P2763, P0966, P0970, P2720, P2729, P2734, P0748, P2761, P2725, P2734, P0748, P2761) ALL Malfunctions = NOT DETECTED P0770 (Duput/Turbine Speed Sensor *A* Circuit High) P0771 (Input/Turbine Speed Sensor *A* Circuit Nos Signal) P07770 (Output Speed Sensor *A* Circuit Nos Signal) P0772 (Output Speed Sensor Circuit High) P07720 (Output Speed Sensor Circuit High) P07720 (Output Speed Sensor Circuit High) P0772 (Output Speed Sensor Circuit Low) P0772 (Output Speed Sensor Circuit Low) P0772 (Output Speed Sensor Circuit Low) P0772 (Output Speed Sensor Circuit Low) P0772 (Output Speed Sensor Circuit High) P0772 (Output Speed Sensor Circuit High) P0772 (Output Speed Sensor Circuit Low) P0772 (Output Speed Sensor Circuit Low) P0772 (Output Speed Sensor Circuit Low) P0772 (Output Speed Sensor Circuit Low) P07523 (System Voltage Low Supply 2) (*Note 1) P05523 (System Voltage Low Supply 2) (*Note 1) P05523 (System Voltage High) P05533 (System Voltage Low Supply 2) (*Note 1) P05630 (Circuit Module Peragramming Error) P0664 (Internal Control Module Programming Error) P0664 (In		
P0974 (Shift Solenoid "A" Control Circuit High) ALL Malfunctions = NOT DETECTED P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P0973, P0963, P2763, P0966, P2764, P0778, P0798, P2716, P2729, P2734, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0962, P2764, P0778, P0798, P2716, P00772 (Dupt/Turbine Speed Sensor "A" Circuit High) P0750 (Input/Turbine Speed Sensor "A" Circuit Low) P0701 (Input/Turbine Speed Sensor "A" Circuit Low) P0771 (Dupt/Turbine Speed Sensor "A" Circuit High) P0772 (Duptu Speed Sensor "A" Circuit Low) P0777 (Duptu Speed Sensor Circuit Low) P0777 (Duptu Speed Sensor Nor Circuit High) P0772 (Duptu Speed Sensor Nor Putile) P0772 (Duptu Speed Sensor Nor Putile) P0772 (Duptu Speed Sensor Nor Putile) P0782 (System Voltage Low Supply 2) ("Note 1) P0583 (System Voltage Low Supply 2) ("Note 1) P0583 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) P0602 (Internal Control Module Memory Checksum Error) P0602 (Control Module Random Access Memory P0604 (Internal Control Module Random Access Memory		
U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM "A") Accelerator Effective Position malfunction ("Note 2) Engine Actual Steady State Torque malfunction ("Note 2) Engine Speed malfunction ("Note 2)		
Garage Shit Control has been NACTIVE for this amount of time continuously T_GarageFin (*1) Shit Control has been NACTIVE for this amount of time continuously T_ShitFin (*1) Shit Control has been NACTIVE for this amount of time continuously T_ShitFin (*1) Range Selector Position Switch D Range Range Selector Position Switch = D Range Engine Speed < 4000 [rpm]		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
					P0713 (Transmission Fluid Temperature Sensor *A* Circuit High) P0712 (Transmission Fluid Temperature Sensor *A* Circuit Low)	= NOT DETECTED = NOT DETECTED		
Pressure Control Solenoid *A* Control Circuit (SLT Solenoid)	P0748	Pressure Control Solenoid "A" 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 sum becomes greater than a calibrated threshold, a malfunction will be confirmed. ie: Difference of "commanded current" and	> 60000 [mA]	Ignition Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P0962 (Pressure Control Solenoid *A* Control Circuit Low) P0963 (Pressure Control Solenoid *A* Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE	1 to 3 sec cumulatively	1
			 Interface of communication of the communication of the following conditions are satisfied 1) Enable conditions are not satisfied 2) -50mA =< ie =< 50mA* 3) Sign of ie is changed 					
			OR	501-11				
			(*) 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.	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P0962 (Pressure Control Solenoid *A* Control Circuit Low) P0963 (Pressure Control Solenoid *A* Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT DETECTED	2 sec	1
			ie : Absolute value of ie ie: Difference between "commanded current" and "feedback current"					
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 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	= 7TH GEAR >= 500 [rpm] > 9000 [rvV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED [all & criteria [or 2 [sec] continuously]	12 sec (cumulatively)	1

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters 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, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P0702 (Input/Turbine Speed Sensor *A* Circuit High) P0717 (Input/Turbine Speed Sensor *A* Circuit Low) P0717 (Output Speed Sensor Circuit High) P077C (Output Speed Sensor Circuit High)	Enable Conditions	Time Required	MIL Illum.
					P0722 (Output Speed Sensor No Pulse) 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) P0602 (Control Module Programming Error) P0604 (Internal Control Module Random Access Memory (RAM) Error) U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM "A") Accelerator Effective Position malfunction (*Note 2) Engine Actual Steady State Torque malfunction (*Note 2) Non-Transmission Regulated Steady State Torque malfunction (*Note 2) Engine Speed malfunction (*Note 2)			
					Range Selector Position Switch P0706 (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	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature	= TRUE = TRUE >= -20 (deg C)		
					Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= FALSE tmr_inh_GE (*1) = TRUE		
Neutral condition at D Range (C1	P0776	Pressure Control Solenoid "B" Stuck	Neutral Condition Decision (C1 cannot engage	je)				1
no engagement)		OFF	Engine Speed – Input Speed Input Speed	 < 150 [rpm] > Output Speed x I_gear(*7) + 400 [rpm] 	Ignition Voltage Battery Voltage Battery Voltage Franine Sneed	> 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM]	{ gearRpm(*8) >= 0 AND gearRpm <= 1500 }	

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
					Engine Speed Signal Validity 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	= VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously)	3.3 sec { gearRpm(*8) >= 1501 AND gearRpm <= 3000 } 1 3 sec	
					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, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0962, P2764, P0771 P07C0 (Input/Turbine Speed Sensor *A' Circuit High) P07F7 (Output Speed Sensor *A' Circuit Low) P0777 (Output Speed Sensor *A' Circuit No Signal) P0772 (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor Circuit High) P0563 (System Voltage High) P2653 (System Voltage High) P2653 (System Voltage High) P0604 (Internal Control Module Remory Checksum Error) P0604 (Internal Control Module Random Access Memory (RAM) Error) U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM *A'') Accelerator Effective Position malfunction (*Note 2) Engine Actual Steady State Torque malfunction (*Note 2) Engine Speed malfunction (*Note 2)	= NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 (sec) ALL Malfunctions = NOT DETECTED	{gearRpm(*8) >= 3001 } 0.8 sec	
					ATF temperature Garage Shift Control (to to D) has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously Range Selector Position Switch Current gear Output Speed Current lock up status Lockup type The Input Speed signal is available from the Input Speed Sensor	>= 0 [degC] T_GarageFin (*1) T_ShiftFin (*1) = D Range for 1000 [msec] continuously 1st OR 2nd OR 3rd OR 4th OR 5th <= 500 [rpm] = OFF = LUP NO CONTROL = TRUE		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description				NOT DETECTED	Required	illum.
					High)			
					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 = Clear counter_NfailD Criteria: 1 and 2 and 3 and 4 and 5 and 6, for 300 [msec] co 1. current Gear: 4th 2. RANGE_D(defined signal) 3. Slip Speed > 500 [rpm] 4. Output Speed > 500 [rpm] 5. Not shifting 6. Current gear != GEAR_1STEB Release condition The following Criteria is met, Prohibit Neutral Judgment flag = Criteria: 1 or 2 or 3 1. RANGE_P, RANGE_R or RANGE_N	TRUE ntinuously		
					2. Output Speed > 0 [rpm] 3. Bestgear = 6th or 7th or 8th			
			Confirm C1 as Failed Element (Check C2 and C	3 to see if C1 has malfunctioned)			
			When the following conditions are ALL satisfied met:	I, the criteria are considered to be				
			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	= 4	Ignition Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] > 10.2 [V] < 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously)	4 sec	1
			algorithm will increment the "SL1 Stuck ON" failure counter:	1000 (
			Current Goor	= 1000 [msec]	Emorgoney Mode (*4)			
			Difference between Actual Geor Patie and		Neutral Avoidance Control	= NOT ACTIVE		
			Expected Gear Ratio:	< 4 [%]	Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE	= NOT ACTIVE > 8 [sec]		
			Flag_SLC1drain (*)	= ON	P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low)	ALL Malfunctions = NOT DETECTED		
			Flag_SLC1drain (*) is determined to be ON when the following condition is true: SLC1 Pressure For the following time continuously:	<= 300 [gt/cm^2] = Time_PSLdrain (*12) [msec]	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 Low)			

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
					P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0582 (System Voltage Low Supply 2) (*Note 1) P0583 (Gystem Voltage High) P2533 (Ightion Switch RurvStart Position Circuit High) P0601 (Internal Control Module Remory Checksum Error) P0602 (Control Module Programming Error) P0604 (Internal Control Module Random Access Memory (RAM) Error) U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM *A*) Accelerator Effective Position malfunction (*Note 2) Engine Actual Steady State Torque malfunction (*Note 2) Engine Speed malfunction (*Note 2)			
					Safe Gear Control has been INACTIVE for this amount of time continuously Range Selector Position Switch Time since changing Range Selector Position to D ATF temperature P0713 (Transmission Fluid Temperature Sensor "A" Circuit High) P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low) P0842 (Transmission Fluid Pressure Sensor/Switch "A" Circuit Low) P0843 (Transmission Fluid Pressure Sensor/Switch "A" Circuit High Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1) = D Range = 8000 [msec] >= -10 [degC] = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_Shiftiin (*1)		
					continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously Engine Torque Output Speed The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	I_Shuttein (*1) = TRUE = TRUE = FALSE tmr_inh_GE (*1) >= 80 [Nm] >= 60 [rpm] = TRUE		
Pressure Control Solenoid "B" Control Circuit (SL1 Solenoid)	P0778	Pressure Control Solenoid "B" Electrical	sum_ie (*)	> 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		Battery Voltage	> 11 [V] for [> 500 msec]		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description			,		Required	Illum.
			sum of the difference of the linear solehold		Linear Solenoid Feedback current	< 1358 [mA]		
			feedback current and commanded current. This sum, named "sum ie", will be updated on every		Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
			clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a		P0966 (Pressure Control Solenoid "B" Control Circuit Low)	= NOT DETECTED		
			calibrated threshold, a malfunction will be confirmed.		P0967 (Pressure Control Solenoid "B" Control Circuit High)	= NOT DETECTED		
					Emergency Mode (*4)	= 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					
			OR					
			ie (*)	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V]	2 sec	1
					memory	(all 4 criteria for 2 [sec] continuously)		
			(*) The second algorithm checks the absolute value of the difference of the linear solenoid		Battery Voltage	> 11 [V] for [> 500 msec]		
			feedback current and commanded current over		Linear Solenoid Feedback current	< 1358 [mA]		
			time. If the absolute value of the difference of the linear solenoid feedback current and		Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
			commanded current exceeds a calibrated threshold for a calibrated period of time		P0966 (Pressure Control Solenoid "B" Control Circuit Low)	= NOT DETECTED		
			continuously, a malfunction will be detected.		P0967 (Pressure Control Solenoid "B" Control Circuit High)	= NOT DETECTED		
					Emergency Mode (*4)	= NOT ACTIVE		
			ie : Absolute value of ie					
			ie: Difference between "commanded current" and "feedback current"					
Output Speed Sensor Circuit	P077C	Output Speed Sensor Circuit High	Output Speed Sensor Circuit Voltage	< 0.206 [V]	Ignition Voltage Battery Voltage Battery Voltage	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V]	1 sec	1
					The TCM has completed the read operation of its non-volatile memory	(all 4 criteria for 2 [sec] continuously)		
Output Speed Sensor Circuit	P077D	Output Speed Sensor Circuit Low	Output Speed Sensor Circuit Voltage	> 2.727 [V]	Ignition Voltage	> 9000 [mV] for 10 [msec] continuously	1 sec	1
					Battery Voltage Battery Voltage	> 10.2 [V] <= 32.0 [V]		
					The TCM has completed the read operation of its non-volatile memory	(all 4 criteria for 2 [sec] continuously)		
Pressure Control Solenoid "C"	P0798	Pressure Control Solenoid "C"	sum_ie (*)	> 60000 [mA]	Ignition Voltage	> 9000 [mV] for 10 [msec] continuously	1 to 3 sec	1
Control Circuit (SL2 Solenoid)		Electrical			Battery Voltage	> 10.2 [V]	cumulatively	
					The TCM has completed the read operation of its non-volatile memory	(all 4 criteria for 2 [sec] continuously)		
			(*) The first algorithm checks the cumulative		Battery Voltage	> 11 [V] for [> 500 msec]		
			sum of the difference of the linear solenoid		Linear Solenoid Feedback current	< 1358 [mA]		
			sum, named "sum_ie", will be updated on every		Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
			clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a		P0970 (Pressure Control Solenoid "C" Control Circuit Low)	= NOT DETECTED		
			calibrated threshold, a malfunction will be confirmed.		P0971 (Pressure Control Solenoid "C" Control Circuit High)	= NOT DETECTED		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description			-		Required	Illum.
					Emergency Mode (*4)	= 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					
			OR					
			ie (*) (*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over	> 50 [mA]	Ignition Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current	> 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]	2 sec	1
			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.		Solenoid Cut Condition (*Note 3) P0970 (Pressure Control Solenoid *C* Control Circuit Low) P0971 (Pressure Control Solenoid *C* Control Circuit High)	= NOT ACTIVE = NOT DETECTED = NOT DETECTED		
			ie : Absolute value of ie ie: Difference between "commanded current"		Emergency Mode (*4)	= NOT ACTIVE		
			and "feedback current"					
Input/Turbine Speed Sensor "A" Circuit	P07BF	Input/Turbine Speed Sensor "A" Circuit Low	Input Speed Sensor Circuit Voltage	< 0.206 V	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	1 sec	1
Input/Turbine Speed Sensor "A" Circuit	P07C0	Input/Turbine Speed Sensor *A" Circuit High	Input Speed Sensor Circuit Voltage	> 2.727 V	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	1 sec	1
Gear Ratio (8th Gear)	P07D9	Gear 8 Incorrect Ratio	Difference between actual Gear Ratio and 8th Gear Ratio	> 20 [%]	Current Gear Output Speed Ignition Voltage Battery Voltage Battery Voltage Engine Speed 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)	= 8TH GEAR >= 500 (rpm] > 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 = NOT ACTIVE	12 sec (cumulatively)	1

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
					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, P2739, P0962, P2764, P0778, P0788, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor *A* Circuit High) P07Bf (Input/Turbine Speed Sensor *A* Circuit Low) P0717 (Output Speed Sensor Circuit High) P077D (Output Speed Sensor Circuit High) P0772 (Output Speed Sensor Circuit High) P0772 (Output Speed Sensor Circuit High) P0772 (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) (*Note 1) P0583 (Gystem Voltage High) P2533 (Ignitem Voltage High) P0602 (Control Module Parogramming Error) P0604 (Internal Control Module Random Access Memory (RAM, Error) U0070 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM *A*) Accelerator Effective Position malfunction (*Note 2) Non-Transmission Regulated Steady State Torque malfunction (*Note 2) Engine Actual Steady State Torque malfunction (*Note 2) Engine Speed malfunction (*Note 2)	ALL Malfunctions = NOT DETECTED		
					Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE		
					AND the following conditions a	are NOT satisfied		
					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	< 4 %	Current Gear	= 8TH GEAR	5 sec	1
			Gear Ratio		Output Speed	>= 60 [rpm]		
			OR	I		>= 50 [Nm] OR <= -50 [Nm]		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
			Difference between actual Gear Ratio and 6th Gear Ratio	< 4 %	Input Torque	(occur at least 1 time during detection)		
					Ignition Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Loct Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously)		
					Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE	= NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 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, P2730, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07020 (Input/Turbine Speed Sensor "A" Circuit High) P07FD (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P0777C (Output Speed Sensor Circuit High) P07722 (Output Speed Sensor Circuit High) P0752 (System Voltage Low Supply 2) ("Note 1) P0563 (System Voltage High) P2633 (gintion Switch Run/Start Position Circuit High) P0604 (Internal Control Module Memory Checksum Error) P0604 (Internal Control Module Random Access Memory (RAM) Error) U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM "A") Accelerator Effective Position midfunction ("Note 2) Ron-Transmission Regulated Steady State Torque malfunction ("Note 2) Engine Actual Stady State Torque malfunction ("Note 2)	ALL Malfunctions = NOT DETECTED		
					Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE		
					Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature	= TRUE >= -20 [deg C]		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
					Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= FALSE tmr_inh_GE (*1) = TRUE		
Tap Up Switch	P0815	Upshift Switch Circuit	"Platform Transmission Tap Up/Down Switch State" CAN Signal	= \$1 (Increment Switch Active)	Ignition Voltage	> 9000 [mV] for 3 sec continuously	34 sec Total	No MIL "Special
					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) 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)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT PRESENT = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED	(4 sec for P, R, N-Range) (30 sec for D- Range)	C"
Tap Down Switch	P0816	Downshift Switch Circuit	"Platform Transmission Tap Up/Down Switch	= \$2 (Decrement Switch Active	Ignition Voltage	> 9000 [mV] for 3 sec continuously	34 sec Total	No MIL
					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) P0826 (Up and Down Shift Switch Circuit) P1761 (Up and Down Shift Switch Circuit) P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT PRESENT = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED	(4 sec for P, R, N-Range) (30 sec for D- Range)	C"
I ap Up/Down Switch	P0826	Up and Down Shirt Switch Circuit	State" CAN Signal	= \$3 (Illegal Up/Jown Switch State Active)	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) P1761 (Up and Down Shift Switch Signal Circuit) P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	> 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 = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED	4 sec	NO MIL "Special C"
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 Uo100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory Ignition Voltage P2534 (Ignition Voltage Low Supply)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] < 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously) 9 [V] <= IG <= 32 [V] = NOT DETECTED	30 sec	No MIL "Special C"

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description			-		Required	Illum.
					P2535 (Ignition Switch Run/Start Position Circuit High)	= NOT DETECTED		
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 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 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 = NOT DETECTED (all 8 criteria for 2 [sec] continuously) 9 [V] <= IG <= 32 [V] = NOT DETECTED = 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. [gnition Voltage Battery Voltage Battery Voltage 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) Time since Solenoid Cut ("Note 3) Time since Solenoid Cut ("Note 3) Op974 (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, Ip2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit Low) P0777 (Iouput Speed Sensor C"A" Circuit Low) P0772 (Output Speed Sensor C"A" Circuit High) P0752 (System Voltage Low Supply 2) ("Note 1) P0563 (System Voltage Low Supply 2) ("Note 1) P0563 (System Voltage High) P0502 (Control Module Random Access Memory (RAM) Error) U0070 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM "A") Accelerator Effective Position malfunction ("Note 2) Engine Actual Steady State Torque malfunction ("Note 2) Engine Speed malfunction ("Note 2)	Time_SwONfailw (*2) > 9000 [mV] for 10 [msec] continuously > 10.2 [V] < 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED (all 8 criteria for 2 [sec] continuously) = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	1 sec	2

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description	1			1	Required	Illum.
					Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1) T_ShiftFin (*1)		
					ATF Temperature	>= 20 [deg C]		
					P0713 (Transmission Fluid Temperature Sensor "A" Circuit	= NOT DETECTED		
					High) 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	= 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	< 4 %	Ignition Voltage	> 9000 [mV] for 10 [msec] continuously	1	
			Expected Gear Ratio	>= 1600 [kPo]	Battery Voltage	> 10.2 [V] <= 32 0 [V]		
			ATE Pressure Switch Status	>= 1000 [KF a]	Engine Speed	> 400 [RPM]		
			Engine Speed	= OFF	Engine Speed Signal Validity			
			Time speed	> 500 [Ipin]	U0073 (CAN Bus-OFF)	= NOT DETECTED		
			above	> 1000 [msec]	The TCM has completed the read operation of its non-volatile			
			Output Speed	>= 60 [rpm]	memory	(all 8 criteria for 2 [sec] continuously)		
			Engine Torque without Acceleration	>= 80 [Nm]				
			Input Speed	<= 6000 [rpm]	Emergency Mode (*4)	= 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:	ALL Malfunctions = NOT DETECTED		
					(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) P0772 (Output Speed Sensor No Poder)			
					P0522 (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)			
			1		P0602 (Control Module Programming Error) P0604 (Internal Control Module Random Access Memory			

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description		1			Required	Illum.
					(RAM) Error) U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM *A*) Accelerator Effective Position malfunction (*Note 2) Engine Actual Steady State Torque malfunction (*Note 2) Non-Transmission Regulated Steady State Torque malfunction (*Note 2) Engine Speed malfunction (*Note 2)			
					Range Selector Position Switch Garage Shift Control has been INACTIVE for this amount of	= D Range		
					time continuously Shift Control has been INACTIVE for this amount of time continuously ATF Temperature P0713 (Transmission Fluid Temperature Sensor "A" Circuit	T_GarageFin (*1) T_ShiftFin (*1) >= OT_Sw_det (*14) = NOT DETECTED		
					High) P0712 (Transmission Fluid Temperature Sensor *A" Circuit Low)	= NOT DETECTED		
					The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed	= TRUE		
					Sensor Ouick Stop Detection Flag (*Note 4)	- FAI SE		
					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	Manual Mode Switch Signal Level (*) (*) The Manual Mode Switch signal level is determined as a percentage of Ignition Voltage (= Manual Mode Switch Voltage / Ignition Voltage [%])	10.4 [%] < Manual Switch < 14.8 [%]	Ignition Voltage Battery Voltage 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 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 = NOT DETECTED (all 8 criteria for 2 [sec] continuously) 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	Manual Mode Switch Signal Level (*) (*) The Manual Mode Switch signal level is determined as a percentage of Ignition Voltage (= Manual Mode Switch Voltage / Ignition Voltage (%)) The time period is based on the Gear Selector Position: - for 4 sec continuously in P,R, or N range AND - for 30 sec continuously in D range	14.8 [%] <= Manual Switch < 25.5 [%]	Ignition Voltage Battery Voltage 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 Ignition Voltage P2534 (Ignition Voltage Low Supply)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously) 9 [V] <= IG <= 32 [V] = NOT DETECTED	34 sec (cumulative between P/R/N and D range tests)	No MIL "Special C"

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
					P2535 (Ignition Switch Run/Start Position Circuit High) P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	= NOT DETECTED = NOT DETECTED = NOT DETECTED		
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 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 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 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	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	1
Shift Solenoid "A" Control Circuit (SR solenoid)	P0973	Shift Solenoid "A" Control Circuit Low	Comparison of SR solenoid Commanded State to Actual State (*) The TCM software does not directly determine the Actual State of the solenoid. This is done by the solenoid driver hardware. The software just reads the state as ON or OFF. The solenoid driver determines the state is ON at Battery Voltage - 1 [V]	Actual State is "OFF" when Commanded State is "ON"	Ignition Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory SR Solenoid Command Time elapsed since last solenoid state change	<pre>> NOT DETECTED IOT [1980] > 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = ON > 10 msec</pre>	500 msec	1

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
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 Eattery 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	P16F3	Control Module Redundant Memory	Downshift commanded (*)	< Minimum Safe Gear (*)	P0606 (Control Module Processor) - Solenoid Cut Malfunction	= NOT DETECTED	150 msec	1
(16)		renumance	(*) 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.		Solenoid Cut Request	= INACTIVE		
Un-usual shifting with Max			Each component (C1, C2, C3, C4, and B1)		Ignition Voltage	> 9000 [mV] for 10 [msec]	(Shift time	1
Pressure Pressure Control Solenoid "B" Control Circuit (SL1 Solenoid)	P170A	Pressure Control Solenoid Valve "2" Max Pressure Not Achieved	which will diagnose the failed component if the malfunction is detected. These counters are shared between all of the algorithms. If any one		Battery Voltage Engine Speed Engine Speed Signal Validity	 > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID 	300 msec to 2 sec, 5 times	
Pressure Control Solenoid "C" Control Circuit (SL2 Solenoid)	P170B	Pressure Control Solenoid Valve "3" Max Pressure Not Achieved	of those counters becomes equal to a calibrated total value, the malfunction will be confirmed and a DTC will be stored.		U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile	= NOT DETECTED = NOT DETECTED (all & aritaria far 2 (age) continuously)	cumulatively.	
Pressure Control Solenoid "D" Control Circuit (SL3 Solenoid)	P170C	Pressure Control Solenoid Valve "4" Max Pressure Not Achieved	There are (7) unique algorithms which run simultaneously in order to attempt to detect a MAX pressure malfunction. These algorithms		memory	(an o chiena lor z [sec] continuousiy)		
Pressure Control Solenoid "E" Control Circuit (SL4 Solenoid)	P170D	Pressure Control Solenoid Valve "5" Max Pressure Not Achieved	are fairly complex; therefore they have been described in detail in section 5.					
Pressure Control Solenoid "F" Control Circuit (SL5 Solenoid)	P170E	Pressure Control Solenoid Valve "6" Max Pressure Not Achieved						
			count_fail_SLC1MAX_usft (*) count_fail_SLC2MAX_usft (*) count_fail_SLC3MAX_usft (*) count_fail_SLC4MAX_usft (*) count_fail_SLB1MAX_usft (*) (*):refer to conditions A-1 to E below	>= 5 >= 5 >= 5 >= 5 >= 5	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, P2710, P2720, P2729, P2738, P0962, P2764, P0778, P0778, 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 High) P072C (Output Speed Sensor Circuit High) P0752 (Output Speed Sensor Circuit High) P0563 (System Voltage Low Supply 2) (*Note 1) P0663 (Internal Control Module Memory Checksum Error) P0604 (Internal Control Module Random Access Memory (RAM) Error) U00073 (CAN Bus-OFF) U101010 (I ac Communication with ECM/PCM *A*)	= NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED		
Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
-------------	-------	--------------------	--	--	--	--	----------	--------
System	Code	Description			-		Required	Illum.
					Accelerator Effective Position malfunction ("Note 2) Engine Actual Steady State Torque malfunction ("Note 2) Non-Transmission Regulated Steady State Torque malfunction ("Note 2) Engine Speed malfunction ("Note 2)			
					Garage Shift Control has been INACTIVE for this amount of time continuously Range Selector Position Switch Wheel Spin Detected Output Speed ATF temperature The Input Speed signal is available from the Input Speed	T_GarageFin (*1) = D Range = FALSE >= 300 [rpm] >= -100 [degC]		
					Sensor 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: Un-shift with Tie-u	n (C1 C3 C4 or B1 not release	2d)		1	
			If a pressure control malfunction exists during an release the element commanded to disengage. to detect when the transmission takes an excessi shift (Input Speed change from current gear to ta engagement pressure is sufficient.	up-shift, it may be impossible to Such a malfunction is possible vely long time to start the up- rget gear) while the				
			When the following conditions are ALL satisfied, t be met. Based on the Upshift that was occurring, incremented as follows:	then the criteria is considered to , the associated counter is	•			
			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	= TRUE				
			The gear ratio at the beginning of the shift is normal (*B)	50.04				
			Input Forque	>= 50 [Nm] OR				
				<= -50 [Nm]				

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
			(*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 [%]				
				(01 00 01 D1 11			-	
			Unusual Shifting Test A-2: Down-shift with The	e-up (C1, C3, C4, or B1 not rele down-shift it may be impossible	ased)		-	
			to release an element which is supposed to diser possible to detect when the transmission takes a down-shift (Input Speed change from current gea engagement pressure is sufficient.	n excessively long time to start a ar to target gear) while the				
			When the following conditions are ALL satisfied, be met. Based on the Down-shift that was occur incremented as follows:	then the criteria is considered to ring, the associated counter is				
			for down-shifts (5-2, 5-3, 5-4, 6-4,7-3, 8-2)	count_fail_SLC2MAX_usft	1			
			for down-shifts (3-2, 7-5, 7-6)	count_fail_SLC3MAX_usft				
			for down-shifts (4-2, 4-3, 6-5)	count_fail_SLC4MAX_usft				
			for down-shifts (8-5, 8-6, 8-7)	count_fail_SLB1MAX_usft				
			During any of the following Down-Shifts	(3-2, 4-2, 4-3, 5-2, 5-3, 5-4, 6- 4, 6-5, 7-3, 7-5, 7-6, 8-2, 8-5, 8- 6, 8-7)				
			After "Start of initial release pressure control phase"	= TRUE				
			Release Pressure Control Phase Duration	>= Time_failA_down1 (*10) AND				
			Applied Element Command Pressure	>= Time_failA_down2 (*10) > 3.0 [kg/cm^2] when Input Torque with No				
			Shifting does not begin despite of shifting commanded. (No change in inRpm eventhough the shift command is made)	Acceleration < 100 [Nm] = TRUE				
			Min of engine flare ratio	>= -50 [rpm]				
			The gear ratio before shift control began is normal (*A)	= TRUE				
			OR The gear ratio at the beginning of the shift is normal (*B)					
			Input Torque	>= 50 [Nm]				
				<= -50 [Nm]				
			(*A) This condition is met if the following is true:					
			Difference between actual Gear Ratio and	< 4%				
			expected Gear Ratio					
			("B) This condition is met if the following is true:					
			Difference between actual Gear Ratio and expected Gear Ratio	< 8 [%]				
							4	
			Unusual Shifting Test B-1: Up-shift with Engin	ne Flare (C1, C4, or B1 not releated with fails afe valves to mitigate	ased)		-	
			any effects of falsely engaged brakes or clutches	s. However, during some shift				
I	I	I	types if an element is falsely engaged, the torque	e transfer from the expected	1	I	I	I

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
			clutches and/or brakes will be disrupted.	•				
			When ALL of the conditions of a state are satisf	ed, the function then moves to				
			is incremented as follows:	ccurring, the associated counter				
				<u>.</u>				
			for up-shifts (6-7, 6-8)	count_fail_SLC1MAX_usft				
			for up-shifts (7-8)	count_fail_SLC4MAX_usft				
			for up-shifts (3-4, 3-5, 4-5)	count_fail_SLB1MAX_usft				
			Chate 4 (Ohert Data sting due to Deviating from F	the set of Terroration in a large t				
			Speed)	expected Transmission input				
			If ALL conditions are met:					
			- Proceed to State 2					
			During any of the following single clutch to	(6-7, 6-8, 7-8, 3-4, 3-5, 4-5)				
			Input Speed - (Output Speed x Gear Ratio of	>= flare fail up (*11)				
			current gear before shifting)	- naro_ran_ap (11)				
			NOT in multiplex shifting	= TRUE				
			State 2 (Determine the Fault Type or check for	Input Speed Deviation Correction				
			- EXIT the B-1 Algorithm					
			Input Speed - (Output Speed x Gear Ratio of	<= flare fail up (*11) - 200				
			current gear before shifting)	[rpm]				
			ICM currently commanding a Clutch-to-Clutch Up-shift	= FALSE				
			Criteria 2-2: if ALL conditions are met:	•				
			 Increment count_tail_SLB1MAX_ustt Start the "Exit Unusual Shifting Test B-1" timer 					
			- Proceed to State 3					
			The TCM is commanding a (3-4, 3-5, or 4-5 up-	= TRUE				
			shift) "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:	•				
			 Increment count_fail_SLC1MAX_usft Start the "Exit Unusual Shifting Test B-1" timer 					
			- Proceed to State 3					
			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]				
			1	for 0.03 [sec]				
			Time since the start of the apply pressure control	< 1.0 [sec]				
			Criteria 2-4: if ALL conditions are met:	!				1
			 Start the "Exit Unusual Shifting Test B-1" timer Proceed to State 3 					
			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]				

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description	Time since the start of the apply pressure	< 1.0 [sec]			Required	mum.
			control	(1.0 [300]				
			Criteria 2-5: if condition (A) AND (condition (B) C - EXIT the B-1 Algorithm	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 Re if ALL conditions are met: - Exit the B-1 Algorithm	esume Normal Operations)				
			"Exit Unusual Shifting Test B-1" timer	> TimeFailB (*10) [sec]				
			Unusual similar test B-2 colomi-simil with E The TLBOSN 8-Speed transmission is equipped any effects of falsely engaged brakes or clutches types if an element is falsely engaged, the torque clutches and/or brakes will be disrupted. A symp large Input Speed Deviation (*1) (i.e. engine flare	ngme riare (B1 not released) with failsafe valves to mitigate s. However, during some shift transfer from the expected tom of such a malfunction is a s).				
			State 1 (Start Detection due to Deviation from Ex Speed)	pected Transmission Input				
			Criteria 1-1: if ALL conditions are met: If ALL conditions are met: - Begin the "Time Since State 1" timer - Proceed to State 2					
			During the following Down-shift	(4-3)				
			Time since the start of the apply pressure control	< 1.0 [sec]				
			NOT in multiplex shifting	= TRUE				
			Input Speed - (Output Speed x Gear Ratio of	>= 500 [rpm]				
			Input Speed Acceleration	> 5000 [rpm/sec]				
			The gear ratio before shift control began is normal (*A)	= TRUE				
			The gear ratio at the beginning of the shift is normal (*B)					
			(*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: If ALL conditions are met: - Begin the "Time Since State 1" timer					
			- Proceed to State 2					
			During the following Down-shift	(5-4, 5-3)				
			Time since the start of the apply pressure control	< 1.0 [sec]				

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	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 at the beginning of the shift indicates 8th gear	= TRUE				
			State 2 (Increment the malfunction counter or w	ait for the shift to complete)				
			Criteria 2-1: if ALL conditions are met: - Start the "Exit Unusual Shifting Test B-2" timer - Increment count_fail_SLB1MAX_usft - Proceed to State 3					
			"Time Since State 1" timer	> Time324 (*10) [sec]				
			Criteria 2-2: if condition (A) AND (condition (B) (- Exit the B-2 Algorithm	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) (- Exit the B-2 Algorithm	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 Re if ALL conditions are met: - Exit the B-2 Algorithm	esume Normal Operations)				
			"Exit Unusual Shifting Test B-2" timer	> Time423B (*10) [sec]				
			Unusual Shifting Test B-3: Down-shift with E The TL80SN 8-Speed transmission is equipped any effects of falsely engaged brakes or clutche types if an element is falsely engaged, the torque clutches and/or brakes will be disrupted. A symp large Input Speed Deviation (*1) (i.e. engine flare	ngine Flare (C1 not released) with failsafe valves to mitigate s. However, during some shift e transfer from the expected ptom of such a malfunction is a e).				
			State 1 (Start Detection due to Deviation from E	xpected Transmission Input				
			Criteria 1-1: if ALL conditions are met: If ALL conditions are met: - Begin the "Time Since State 1" timer - Proceed to State 2					
			During the following Down-shift	(8-7, 8-6, 7-6)				
1			Time since the start of the apply pressure control	< 1.0 [sec]				
			NOT in multiplex shifting	= IRUE				
			gear expected after the shift)	>= 300 [rpm]				
			Input Speed Acceleration	> 5000 [rpm/sec] for 0.03 [sec]				

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
			The gear ratio before shift control began is	= TRUE				
			normal (*A) OR					
			The gear ratio at the beginning of the shift is					
			normal (*B)					
					1			
			(^A) This condition is met if the following is true:					
			Difference between actual Gear Ratio and	< 4 [%]				
			expected Gear Ratio (*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 wa	ait for the shift to complete)				
	1		Criteria 2-1: if ALL conditions are met:					
			 Start the "Exit Unusual Shifting Test B-3" timer Increment count fail SLC1MAX usft 					
			- Proceed to State 3					
			"Time Since State 1" timer	> Time857a (*10) [sec]	-			
			Criteria 2-2: if condition (A) AND (condition (B) C	OR (C)) are met:				
			- Exit the B-3 Algorithm					
			(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 Re	esume Normal Operations)				
			if ALL conditions are met:					
			"Exit Unusual Shifting Test B-3" timer	Time857h (*X) [sec]	-			
1							-	
			The TL80SN 8-Speed transmission is equipped y	with failsafe valves to mitigate			-	
			any effects of falsely engaged brakes or clutches	s. However, during some shift				
			types if an element is falsely engaged, the torque clutches and/or brakes will be disrupted. A symp	e transfer from the expected otom of such a malfunction is a				
			large Input Speed Deviation (*1) (i.e. engine flare	a).				
			State 1 (Start Detection due to Deviation from Ex Speed)	pected Transmission Input				
	1		Criteria 1-1: if ALL conditions are met:		1			
			If ALL conditions are met:					
			- Begin the Time Since State 1" timer - Proceed to State 2					
			During the following Down shift	(5 4)	-			
			Time since the start of the apply pressure	(J-4)				
	1		control	< 1.0 [300]				
			NOT in multiplex shifting	= TRUE				1
			Input Speed - (Output Speed x Gear Ratio of gear expected after the shift)	>= 300 [rpm]				
	1		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 wa	ait for the shift to complete)	1			

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
			Criteria 2-1: if ALL conditions are met: - Start the "Exit Unusual Shifting Test B-4" timer - Increment count_fail_SLC3MAX_usft - Proceed to State 3					
			"Time Since State 1" timer	> Time54a (*10) [sec]				
			Criteria 2-2: if condition (A) AND (condition (B) C - Exit the B-4 Algorithm	DR (C)) are met:				
			During the following Down-shift	(5-4)				
			(B) The shift has completed	= TRUE				
			(C) Input Speed - (Output Speed x Gear Ratio of gear expected after the shift)	< 300 [rpm]				
			State 3 (Conclude Malfunction Detection and Rea if ALL conditions are met: - Exit the B-4 Algorithm	sume Normal Operations)				
			"Exit Unusual Shifting Test B-4" timer	> Time54b (*X) [sec]				
			Unusual Shifting Test E: Gear Ratio Malfunction	on during Shifting				
			Note: To confirm if a shift ratio is fulfilled, the follo	owing criteria is used:				
			The state of the second st	4 [70]				
			- Increment count_fail_SLC2MAX_usft					
			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				
			Applied Element Command Pressure	> 2.5 [kg/cm^2]				
			If all of the following conditions are met: - Increment count_fail_SLC2MAX_usft					
			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]				
				>= 50 [Nm]				
			If all of the following conditions are met: - Increment count_fail_SLC2MAX_usft					
			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]				
				>= 50 [Nm]				
			If all of the following conditions are met: - Increment count_fail_SLC2MAX_usft					
			During the following shifts	(4-6)				
			6th gear ratio fulfilled at the beginning of the shift	= TRUE				
			for 1.0 sec					
			Input Forque	<= -50 [Nm] OR				
				>= 50 [Nm]				

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
-			If all of the following conditions are met:					
			- Increment count_rail_SEC3MAX_usit					
			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-				
			3rd gear ratio fulfilled at the beginning of the	= TRUE				
			shift for 1.0 sec					
			Input Torque	<= -50 [Nm]				
				>= 50 [Nm]				
			Applied Element Command Pressure	> 2.5 [kg/cm^2]				
			(this condition only applies to the following shifts (1-2, 1-3, 1-4, 1-5)					
			If all of the following conditions are met:					
			 Increment count_fail_SLC3MAX_usft 					
			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				
			If all of the following conditions are met:	>= oo [min]				
			- Increment count_fail_SLC4MAX_usft					
			During the following shifts	(1-2 1-3 1-4 1-5 2-3 2-4 2-				
				5, 2-1, 2-1EB, 1EB-1, 1-1EB)				
			4th gear ratio fulfilled at the beginning of the shift	= TRUE				
			for 1.0 sec	- 1102				
			Input Torque	<= -50 [Nm]				
				>= 50 [Nm]				
			Applied Element Command Pressure	> 2.5 [kg/cm^2]				
			(this condition only applies to the following shifts (1-2, 1-3, 1-4, 1-5)					
			If all of the following conditions are met:	1				
			 Increment count_fail_SLC4MAX_usft 					
			During the following shifts	(5-6, 5-7, 5-8, 8-7, 8-6, 8-5)				
			6th gear ratio fulfilled at the beginning of the shift	= TRUE				
			for 1.0 sec	<= -50 [Nm]				
				OR				
			If all of the following conditions are met:	>= 50 [Nm]				
			- Increment count_fail_SLB1MAX_usft					
			During the following obiffs	(4 0 4 0 4 4 4 5 4 E P 4 4				
			During the following shifts	(1-2, 1-3, 1-4, 1-5, TEB-1, 1- 1EB)				
			2nd gear ratio fulfilled at the beginning of the	= TRUE				
			Input Torque	<= -50 [Nm]				
				OR				
			Applied Element Command Pressure	>= 50 [Nm] > 2.5 [kg/cm^2]				
			(this condition only applies to the following shifts					
			(1-2, 1-3, 1-4, 1-5)					
			- Increment count_fail_SLB1MAX_usft					

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

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

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description			·		Required	Illum.
			clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a		P2729 (Pressure Control Solenoid "E" Control Circuit Low)	= NOT DETECTED		
			calibrated threshold, a malfunction will be confirmed.		P2730 (Pressure Control Solenoid "E" Control Circuit High)	= NOT DETECTED		
					Emergency Mode (*4)	= 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) -50m A = <ie 50ma*<br="" <="" =="">3) Sign of ie is changed</ie>					
			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		Battery Voltage	> 11 [V] for [> 500 msec]		
			value of the difference of the linear solenoid feedback current and commanded current over		Linear Solenoid Feedback current	< 1358 [mA]		
			time. If the absolute value of the difference of		Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
			the linear solenoid feedback current and commanded current exceeds a calibrated threshold for a calibrated period of time		P2729 (Pressure Control Solenoid "E" Control Circuit Low)	= NOT DETECTED		
			continuously, a malfunction will be detected.		P2730 (Pressure Control Solenoid "E" Control Circuit High)	= NOT DETECTED		
					Emergency Mode (*4)	= NOT ACTIVE		
			ie : Absolute value of ie ie: Difference between "commanded current" and "feedback current"					
Pressure Control Solenoid "E"	P2729	Pressure Control Solenoid "E" Control	Linear Solenoid Feedback Current	< 20mA	Ignition Voltage	> 9000 [mV] for 10 [msec] continuously	500 msec	1
Control Circuit (SL4 Solenoid)		Circuit Low			Battery Voltage Battery Voltage	> 10.2 [V] <= 32.0 [V]		
					The TCM has completed the read operation of its non-volatile			
					memory	(all 4 criteria for 2 [sec] continuously)		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					P2730 (Pressure Control Solenoid "E" Control Circuit High)	= NOT DETECTED for [1 sec]		
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 kee completed the read exerction of its peop volctile.	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V]	500 msec	1
					memory	(all 4 criteria for 2 [sec] continuously)		
					P2729 (Pressure Control Solenoid "E" Control Circuit Low)	= NOT DETECTED for [1 sec]		
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	> 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 solepoid		Battery Voltage	> 11 [V] for [> 500 msec]		
			feedback current and commanded current. This		Linear Solenoid Feedback current	< 1358 [mA]		
	l		sum, named "sum_ie", will be updated on every		Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
			clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a		P2738 (Pressure Control Solenoid "F" Control Circuit Low)	= NOT DETECTED		
			confirmed.		P2739 (Pressure Control Solenoid "F" Control Circuit High)	= NOT DETECTED		
					Emergency Mode (*4)	= 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					
			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		Battery Voltage	> 11 [V] for [> 500 msec]		
			value of the difference of the linear solenoid		Linear Solenoid Feedback current	< 1358 [mA]		
			time. If the absolute value of the difference of		Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
			the linear solenoid feedback current and commanded current exceeds a calibrated		P2738 (Pressure Control Solenoid "F" Control Circuit Low)	= NOT DETECTED		
			continuously, a malfunction will be detected.		P2739 (Pressure Control Solenoid "F" Control Circuit High)	= NOT DETECTED		
					Emergency Mode (*4)	= NOT ACTIVE		
			ie : Absolute value of ie ie: Difference between "commanded current" and "feedback current"					
Pressure Control Solenoid "F"	P2738	Pressure Control Solenoid "F" Control	Linear Solenoid Feedback Current	< 20mA	Ignition Voltage	> 9000 [mV] for 10 [msec] continuously	500 msec	1
Control Circuit (SL5 Solenoid)		Circuit Low			Battery Voltage Battery Voltage	> 10.2 [V] <= 32.0 [V]		
					memory	(all 4 criteria for 2 [sec] continuously)		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					P2739 (Pressure Control Solenoid "F" Control Circuit High)	= NOT DETECTED for [1 sec]		
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.	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V]	500 msec	1
					memory	(all 4 criteria for 2 [sec] continuously)		
				<u> </u>	P2738 (Pressure Control Solenoid "F" Control Circuit Low)	= NOT DETECTED for [1 sec]		
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		Battery Voltage	> 11 [V] for [> 500 msec]		
			feedback current and commanded current. This		Linear Solenoid Feedback current	< 1358 [mA]		
I	l		sum, named "sum_ie", will be updated on every		Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
			Glock cycle of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed.		P2764 (Torque Converter Clutch Pressure Control Solenoid Control Circuit Low) P2763 (Torque Converter Clutch Pressure Control Solenoid Control Circuit High) Emergency Mode (*4)	= NOT DETECTED = NOT DETECTED = NOT ACTIVE		
			 interacte our communication of the interaction of the interac					
			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.	> 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) P2764 (Torque Converter Clutch Pressure Control Solenoid Control Circuit Low) 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) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED	2 sec	1
					Emergency Mode (*4)	= NOT ACTIVE		
			ie : Absolute value of ie ie: Difference between "commanded current" and "feedback current"					
Torque Converter Clutch Pressure Control Solenoid Control Circuit (SLU Solenoid)	P2763	Torque Converter Clutch Pressure Control Solenoid Control Circuit High	Linear Solenoid Feedback Current	>= 1358mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory P2764 (Torque Converter Clutch Pressure Control Solenoid Control Circuit Low)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT DETECTED for [1 sec]	500 msec	1
Torque Converter Clutch Pressure Control Solenoid Control Circuit (SLU Solenoid)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	Linear Solenoid Feedback Current	< 20mÅ	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 iust reads the state as ON or OFF.	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	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = ON	500 msec	2

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

			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	DTC Monitor Description		
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					
PLUP_CLOSE_FA	L = Minimum of the fol	lowing values:			[gf/cm^2]	
	1	6290]	
	2	= Maximum of the followin 1 2	ng values: P_RelayV_ 0.8 * 0.576 * P_	Keep (*) secLC + 688		
	(*) P_RelayV_Keep	LF3 900	LFX 750			
			Г	ATF Te	mperature	٦
-				< 20 degC	>= 20 degC	
T_SLUFull	Time since SLU Pre	ssure met PLUP_CLOSE_F	FAIL (*5) criteria	10	3	[s
I_gear	1st Gear Ratio at RA	NGE D	·		•	– –
	•					
gearRpm	= Input Speed - Outp	out Speed x I_gear (*9)				
TimeTrn B	This timer is calculat	ed based on input torque				7

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

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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



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
		vehicle is rapidly decelerating. At all other times the value of this flag will be FALSE.