Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions		ļ ,	Time Required	Mil Illum.
Transmission Control Module	C1251	The lateral accleration signal is stuck	Lateral accleration magnitude	<=	3.85	g's							Specia
(TCM)		at a high magnitude in range	Lateral accleration magnitude		0.53	g's							No MIL
			Lateral accleration magnitude is								1		
			within the range above for	>=	120	Sec					<b></b>		_
							Lateral accleration magnitude	<=	3.85	g's			
							Lateral accleration magnitude	>=	0.53	g's	1		
							Lateral accleration magnitude	>=	90	Sec	1		
							is within the range above for Diagnostic shifting override				1		
							command	=	FALSE	Boolean	1		
									1st		1		
							Attained Gear State	=	through 6th		1		
							Attained Gear Slip	<=	100	RPM	1		
							·		Clutch to		1		
							Transmission Type	=	Clutch Transmissi		1		
									on		1		
							High Side Driver 1 On	=	TRUE	Boolean	1		
							Vehicle Speed	>=	15	kph	1		
							Lateral acceleration stuck in range diagnostic enable	=	TRUE	Boolean	1		
							Battery Voltage	<=	31.999023	Volts	1		
							Battery Voltage	>=	9	Volts	1		
							Battery voltage is within the allowable limits for	>=	0.1	Sec	1		
							Ignition Voltage	<=	31.999023	Volts	1		
							Ignition Voltage	>=	9	Volts	1		
							Service Fast Learn (SFL) Mode	=	FALSE	Boolean	1		
							Ignition voltage and SFL		0.1	6	1		
							conditions met for	>=	0.1	Sec			
											1		
						Disable	MIL not Illuminated for	TCM: If calib	rated to illumina	ate the MIL	1		
						Conditions:	DTC's:		17, P0721, P07		1		
								P07BF, P070 P215C, U00	CO, P077B, P07	//C, P0//D,	1		
								1 2130, 000	13)		1		
								ECM: None					
Transmission Control Module		Transmission Electro-Hydraulic	Incorrect program/calibrations								_		One Tri
(TCM)	P0601	Control Module Read Only Memory	checksum	=	TRUE	Boolean					>= 5	Fail Counts	0.10 1.11
											1		
						Disable	MIL not Illuminated for	TCM: P0601			1		
						Conditions:	DTC's:				1		
								ECM: None			1		
		Transmission Electro-Hydraulic	Non-volatile memory (static or										One Tri
Transmission Control Module (TCM)	P0603	Control Module Long-Term Memory	dynamic) checksum failure at		TRUE	Boolean					Runs Contino		1
(1011)		Reset	Powerup								Continu	usig	
ı				ı							1		1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Oystem	Code	Description	Grieria		•	Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0603	Conditions			rtoq	uncu	
								ECM: None						
Transmission Control Module (TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access Memory	RAM Read/Write Failure (Single Word)		TRUE	Boolean					>=	5	Fail Counts	One Tri
		incinos y									=	16	Sample Counts	
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0604						
						Conditions:	DICS:	ECM: None						
Transmission Control Module (TCM)	P062F	Transmission Electro-Hydraulic Control Module Long Term Memory Performance	TCM Non-Volatile Memory bit Incorrect flag at Powerdown		TRUE	Boolean					С	Runs ontinously	1	One Tri
						Disable Conditions:	MIL not Illuminated for DTC's:							
								ECM: None						
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>=	144	°C					>=	5	Fail Time (Sec)	One Tri
			Fail Case 2 Substrate Temperature Ignition Voltage		50 18	°C Volts					>=	2	Fail Time (Sec)	
			Note: either fail case can set the DTC											
							Ignition Voltage Lo Ignition Voltage Hi Substrate Temp Lo	>= <= >=	9 31.990234 0	Volts Volts °C				
							Substrate Temp Hi Substrate Temp Between Temp Range for Time	<= >=	0.25	°C Sec				
							P0634 Status is	≠	Test Failed This Key On or					
							1 0001 3 tatas 15	,	Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
High Side Driver 1	P0658	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (open or ground short) error flag		TRUE	Boolean					>=	4	Fail Counts	One Tri
											out of	6	Sample Counts	
							P0658 Status is not	=	Test Failed This Key On or Fault Active					

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable				ime	III
System	Code	Description	Criteria	Value		<b>-</b>	Conditions	Dooloor	-	кеф	juired	1111
					High Side Driver 1 On	=	True	Boolean				
				Disable	MIL not Illuminated for	TCM: None						
				Conditions:	DTC's:	I CIVI. INOTIE						
				Conditions.	D10 3.	ECM: None						
						LOWI. INDITE						
				Refer to Table					1			T
nsmission Control Module		TCM Internal Temp (substrate)	If transmission oil temp to	10 lm								Ť
M)	P0667	Sensor Circuit Range/Performance	substrate temp Δ	> supporting °C								'
,		J	,	documents								
												1
				Refer to Table								
			If TCM substrate temp to power	00.1								
			up temp Δ									
			' '	documents								
												ı
			Both conditions above required to						>=	3000	Fail Counts	
			increment fail counter						>=	3000	(100ms loop)	ı
			Note: table reference temp = to									ı
			the median temp of trans oil temp,						Out	3750	Sample Counts	1
			substrate temp and power up						of	3730	(100ms loop)	L
			temp.									1
			Non-continuous (intermittent) fail								Pass Counts	
			conditions will delay resetting fail						>=	700	(100ms loop)	
			counter until									
									Out	875	Sample Counts	1
									of		(100ms loop)	
					O: 11/11/1		TOUT	D 1				-
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Accelerator Position Signal	=	TRUE	Boolean				ı
					Valid		9	Valta				ı
					Ignition Voltage Lo Ignition Voltage Hi	>=		Volts				
					Engine Speed Lo	<=	31.990234	Volts RPM				
					Engine Speed Lo	>= <=	400 7500	RPM				
					Engine Speed is within the	<=		KFIVI				ı
					allowable limits for	>=	5	Sec				L
					Brake torque active	=	FALSE					ı
					Below describes the brake	_	TALSE					1
					torque entry criteria							ı
					Engine Torque	>=	90	N*m				
					Throttle	>=	30.000305	Pct				ı
					Transmission Input Speed	<=	200	RPM				ı
					Vehicle Speed	<=	8	Kph				ı
					Transmission Range	<b>≠</b>	Park	r				ı
					Transmission Range	<b>≠</b>	Neutral					ı
					PTO	=	Not Active					ı
					Set Brake Torque Active							1
					TRUE if above conditions are	>=	7	sec				l
					met for:							l
					Below describes the brake							1
					torque exit criteria							1
				l	Brake torque entry criteria	=	Not Met		1			

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria	Value	Maifunction	Conditions	Required	IIIum.
					Clutch hydraulic pressure	Hydraulic ≠ Air Purge Event		
					Clutch used to exit brake torque active	CeTFTD_e = _C3_RatlE nbl		
					The above clutch pressure is greater than this value for one loop	>= 600 kpa		
					Set Brake Torque Active FALSE if above conditions are met for:	>= 20 Sec		
					P0667 Status is	Test Failed This Key ≠ On or Fault Active		
				Disable Conditions		TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Control Module (TCM)	P0668	TCM internal temperature (substrate) thermistor failed at a low voltge	Type of Sensor Used	CeTFTI_e_Vo = ltageInverseP rop				Two Trips
			If TCM Substrate Temperature Sensor = Direct Proportional and Temp					
			If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	>= 254 °C				
			Either condition above will satisfy the fail conditions				>= 60 Fail Timer (Se	c)
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec  Test Failed		
					P0668 Status is	This Key ≠ On or Fault Active		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Tii Requ	ne ıired	Mil Illum.
System	Cous	- Description	<b>9</b> . 100 10		Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None				oqi		
Transmission Control Module (TCM)	P0669	TCM internal temperature (substrate) thermistor failed at a high voltage	Type of Sensor Used  If TCM Substrate Temperature Sensor = Direct Proportional and Temp  If TCM Substrate Temperature Sensor = Indirect Proportional and Temp  Either condition above will satisfy the fail conditions	rop >= -254 °C						>=	60	Fail Timer (Sec)	Two Trips
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.990234 400 7500 5 Test Failed This Key On or Fault	Volts Volts RPM RPM Sec				
						For Hybrids, below conditions must also be met Estimated Motor Power Loss Estimated Motor Power Loss greater than limit for time Lost Communication with Hybrid Processor Control Module Estimated Motor Power Loss Fault	>= >= = =	Active  0 0 FALSE	kW Sec				
				С	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  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				ime Juired	Ш
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up						Out of	3750	Sample Counts (100ms loop)	
			temp.  Non-continuous (intermittent) fail conditions will delay resetting fail						>=	700	Pass Counts	
			counter until							700	(100ms loop)	
									Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Accelerator Position Signal Valid	=	TRUE	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
					Engine Speed is within the							
					allowable limits for	>=	5	Sec				
					Brake torque active	=	FALSE					1
					Below describes the brake torque entry criteria							
					Engine Torque	>=	90	N*m				
					Throttle	>=	30.000305	Pct				
					Transmission Input Speed	<=	200	RPM				
					Vehicle Speed Transmission Range	<= ≠	8 Park	Kph				
					Transmission Range	<i>+</i> <i>+</i>	Neutral					
					PTO	=	Not Active					
					Set Brake Torque Active							
					TRUE if above conditions are met for:	>=	7	sec				
					Below describes the brake							1
					torque exit criteria							
					Brake torque entry criteria	=	Not Met Clutch					
					Clutch hydraulic pressure	<b>≠</b>	Hydraulic Air Purge					
							Event					
					Clutch used to exit brake	=	CeTFTD_e _C3_RatlE					
					torque active	=	_C3_RallE nbl					
					The above clutch pressure is greater than this value for one	>=	600	kpa				
					loop	/-	000	κμα				1
					Set Brake Torque Active							
					FALSE if above conditions are met for:	>=	20	Sec				
							Test Failed					١
					DO(AO C)	-/	This Key					1
					P06AC Status is	<b>≠</b>	On or Fault					1
							Active					1
	1 1		1				5 0		1			1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value Disable Conditions:	Malfunction  MIL not Illuminated for DTC's:	Conditions  TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730  ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E	Required	Illum.
Transmission Control Module	P06AD	TCM power-up thermistor circuit	Power Up Temp	<= 254 °C		1 0300,1 0307,1 0300,1 0401,1 0422	>= 60 Fail Time (Sec)	) Two
(TCM)		voltage low		Disable Conditions:	Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for P06AD Status is  For Hybrids, below conditions must also be met Estimated Motor Power Loss schimated Motor Power Loss greater than limit for time Lost Communication with Hybrid Processor Control Module Estimated Motor Power Loss Fault  MIL not Illuminated for DTC's:	>= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM <= 7500 RPM >= 5 Sec  Test Failed This Key  ≠ On or Fault Active  >= 0 kW >= 0 Sec  = FALSE  TCM: P0716, P0717, P0722, P0723  ECM: None		Trips
Transmission Control Module (TCM)	P06AE	TCM power-up thermistor circuit	Power Up Temp	>= -254 °C		ECIVI. NUITE	>= 60 Fail Time (Sec)	) Two
(1 Сии)		voltage high			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec  Test Failed This Key ≠ On or Fault Active		Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Illu
Oystelli	Code	Description	Official	Disable	MIL not Illuminated for	TCM: None	OUNGILIONS			псч	uncu	
				Conditions:	DTC's:							
						ECM: None						
		L		Refer to Table								T
ansmission Fluid	P0711	Trans Fluid Temp Sensor Circuit	If transmission oil temp to									Т
mperature Sensor (TFT)		Range/Performance	substrate temp $\Delta$	supporting								
				documents								
				Refer to Table								
			If transmission oil temp to power	40.1								
			up temp Δ									
			., ., .,	documents								
			Both conditions above required to								Fail Counts	ł
			increment fail counter						>=	3000	(100ms loop)	l
			Note: table reference temp = to						1		(	1
			the median temp of trans oil temp,						Out	2750	Sample Counts	
			substrate temp and power up						of	3750	(100ms loop)	ı
			temp.									l
			Non-continuous (intermittent) fail							700	Pass Counts	
			conditions will delay resetting fail counter until						>=	700	(100ms loop)	
			counter until						Out		Sample Counts	
									of	875	(100ms loop)	
											(1001115 100P)	
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Accelerator Position Signal	=	TRUE	Boolean				
					Valid							
					Ignition Voltage Lo	>=	9 31.990234	Volts Volts				
					Ignition Voltage Hi Engine Speed Lo	<= >=	400	RPM				
					Engine Speed Lo Engine Speed Hi	>= <=	7500	RPM				
					Engine Speed is within the							
					allowable limits for	>=	5	Sec				
					Brake torque active	=	FALSE					
					Below describes the brake							1
					torque entry criteria							
					Engine Torque	>=	90	N*m				
					Throttle	>=	30.000305	Pct				
					Transmission Input Speed	<=	200 8	RPM				
					Vehicle Speed Transmission Range	<= ≠	8 Park	Kph				
					Transmission Range	<i>≠</i> ≠	Neutral					
					PTO	=	Not Active					
					Set Brake Torque Active				1			1
					TRUE if above conditions are	>=	7	sec				1
					met for:							1
					Below describes the brake					-		1
					torque exit criteria							
					Brake torque entry criteria	=	Not Met		1			1
							Clutch		1			1
					Clutch hydraulic pressure	<b>≠</b>	Hydraulic Air Durgo					l
	1						Air Purge Event		1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Clutch used to exit brake torque active	CeTFTD_e = _C3_RatlE nbl		
					The above clutch pressure is greater than this value for one loop	>= 600 kpa		
					Set Brake Torque Active FALSE if above conditions are	>= 20 Sec		
					met for: P0711 Status is	Test Failed This Key ≠ On or Fault Active		
				Disable Conditions:		TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Fluid Temperature Sensor (TFT)	P0712	Transmission fluid temperature thermistor failed at a low voltage	Type of Sensor Used	CeTFTI_e_Vo = ltageInverseP rop				Two Trips
			If Transmission Fluid Temperature Sensor = Direct Proportional and Temp	<= 254 °C				
			If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	>= 254 °C				
			Either condition above will satisfy the fail conditions				>= 60 Fail Time (Sec)	,
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		
					P0712 Status is	Test Failed This Key ≠ On or Fault Active		
					For Hybrids, below conditions must also be met Estimated Motor Power Loss Estimated Motor Power Loss greater than limit for time	>= 0 kW >= 0 Sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
2,555					Lost Communication with Hybrid Processor Control Module Estimated Motor Power Loss	= FALSE = FALSE		
				Disable Conditions		TCM: P0716, P0717, P0722, P0723 ECM: None		
Transmission Fluid Temperature Sensor (TFT)	P0713	Transmission fluid temperature thermistor failed at a high voltage	Type of Sensor Used  If Transmission Fluid Temperature Sensor = Direct Proportional and Temp If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	rop >= -254 °C				Two Trips
			Either condition above will satisfy the fail conditions		Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec  Test Failed This Key  ≠ On or Fault Active	>= 60 Fail Time (Sec	)
				Disabl Conditions	e MIL not Illuminated for DTC's:	TCM: P0713, P0716, P0717, P0722, P0723 ECM: None		
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops	>= 1350 RPM			>= 0.8 Fail Time (Sec	One Trip
					Engine Torque is Engine Torque is Engine Speed Engine Speed is within the allowable limits for Vehicle Speed is Throttle Position is Transmission Input Speed is The previous requirement has been satisfied.	>= 0 N'm <= 8191.875 N'm >= 400 RPM <= 7500 RPM >= 5 Sec >= 10 Kph >= 0 Pct >= 0 RPM >= 0 Sec		

Component/	Fault	Monitor Strategy	Malfunction Criteria	Т	hreshold Value	Secondary Malfunction	Enable Conditions			Time	Mil
Component/ System	Fault	Monitor Strategy Description	Malfunction Criteria	Т	hreshold Value	Secondary Malfunction  The change (loop to loop) in transmission input speed is The previous requirement has been satisfied for Throttle Position Signal Valid Engine Torque Signal Valid Ignition Voltage Ignition Voltage	Enable   Conditions	ec lean lean lts		Time Required	Mil Illum.
Transmission Input Speed		Input Speed Sensor Circuit Low	Fail Case 1		Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0717, P0752, P0973, P097 ECM: P0101, P0102, P0103, P012 P0122, P0123				One Trip
Sensor (TISS)	P0717	Voltage	Transmission Input Speed is  Fail Case 2 When P0722 DTC Status equal to		RPM				>= 4.5	Fail Time (Sec	One mi
			Test Failed and Transmission Input Speed is		RPM	Controller uses a single power supply for the speed sensors	= 1 Boo				
						Engine Torque is Engine Torque is Vehicle Speed	>= 50 N' <= 8191.875 N' >= 16 K	m oh			
						Engine Torque Signal Valid Ignition Voltage Ignition Voltage Engine Speed	= TRUE Boo >= 9 Vc <= 31.990234 Vc >= 400 RF	lts lts PM			
						Engine Speed Engine Speed is within the allowable limits for	<= 7500 Rf >= 5 Si Test Failed				
						P0717 Status is not	This Key  = On or  Fault  Active				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, P0723 ECM: P0101, P0102, P0103				
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<= 35	RPM			:	>= 4.5	Fail Time (Sec	One Tri
						P0722 Status is not	Test Failed This Key On or Fault				
						Transmission Input Speed Check	Active = TRUE Boo				
	I	l	I	I		Engine Torque Check	= TRUE Boo	lean			I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	M Illu
					Throttle Position	>=	8.0001831	Pct		
					Transmission Fluid Temperature	>=	-40	°C		
					Disable this DTC if the PTO is					
					active	=	1	Boolean		
					Engine Torque Signal Valid	=	TRUE	Boolean		
					Throttle Position Signal Valid	=	TRUE	Boolean		
					Ignition Voltage is Ignition Voltage is	>=	9	Volts		
					Engine Speed is	<= >=	31.990234 400	Volts RPM		
					Engine Speed is	<=	7500	RPM		
					Engine Speed is within the	>=	5	Sec		
					allowable limits for	>-	J	360		
					Enable_Flags Defined Below					
					The Engine Torque Check is					
					TRUE, if either of the two					
					following conditions are TRUE					
					Engine Torque Condition 1		Dongo			
					Range Shift Status	<b>≠</b>	Range shift	ENUM		
						,	completed	2.10		
					OR		Dark			
					Transmission Range is	=	Park or Neutral			
					Engine Torque is	>=	8191.75	N*m		
					Engine Torque is	<=	8191.75	N*m		
					Engine Torque Condition 2					
					Engine Torque condition 2	>=	30	N*m		
					Engine Torque is	<=	8191.75	N*m		
					The Transmission Input Speed					
					(TIS) Check is TRUE, if either of the two following conditions					
					are TRUE					
					TIS Check Condition 1					
					Transmission Input Speed is	>=	1000	RPM		
					Transmission Input Speed is	<=	8191.75	RPM		
					TIS Check Condition 2					
					Engine Speed without the brake applied is	>=	3200	RPM		
					Engine Speed with the brake					
					applied is	>=	3200	RPM		
					Engine Speed is	<=	8191.75	RPM		
					Controller uses a single power	=	1	Boolean		
					supply for the speed sensors Powertrain Brake Pedal is		•			
					Powertrain Brake Pedal IS Valid	=	TRUE	Boolean		
					Yana					
	1 1		1	1						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum
бузіені	Code	Description	STATE IS		Disable Conditions:	MIL not Illuminated for DTC's:					леци	Ju	uill
							P0122, P01		-,,				
ransmission Output Speed ensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>= 105	RPM					>=	0	(Sec)	One T
			Output Speed Delta	<= 8191.75	RPM					>=	0	Enable Time (Sec)	
			Output Speed Drop	> 1000	RPM					>=	3	Output Speed Drop Recovery Fail Time (Sec)	
			AND									raii Tille (Sec)	
			Transmission Range is	= Driven rang (R,D)	e								
						 Range_Disable OR	=	FALSE	See Below				
						Neutral_Range_Enable	=	TRUE	See Below				
						And Neutral_Speed_Enable are TRUE concurrently	=	TRUE	See Below				
						Transmission_Range_Enable	=	TRUE	See Below				
						Transmission_Input_Speed_E nable	=	TRUE	See Below				
						No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds				
								Test Failed					
						P0723 Status is not	=	This Key On or					
								Fault Active					
						Disable this DTC if the PTO is	=	1	Boolean				
						active Ignition Voltage is	>=	9	Volts				
						Ignition Voltage is	<=	31.990234	Volts				
						Engine Speed is Engine Speed is	>= <=	400 7500	RPM RPM				
						Engine Speed is within the	>=	5	Sec				
						allowable limits for Enable_Flags Defined Below							
						Transmission_Input_Speed_E							
						nable is TRUE when either TIS							
						Condition 1 or TIS Condition 2 is TRUE:							
						TIS Condition 1 is TRUE when			Enable Time				
						both of the following conditions	>=	0	(Sec)				
						are satsified for Input Speed Delta	<=	4095	RPM				
	1					Raw Input Speed	>=	500	RPM				l

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	1
System	Code	Description	Oritoria	Value	TIS Condition 2 is TRUE when		Jonations	<del> </del>	rrequired	<del>-   '''</del>
					ALL of the next two conditions					
					are satisfied					
					Input Speed	=	0	RPM		
					A Single Power Supply is used	_				
					for all speed sensors	=	TRUE	Boolean		
					ioi ali speed serisors					
					Neutral_Range_Enable is					
					TRUE when any of the next 3					
					conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
					Transmission Range is			LIVOIVI		
							Reverse/N			
					Transmission Range is	=	eutral	ENUM		
							Transitonal			
							Neutral/Dri			
							ve			
					Transmission Range is	=	Transitiona	ENUM		
							I			
					And when a drop occurs					
					Loop to Loop Drop of	>	650	RPM		
					Transmission Output Speed is					
					Range_Disable is TRUE when					
					any of the next three					
					conditions are TRUE					
					Transmission Range is	=	Park	ENUM		
					,g					
							Park/Reve			
					Transmission Range is	=	rse	ENUM		
							Transitonal			
							ON (Fully			
					Input Clutch is not	=	Applied)	ENUM		
							, ippliou)			
	1 1				Neutral_Speed_Enable is					
					TRUE when All of the next		1.5	C		
					three conditions are satsified	>	1.5	Seconds		
					for					
					Transmission Output Speed	>	130	RPM		
	1 1				The loop to loop change of the					
						<	125	RPM		
					Transmission Output Speed is					
					The loop to loop change of the					
					Transmission Output Speed is	>	-10	RPM		
					Transmission Output Speed IS					
					Transmission_Range_Enable			T		
					is TRUE when one of the next					
					six conditions is TRUE					
					Transmission Range is	=	Neutral	ENUM		
	1 1						Reverse/N			
					Transmission Range is	=	eutral	ENUM		
				I I	Hansinission kande is	=	Transitiona	LINUIVI		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time quired	Mil Illum.
System	Code	Description	Gracia.	value	Transmission Range is	Neutral/Dri ve ENUM Transitiona	, and the second	чиней	
					Time since a driven range (R,D) has been selected	Table Based Time Please Sec Refer to Table 21 in supporting documents			
					Transmission Output Speed Sensor Raw Speed Output Speed when a fault was detected	>= 500 RPM >= 500 RPM			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0973, P0974, P0976, P0977 ECM: P0101, P0102, P0103, P0121, P0122, P0123			
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be Met	'			>= 2	Enable Time (Sec)	Two Trips
			(A) TCC Slip Error @ TCC On Mode	Refer to Table 1 in RPM Supporting Documents			>= 5	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode If Above Conditions Have been				>= 5	Fail Time (Sec)	
			Met, and Fail Timer Expired, Increment Fail Counter				>= 2	TCC Stuck Off Fail Counter	
					TCC Mode  Ignition Voltage Lo  Ignition Voltage Hi Engine Speed Engine Speed is within the allowable limits for Engine Torque Lo Engine Torque Hi Throttle Position Lo Throttle Position Hi 2nd Gear Ratio Lo 3rd Gear Ratio Lo 3rd Gear Ratio High 4th Gear Ratio Lo 4th Gear Ratio Lo 5th Gear Ratio Lo	>= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec >= 50 N*m <= 8191.875 N*m >= 8.0001831 Pct <= 99.998474 Pct >= 2.7528076 Ratio <= 3.1672363 Ratio >= 1.7762451 Ratio <= 2.0437012 Ratio >= 1.3485107 Ratio <= 1.5515137 Ratio			

Component/	Fault	Monitor Strategy	Malfunction			eshold	Secondary Malfunction		Enable				ime	Mil Illum.
System	Code	Description	Criteria	-	Va	alue	5th Gear Ratio Hi	_	1.0699463	Ratio	$\vdash$	Kec	uired	ilium.
							6th Gear Ratio Lo	<= >=	0.6975098	Ratio				
							6th Gear Ratio High	>= <=	0.8024902	Ratio				
							Transmission Fluid	<=						
							Temperature Lo	>=	-6.65625	°C				
							Transmission Fluid							
							Temperature Hi	<=	130	°C				
							PTO Not Active	=	TRUE	Boolean				
							Engine Torque Signal Valid	=	TRUE	Boolean				
							Throttle Position Signal Valid	=	TRUE	Boolean				
							Dynamic Mode	=	FALSE	Boolean				
									Test Failed					
									This Key					
							P0741 Status is	<b>≠</b>	On or					
									Fault					
									Active		1			1
											1			1
						<u> </u>		TO14 5	, DOZ42 DOC-		1			1
						Disable	MIL not Illuminated for			2, P0723,				
						Conditions:	DIC's:	P0742, P27	63, P2764					
								ECM DO10	1 D0100 D010	2 D010/				
									11, P0102, P010					
									08, P0171, P01					
									01, P0202, P020					
									06, P0207, P020 02, P0303, P030					
									02, F0303, F03 07, P0308, P04					
								1 0300, 1 03	07,1 0300,1 04	J1, 1 042L				
Torque Converter Clutch	P0742	TCC System Stuck ON	TCC Slip Speed	>=	-60	RPM								One Trip
(TCC)			TCC Slip Speed		30	RPM								
											>=	0.4	Fail Time (Sec)	
			If Above Conditions Have been											
			Met, and Fail Timer Expired,								>=	5	Fail Counter	
			Increment Fail Counter											
							TCC Mode	=	Off					
							Enable test if Cmnd Gear =	=	1	Boolean	1			1
							1stFW and value true	=	1	DOORGII	1			1
							Enable test if Cmnd Gear =	=	0	Boolean	1			1
							2nd and value true	_						
							Engine Speed Hi	<=	6000	RPM				
							Engine Speed Lo	>=	500	RPM				
							Vehicle Speed HI	<=	511	KPH				
							Vehicle Speed Lo	>=	1 0101 075	KPH	1			1
							Engine Torque Hi	<=	8191.875	Nm	1			1
							Engine Torque Lo	>= ≠	35 Neutral	Nm	1			1
							Current Range Current Range	<i>∓</i> ≠	Reverse	Range Range	1			1
							Transmission Sump	<i>+</i>						
							Temperature	<=	130	°C	1			1
							Transmission Sump							
							Temperature	>=	15	°C				
							Throttle Position Hyst High	>=	10.00061	Pct				
							AND				1			1
							Max Vehicle Speed to Meet	<=	8	KPH	1			1
		ı					Throttle Enable	i e						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
System	Code	Description	Griteria	value	Once Hyst High has been met,		CONTUNIONS		$\vdash$	rec	lanea	muni.
					the enable will remain while	>=	2.0004272	Pct				
					Throttle Position							
					Disable for Throttle Position	>=	75	Pct				
					Disable if PTO active and	=	1	Boolean				
					value true	=	ı	Boolean				
					Disable if in D1 and value true	=	1	Boolean				
					Disable if in D2 and value true	=	1	Boolean				
					Disable if in D3 and value true	=	1	Boolean				
					Disable if in D4 and value true	=	1	Boolean				
					Disable if in D5 and value true	=	1	Boolean				
					Disable if in MUMD and value	=	1	Boolean				
					true							
					Disable if in TUTD and value	=	1	Boolean				
					true		FALSE	Dooloon				
					4 Wheel Drive Low Active Disable if Air Purge active and	=	FALSE	Boolean				
					value false	=	0	Boolean				
					RVT Diagnostic Active	=	FALSE	Boolean				
					Ignition Voltage	>=	9	V				
					Ignition Voltage	<=	31.990234	V				
					Vehicle Speed	<=	511	KPH				
					Engine Speed	>=	400	RPM				
					Engine Speed	<=	7500	RPM				
					Engine Speed is within the							
					allowable limits for	>=	5	Sec				
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Throttle Position Signal Valid	=	TRUE	Boolean				
					, and the second		Test Failed					
							This Key					
					P0742 Status is	≠	On or					
							Fault					
							Active					
				Disable	MIL not Illuminated for			, P0723,				
				Conditions	DTC's:	P0741, P276	53, P2764					
							1, P0102, P0103					
							08, P0171, P017					
							01, P0202, P020					
							)6, P0207, P020 )2, P0303, P030					
							02, F0303, F030 07, P0308, P040					
						1 5500, 1 050	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	/1,1 UTZL				
	D0==-	01/0 0 1 11/1 1 2 2 2 2		100 5511								Two
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400 RPM								Trips
			Commanded Gear	= 1st Lock rpm								
			Gear Ratio	<= 1.518310547					>=	0.3	Fail Tmr	
			Gear Ratio	>= 1.373657227					=	5	Fail Counts	
			If the above parameters are true									
									<b>≠</b>	0	Neutral Timer	
									´	J	(Sec)	
									>=	0.3	Fail Timer (Sec)	
									>=	8	Counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Conditions		Tim Requi		Mil Illum.
oyotem	Jour	Description		Vui		Ignition Voltage Hi	<=	31.990234	Volts	. toqui		
						Engine Speed Lo	>=	400	RPM			
						Engine Speed Hi	<=	7500	RPM			
						Engine Speed is within the allowable limits for	>=	5	Sec			
						Transmission Fluid						
						Temperature	>=	-6.65625	°C			
								Range				
						Range Shift State	=	Shift	ENUM			
						·		Completed				
						TPS OR	>=	0.5004883	%			
						Output Speed	>=	100	RPM			
						Throttle Position Signal Valid	=	TRUE	Boolean			
						from ECM	_	TRUL	Doolean			
						Engine Torque Signal Valid from ECM, High side driver is	=	TRUE	Boolean			
						enabled	=	IKUE	DUUIEAII			
						High-Side Driver is Enabled	=	TRUE	Boolean			
						Input Speed Sensor fault	=	FALSE	Boolean			
						Output Speed Sensor fault	=	FALSE	Boolean			
						Default Gear Option is not present	=	TRUE				
						present						
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716	5, P0717, P0722	., P0723,			
					Conditions:	DICS:	P182E					
								1, P0102, P0103				
								08, P0171, P017				
								01, P0202, P020 06, P0207, P020				
								02, P0303, P030				
								07, P0308, P040				
ada 2 Multiplau Valus	D07F2	Chiff Calamaid Value A Chual On	Coor Pou Clin	400	RPM					-		One Tri
ode 2 Multiplex Valve	P0/52	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 400	KPM							One Tri
			Commanded Gear	= 3rd	Gear							
			Commanded Gear has Achieved									
			1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol.	= TRUE	Boolean							
			Commanded On									
			If the above parameters are true									
			·							Please Refer		
											Neutral Timer	
										Supporting Documents	(Sec)	
			Command 4th Gear once Output							Documents		
			Shaft Speed	<= 1000	RPM							
				>= 4.354858398								
			And Gear Ratio	<= 4.813232422								
										>= 1.5	Fail Timer (Sec)	
										>= 5	Counts	I

System		Described.		Critorio			dua		Malfunction		Comelistan			9	Mil Illum.
Cystem	Code	Description		Criteria		Va	lue		Ignition Voltage Lo	>=	Conditions 9	Volts	Requir	ed	IIIum.
									Ignition Voltage Hi	>= <=	31.990234	Volts			
									Engine Speed Lo	>=	400	RPM			
									Engine Speed Hi	<=	7500	RPM			
									Engine Speed is within the	\	5	Sec			
									allowable limits for	>=					
									High-Side Driver is Enabled	=	TRUE	Boolean			
									Throttle Position Signal Valid	=	TRUE	Boolean			
									from ECM Output Speed	>=	100	RPM			
									Output Speed OR	>=	100	KFIVI			
									TPS	>=	0.5004883	%			
									Range Shift State	=	Range Shift	ENUM			
									Range Shirt State	_	Completed	LIVOIVI			
									Townson leading Florid						
									Transmission Fluid Temperature	>=	-6.65625	°C			
									Input Speed Sensor fault	=	FALSE	Boolean			
									Output Speed Sensor fault	=	FALSE	Boolean			
									Default Gear Option is not	=					
									present	=	TRUE				
									MIL was Illianda at a difere	TOM D071/	, D0343 D0300	D0700			
							ט Condi	isable	MIL not Illuminated for DTC's:		o, P0/17, P0/22	, P0723,			
							Condi	tions.	DIC 3.	FIOZE					
										ECM: P0101	1, P0102, P0103	, P0106,			
											08, P0171, P017				
											01, P0202, P020				
											06, P0207, P020				
											02, P0303, P030 07, P0308, P040				
										FU300, FU30	J7, F0306, F040	1, FU4ZL			
		Pressure Control (PC) Solenoid B	Fail Case 1												One Trip
Variable Bleed Solenoid (VBS)	P0776	Stuck Off [C35R]		Case: Steady State 3rd Gear											
				Commanded Gear	=	3rd	Gear								
				Gearbox Slip	>=	400	RPM								
													Please Refer		
													>= to Table 16 in Supporting	(Sec)	
													Documents	(360)	
				Command 4th Gear once Output									Documents		
				Shaft Speed	<=	1000	RPM								
				If Gear Ratio	>= 1.3	373657227	,								
				And Gear Ratio	<= 1.5	18310547	'								
													>= 3	Fail Timer (Sec)	)
				It the above condiations are true,										3rd Gear Fail	
				It the above condiations are true, Increment 3rd gear fail counter									>= 2	Counts	
				oromone ora gear rail counter									1	Or	
				and COED Fall according									. 14	3-5R Clutch	
				and C35R Fail counter									>= 14	Fail Counts	
			Fail Case 2	Case: Steady State 5th Gear			_	T							
				Commanded Gear	1 -	5th	Gear			l					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Gearbox Slip	>= 400 Rpm			Please Refer to Table 5 in Neutral Timer >= Supporting (Sec) Documents	
			Intrusive Test: Command 6th Gear					
			If attained Gear=6th gear Time	Please refer to Table 3 in supporting documents  High Time (Sec)				
			It the above condiations are true, Increment 5th gear fail counter	documents			>= 3 5th Gear Fail Counts	
			and C35R Fail counter				>= 14 3-5R Clutch Fail Counts	
					PRNDL State defaulted inhibit RVT	= FALSE Boolean = FALSE Boolean	1 011 0001110	
					IMS fault pending indication TPS validity flag	= FALSE Boolean = TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for RVT	>= 100 RPM		
					A OR B (A) Output speed enable	>= 100 RPM		
					(B) Accelerator Pedal enable Common Enable Criteria	>= 0.5004883 Pct		
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi Engine Speed Lo	<= 31.990234 Volts >= 400 RPM		
					Engine Speed Hi Engine Speed is within the	<= 7500 RPM		
					allowable limits for	>= 5 Sec		
					Throttle Position Signal valid HSD Enabled	= TRUE Boolean = TRUE Boolean		
					Transmission Fluid Temperature	>= -6.65625 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault Default Gear Option is not	= FALSE Boolean		
					present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174,		
						P0175, P0201, P0202, P0203, P0204,		
						P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B	Fail Case 1 Case: Steady State 1st					One Trip
Table Blood Colonia (VBO)		Stuck On [C35R] (Steady State)	Attained Gear slip	>= 400 RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	,	Time Required	
	2040	2000, patri	If the Above is True for Time	Table Based Time Please Refer to Table Enable Time >= 4 in (Sec)					
				supporting documents					
			Intrusive test: (CBR1 clutch exhausted)						
			Gear Ratio	<= 2.007324219 >= 1.744628906					
			If the above parameters are true	>= 1.744028900					
							>= 1.1	Fail Timer (Sec)	.)
							>= 2	Fail Count in 1st Gear	
								or	
							>= 3	Total Fail Counts	
			Fail Case 2 Case: Steady State 2nd gear	Table Based					
			Mary Dalla Control Consol	value Disecs					
			Max Delta Output Speed Hysteresis	>= Refer to Table rpm/sec					l
				supporting documents					l
				Table Based					
			Min Delta Output Speed	Refer to Table ,					l
			Hysteresis	>= 23 in rpm/sec supporting					
				documents Table Based					
				Time Please					
			If the Above is True for Time	1 / In					
				supporting documents					
			Intrusive test: (CB26 clutch exhausted)						l
			Gear Ratio	<= 2.007324219					
			Gear Ratio  If the above parameters are true	>= 1.744628906					
							>= 1.1	Fail Timer (Sec)	.)
							>= 3	Fail Count in 2nd Gear	
								or	
							>= 3	Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear	Table Based					1
				value Please					
			Max Delta Output Speed Hysteresis	>= Refer to Table rpm/sec 22 in					
				supporting documents					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	
			1 2	Table Based	1	****			T
				value Please					1
			Min Delta Output Speed	>= Refer to Table rpm/sec					
			Hysteresis		1				
				supporting	1				1
				documents	1				1
				Table Based	1				
				Time Please	1				
			If the Above is True for Time	>= Refer to Table Sec	1				
				supporting	1				
				documents					
			Intrusive test:	accament					
			(C1234 clutch exhausted)						
				<= 1.069946289					
				>= 0.930053711					
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec	c)
								Fail Count in	
							>= 3	4th Gear	1
								or Or	
								Total Fail	1
							>= 3	Counts	
			Fail Case 4 Case: Steady State 6th gear						1
				Table Based					
				value Please					
			Max Delta Output Speed	>= Refer to Table rpm/sec					
			Hysteresis	>= 22 in rpm/sec supporting					
				documents	1				
				Table Based					
				value Bloace					
			Min Delta Output Speed	>= Refer to Table rpm/sec	1				
			Hysteresis	>= 23 in rpm/sec					
				supporting					
				documents					
				Table Based					
				Time Please					
			If the Above is True for Time	>= Refer to Table Sec					1
				supporting					
				documents					
			Intrusive test:						
			(CB26 clutch exhausted)						
			Gear Ratio	<= 1.069946289			>= 1.1	Fail Timer (Sec	င)
			Gear Ratio	>= 0.930053711			>= 3	counts	
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec	c)
							>= 3	Fail Count in	
								6th Gear	
								or Total Fail	
							>= 3	Counts	
	1				PRNDL State defaulted	= FALSE Boolea		Counts	4

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
-,5.6					i	inhibit RVT	=	FALSE	Boolean		
						IMS fault pending indication	=	FALSE	Boolean		
						output speed	>=	0	RPM		
						TPS validity flag	=	TRUE	Boolean		
						HSD Enabled	=	TRUE	Boolean		
						Hydraulic_System_Pressurize	=	TRUE	Boolean		
						A OR B					
						(A) Output speed enable	>=	100	Nm		
						(B) Accelerator Pedal enable	>=	0.5004883	Nm		
						Ignition Voltage Lo	>=	9	Volts		
						Ignition Voltage Hi	<=	31.990234	Volts		
						Engine Speed Lo	>=	400	RPM		
						Engine Speed Hi	<=	7500	RPM		
						Engine Speed is within the	>=	5	Sec		
						allowable limits for		3	300		
						if Attained Gear=1st FW	>=	10.00061	Pct		
						Accelerator Pedal enable		10.00001			
						if Attained Gear=1st FW	>=	45	Nm		
						Engine Torque Enable					
						if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm		
						Transmission Fluid					
						Temperature	>=	-6.65625	°C		
						Input Speed Sensor fault	=	FALSE	Boolean		
						Output Speed Sensor fault	=	FALSE	Boolean		
					Disable	MIL not Illuminated for		P0717, P0722	, P0723,		
				C	onditions:	DTC's:	P182E				
							E014 D0404	D0400 D0400	D040/		
								P0102, P0103			
								8, P0171, P017			
								1, P0202, P020 5, P0207, P020			
								2, P0303, P030			
								7, P0308, P040			
								,, , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	.,		
			Primary Offgoing Clutch is								One Trip
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B	exhausted (See Table 12 in	= TRUE Boole	an						
Variable bleed Soleriold (VBS)	FUITI	StuckOn [C35R] (Dymanic)	Supporting Documents for	= INUE BOOIE	all						
			Exhaust Delay Timers)								
			Primary Oncoming Clutch	= Maximum							
			Pressure Command Status	pressurized							
			Primary Offgoing Clutch Pressure	Clutch							
			Command Status	= exhaust							
				command , Initial Clutch							
			Range Shift Status	≠ Control						1	1
			Attained Gear Slip							1	
			,aou dear onp								
			If the above conditions are true							1	
			run appropriate Fail 1 Timers							1	
			Below:								
			fail timer 1	>= 0.5 Fail T	ime (Sec)						
1			(3-1 shifting with Closed Throttle)	/- 0.5 Tall II	11110 (000)					1	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	ı
			fail timer 1 (3-2 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			(3-2 Shifting with Throttle)					
			(3-2 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	>= 0.400390625 Fail Time (Sec)				
			(3-4 shifting with Throttle) fail timer 1	(/				
			(3-4shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	>= 0.400390625 Fail Time (Sec)				
			(3-5 shifting with Throttle) fail timer 1					
			(3-5 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	>= 0.400390625 Fail Time (Sec)				
			(5-3 shifting with Throttle) fail timer 1					
			(5-3 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	>= 0.400390625 Fail Time (Sec)				
			(5-4 shifting with Throttle) fail timer 1					
			(5-4 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	>= 0.400390625 Fail Time (Sec)				
			(5-6 shifting with Throttle) fail timer 1					
			(5-6 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
							Total Fail	
							Time = (Fail 1	
							+ Fail 2) See Enable	
			If Attained Gear Slip is Less than				Timers for Fail	
			Above Cal Increment Fail Timers				>= Timer 1, and	
							Reference Supporting	
							Table 15 for	
							Fail Timer 2	
			If fail timer is greater than					
			threshold increment corresponding					
			gear fail counter and total fail counter					
			3rd gear fail counter				>= 3 3rd gear fail	ı
			Siù gear fair counter				counts	
							OR 5th gear fail	П
			5th gear fail counter				>= 3 strigearian	
			T-4-16-11				OR	
			Total fail counter		TUT Enable temperature	>= -6.65625 °C	>= 3 total fail count	ıs
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear High Side Driver ON	≠ 1st Boolean = TRUE Boolean		
					output speed limit for TUT	>= 200 RPM		
					input speed limit for TUT	>= 200 RPM		
					PRNDL state defaulted IMS Fault Pending	= FALSE Boolean = FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
	1				HSD Enabled	= TRUE Boolean		- 1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
- Cystem	Joue	Бозоприон	oriu	Talue	Default Gear Option is not			
					present	= TRUE		
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,		
				Conditions:	DTC's:			
						ECM: P0101, P0102, P0103, P0106,		
						P0107, P0108, P0171, P0172, P0174,		
						P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300,		
						P0301, P0302, P0303, P0304, P0305,		
						P0306, P0307, P0308, P0401, P042E		
Transmission Output Spand								One Trip
Transmission Output Speed Sensor (TOSS)	P077C	Output Speed Sensor Circuit Low	TOSS Analog Signal Voltage	<= 0.25 Volts			>= 5.00E-02 sec	One mp
,				Test Failed				
			P077C Status is not					
				or Fault Active				
			If the above conditons have been					
			met, increment the P077C Fail Counter					
			DTC P077C Sets when the Fail					
			Counter					
					P077C Enable Calibration Ignition Voltage Lo	= 1 Boolean >= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					ů ů			
				Disable	MIL not Illuminated for	TCM: D077D		
				Conditions:	DTC's:	TCWLT 077D		
Transmission Output Speed							<del> </del>	One Trip
Sensor (TOSS)	P077D	Output Speed Sensor Circuit High	TOSS Analog Signal Voltage	>= 4.75 Volts			>= 5.00E-02 sec	One mp
				Test Failed				
			P077D Status is not					
				or Fault Active				
			If the above conditons have been met, increment the P077D Fail					
			met, increment the P077D Fall Counter					
			DTC P077D Sets when the Fail	>= 75 Counts				
			Counter	, >= 10 Counts	DOZZD Enable Calibration	1 Dooloon		
					P077D Enable Calibration Ignition Voltage Lo	= 1 Boolean >= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
				Disable	MIL not Illuminated for	TCM: P077C		
				Conditions:	DTC's:	· · · · · · ·		
W	D0==:	Pressure Control (PC) Solenoid C	Fail Case 1 Case: Steady State 4th Case					One Trip
Variable Bleed Solenoid (VBS)	P0796	Stuck Off [C456] (Steady State)	Case: Steady State 4th Gear	]				

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tir Requ		Mil Illum.
Oyoto	0000	2000.1511011	5.1.5.12		Hydraulic System Pressurized	= TRUE Boolean			
					Minimum output speed for	>= 100 RPM			
					RVT	>= 100 Ki W			
					A OR B (A) Output speed enable	>= 100 RPM			
					(B) Accelerator Pedal enable	>= 100 RPM >= 0.5004883 Pct			
					Common Enable Criteria	>= 0.3004003 T Ct			
					Ignition Voltage Lo	>= 9 Volts			
					Ignition Voltage Hi	<= 31.990234 Volts			
					Engine Speed Lo	>= 400 RPM			
					Engine Speed Hi	<= 7500 RPM			
					Engine Speed is within the allowable limits for	>= 5 Sec			
					Throttle Position Signal valid	= TRUE Boolean			
					HSD Enabled	= TRUE Boolean			
					Transmission Fluid	>= -6.65625 °C			
					Temperature				
					Input Speed Sensor fault	= FALSE Boolean			
					OutputSpeed Sensor fault Default Gear Option is not	= FALSE Boolean			
					present	= TRUE			
					present				
				Disable		TCM: P0716, P0717, P0722, P0723,			
				Conditions:	DTC's:	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			
						F0300, F0307, F0306, F0401, F042E			
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C	Fail Case 1 Case: Steady State 1st						One Tri
variable bleed Soleriold (VBS)	10///	Stuck On [C456] (Steady State)	-						
			Attained Gear slip						
				Table Based Time Please					
				Pofor to Table Enable Time					
			If the Above is True for Time	>= 4 in (Sec)					
				supporting					
				documents					
			Intrusive test:						
			(CBR1 clutch exhausted)						
				<= 1.529052734 >= 1.328979492					
			If the above parameters are true	>= 1.320979492					
							>= 1.1	Fail Timer (Sec)	
								Fail Count in	
							>= 2	1st Gear	
								or	
							>= 3	Total Fail	
							1	Counts	I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	п
- Joseph		2000.100011	2	Table Based			quou	<del> </del>
				value Diseas				
			Max Delta Output Speed	>= Refer to Table rpm/sec				
			Hysteresis	>= 22 in rpm/sec				
			Trysteresis	supporting				
				documents				
				Table Based				
			Min Dalla Outsut Count	value Please				
			Min Delta Output Speed	>= Refer to Table rpm/sec				
			Hysteresis					
				supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Sec				
				17 111				
				supporting	1			- 1
				documents				
			Intrusive test:					
			(CB26 clutch exhausted)					
				<= 1.529052734				
				>= 1.328979492				
			If the above parameters are true					
							>= 1.1 Fail Timer	(Sec)
								· '
							>= 3 Fail Cou	
							>= 3 2nd Ge	ar
							or	
							>= 3 Total fail o	ounts
							>= 5 Total fail C	ounts
			Fail Case 3 Case Steady State 3rd					
			- an case of the state of a	Table Based				
				value Pleace				
			Max Delta Output Speed	>= Refer to Table rpm/sec				
			Hysteresis	>= Refer to Table rpm/sec				
			Trysteresis	supporting				
				documents				
				Table Based				
				value Please	1			- 1
	- 1		Min Delta Output Speed					
			Hysteresis	>= Refer to Table rpm/sec 23 in				- 1
			Trysteresis	supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table 17 in Sec				
				17 111				- 1
				supporting	1			- 1
			formula and	documents				
			Intrusive test:					
			(C35R clutch exhausted)		1			- 1
				<= 1.529052734	1			
				>= 1.328979492				- 1
			If the above parameters are true					
	- 1				1		>= 1.1 Fail Timer	(202)
					i I			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
Gyatem	Joue	Description		Talue			aidioi15		<u> </u>		Fail Count in	
									>=	3	3rd Gear	
										OR		
									>=	3	Total Fail	
					DDMDI OLI I I I II I		541.05	D 1	<u> </u>		Counts	_
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT IMS fault pending indication	= =	FALSE FALSE	Boolean Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurize							
					d	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	100	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the	>=	5	Sec				
					allowable limits for if Attained Gear=1st FW							
					Accelerator Pedal enable	>=	10.00061	Pct				
					if Attained Gear=1st FW							
					Engine Torque Enable	>=	45	Nm				
					if Attained Gear=1st FW							
					Engine Torque Enable	<=	8191.875	Nm				
					Transmission Fluid							
					Temperature	>=	-6.65625	°C				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not	=	TRUE					
					present	_	TRUE					
				Disab			6, P0717, P0722	2, P0723,				
				Condition	s: DTC's:	P182E						
						ECM. D010	1 D0102 D010	2 D0104				
							1, P0102, P0103 08, P0171, P01					
							06, P0171, P01 01, P0202, P02					
							06, P0207, P020					
							02, P0303, P03					
							07, P0308, P04					
	Ī		Primary Offgoing Clutch is									One Trip
Variable Blood Calonald (VBC)	P0797	Pressure Control (PC) Solenoid C	exhausted (See Table 11 in	_ TDIJE Booloop								1
Variable Bleed Solenoid (VBS)	P0/9/	Stuck On [C456] (Dynamic)	Supporting Documents for	= TRUE Boolean								
			Exhaust Delay Timers)									
			Primary Oncoming Clutch	Maximum								
1			Pressure Command Status	pressurized								
			Primary Offgoing Clutch Pressure	Clutch								
			Command Status	= exhaust								
1	I	I	1	command	1	l			I			I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mi
			Range Shift Status	✓ Initial Clutch				
			-	Control				
			Attained Gear Slip	<= 50 RPM				
			If the above conditions are true					
			increment appropriate Fail 1					
			Timers Below: fail timer 1					
			(4-1 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(4-1 shifting without throttle) fail timer 1					
			(4-2 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(4-2 shifting without throttle) fail timer 1					
			(4-3 shifting with throttle)	>= 0.700195313 Fail Time (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(4-3 shifting without throttle) fail timer 1					
			(5-3 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(5-3 shifting without throttle) fail timer 1					
			(6-2 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(6-2 shifting without throttle)					
							Total Fail Time = (Fail 1	
							+ Fail 2) See	
							Enable	
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				>= Timers for Fail sec	
			Above Cal inclement Fall Timers				Reference	
							Supporting	
							Table 15 for Fail Timer 2	
							raii filliei 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	1
			5th gear fail counter				>= 3 Fail Counter	
			San gear ran counter				From 5th Gear OR	ſ
			(the many fell extended				Fail Counter	
			6th gear fail counter				>= 3 From 6th Gear	
							OR Total Fail	
			Total fail counter				>= 3 Counter	
					TUT Enable temperature	>= -6.65625 °C		1
					Input Speed Sensor fault Output Speed Sensor fault	= FALSE Boolean = FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Oystem	Ouc	Везоприон	- Childrid	74140	High Side Driver ON	= TRUE Boolean	Roganou	
					output speed limit for TUT input speed limit for TUT	>= 200 RPM >= 200 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,		
				Conditions:	DTC's:	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		
Transmission Input Speed	P07BF	Input/Turbine Speed Sensor A Circuit Low	TISS Analog Signal Voltage	<= 0.25 Volts			>= 5.00E-02 sec	One Trip
Sensor (TISS)		Circuit Low						
			DOZDE Chabas la mat	Test Failed				
			P07BF Status is not	<ul> <li>This Key On or Fault Active</li> </ul>				
				of Fault Active				
			If the above conditons have been met, increment the P07BF Fail					
			Met, increment the PO/BF Fall Counter					
			DTC P07BF Sets when the Fail	75 0				
			Counter	>= 75 Counts				
					P07BF Enable Calibration	= 1 Boolean		
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
				Disable	MIL not Illuminated for	TCM: P07C0		
				Conditions:	DTC's:			
Transmission Input Speed	P07C0	Input/Turbine Speed Sensor A	TISS Analog Signal Voltage	>= 4.75 Volts			>= 5.00E-02 sec	One Trip
Sensor (TISS)	1 07 00	Circuit High	1133 / thatog Signal Voltage	1.75 VOILS			y= 0.00E 02 300	
				Test Failed				
			P07C0 Status is not					
				or Fault Active				
			If the above conditons have been					
			met, increment the P07C0 Fail					
			Counter					_
			DTC P07C0 Sets when the Fail Counter	>= 75 Counts				
			Counter		P07C0 Enable Calibration	= 1 Boolean		
					Ignition Voltage Lo	>= 9 Volts		
	1			1	Ignition Voltage I II	<= 31.990234 Volts		
					Ignition Voltage Hi	<= 31.990234 VOIIS		

Component/	Fault	Monitor Strategy		Malfunction		reshold	Secondary Malfunction	Enable		Time	Mil Illum.
System	Code	Description		Criteria		/alue		Conditions TOM: DOZDE	Re	quired	IIIum.
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P07BF			
						Conditions.	DIC 3.				
ap Up Tap Down Switch	P0815	Upshift Switch Circuit	Fail Case 1	Tap Up Switch Stuck in the Up	= 1	Boolean					Specia
TUTD)		'		Position in Range 1 Enabled							No MI
				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	= 1	Boolean					
				Position in Range 4 Enabled	= 1	boolean					
				Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 5 Enabled Tap Up Switch Stuck in the Up							
				Position in Range 6 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up	0	Dealess					
				Position in Neutral Enabled	= 0	Boolean					
				Tap Up Switch Stuck in the Up	= 0	Boolean					
				Position in Park Enabled	-						
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0	Boolean					
				Tap Up Switch ON	= TRUE	Boolean			>= 1	Fail Time (Sec)	
										(000)	
			Fail Case 2	Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 1 Enabled							
				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	= 1	Boolean					
				Position in Range 4 Enabled	•						
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up							
				Position in Range 6 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up	= 0	Boolean					
				Position in Neutral Enabled	-						
				Tap Up Switch Stuck in the Up Position in Park Enabled	= 0	Boolean					
				Tap Up Switch Stuck in the Up							
				Position in Reverse Enabled	= 0	Boolean					
				Tap Up Switch ON	= TRUE	Boolean					
				NOTE: Both Failcase1 and					>= 120	Fail Time (Sec)	
				Failcase 2 Must Be Met						. ,	-

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold 'alue	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Gilleria	•	aue	Time Since Last Range Change Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= 1		
					Disable Conditions:		TCM: P0816, P0826, P182E, P1876, P1877, P1915, P1761		
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1	Boolean		ECM: None		Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	= 0	Boolean				
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	= 0	Boolean				
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	= 0	Boolean				
			Tap Down Switch ON	= TRUE	Boolean			>= 1	sec
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 1	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction	Enable Conditions			ime quired	Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	_ 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Neutral Enabled Tap Down Switch Stuck in the	= 0	Boolean						
			Down Position in Park Enabled  Tap Down Switch Stuck in the	= 0	Boolean Boolean						
			Down Position in Reverse Enabled Tap Down Switch ON NOTE: Both Failcase1 and		Boolean						
			Failcase 2 Must Be Met					>=	120	sec	-
						Time Since Last Range Change	>= 1 Enable Tim	е			-
						Ignition Voltage Lo Ignition Voltage Hi	>= 9 Volts <= 31.990234 Volts				
						Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= 400 RPM <= 7500 RPM >= 5 Sec				
						allowable limits for	Test Failed This Key				
						P0816 Status is	≠ On or Fault Active				
					Disable	MIL not Illuminated for	TCM: P0815, P0826, P182E, P1876,				
					Conditions:		P1877, P1915, P1761				
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	= TRUE	Boolean		ECM: None	>=	60	Fail Time (Sec)	Special No MIL
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= 9 Volts <= 31.990234 Volts >= 400 RPM				
						Engine Speed Hi Engine Speed is within the allowable limits for	<= 7500 RPM >= 5 Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
oyac	0000	- Description				P0826 Status is	<b>≠</b>	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 (Line Pressure VBS)	The HWIO reports an invalid voltage (out of range) error flag	= TRUE	Boolean					>= out	4.4	Fail Time (Sec) Sample Time	Two Trips
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.990234 400 7500 5	Volts Volts RPM RPM Sec	of	5	(Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0962	Pressure Control (PC) Solenoid A Control Circuit Low Voltage (Line Pressure VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out of	1.5 1.875	Fail Time (Sec) Sample Time (Sec)	One Tri
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.990234 400 7500 5	Volts Volts RPM RPM Sec	OI .		(300)	
					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					>= out of	4.4	Fail Time (Sec) Sample Time (Sec)	Two Trips
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.990234 400 7500 5	Volts Volts RPM RPM Sec			, /	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out of	0.3	Fail Time (Sec) Sample Time (Sec)	One Trip
						Ignition Voltage Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.990234 400 7500 5 Test Failed This Key On or Fault	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None	Active					
Variable Bleed Solenoid (VBS)	P0967	Pressure Control (PC) Solenoid B Control Circuit High Voltage (C35R VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.990234 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec	out of	0.375	Sample Time (Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0970	Pressure Control (PC) Solenoid C Control Circuit Low Voltage (C456/CBR1 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
		(C430/CBK   VBS)								out of	0.375	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
						P0970 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= >= <= >= <= >=	Test Failed This Key On or Fault Active 9 31.990234 400 7500 5	Volts Volts RPM RPM Sec		- 3.		
					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					>= out of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip
						P0971 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= >= >= <= >=	Test Failed This Key On or Fault Active 9 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 Tri
						P0973 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= <= >= <= >=	Test Failed This Key On or Fault Active 9 31.990234 400 7500 5	Volts Volts RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				Time quired	Mil Illum.
System	Code	Description	Sino, no	Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None	Conditions			Roc	juneu	
Shift Solinoid	P0974	Shift Solenoid A Control Circuit High (Mode 2 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean					>= out of	1.2	Fail Time (Sec) Sample Time (Sec)	Two Trips
					P0974 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= >= <= >= <= >=	Test Failed This Key On or Fault Active 9 31.990234 400 7500	Volts Volts RPM RPM Sec				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM does not match expected value	= TRUE Boolean					>=	3	Fail Counter Sample Timer (Sec)	Specia No MI
					Tap Up Tap Down Message Health Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	= >= <= >=	TRUE 400 7500 5	Boolean RPM RPM Sec			(500)	_
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1  Current range  Previous range	Transition 1 = (bit state Range 1110) CeTRGR_e_ ≠ PRNDL_Drive Range								One Tri
			Previous range	6 CeTRGR_e_  ≠ PRNDL_Drive Range 5								
			Range Shift State Absolute Attained Gear Slip Attained Gear	<= 50 rpm								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Va		Secondary Malfunction		Enable Conditions			Tir Requ		ı
System	Code	Description		>=	First	uo	mananonon		Jonations			requ	nou .	十
			Throttle Position Available	_	TRUE									ı
			Throttle Position	_ >= Ω		nct								
			Output Speed		200	rpm								
			Engine Torque		50	Nm								
			Engine Torque		8191.75									
			If the above conditions are met	<=	0191.73	IVIII								
			then Increment Fail Timer								>=	1	Fail Seconds	,
			If Fail Timer has Expired then											
			Increment Fail Counter								>=	5	Fail Counts	- 1
			Fail Case 2 Output Speed	/-	70	rpm								-1
			The following PRNDL sequence	_	70	трии								
			events occur in this exact order:											
					Drive 6 (bit									
			PRNDL state		state 0110)	Range								
			PRNDL state = Drive 6 for		1	Sec								
			I MADE State - DINE 0 101		Transition 8									1
			PRNDL state		(bit state	Range								1
			T TANDE State		0111)	ugo								1
			_		Drive 6 (bit									I
			PRNDL state		state 0110)	Range								
					Transition 1									
			PRNDL state		(bit state	Range								
					1110)									- 1
			Above sequencing occurs in	<=	1	Sec								
			Neutral Idle Mode	=	Inactive									
			If all conditions above are met											
			Increment delay Timer											
			If the below two conditions are									3	F-II CI-	
			met Increment Fail Timer								>=	3	Fail Seconds	
			delay timer	>=	1	Sec								
			Input Speed	>=	400	Sec								
			If Fail Timer has Expired then								>=	2	Fail Counts	
			Increment Fail Counter								>=	2	raii Courits	
			Fail Case 3		ransition 13				CeTRGR_					
			Current range	=	(bit state	Range	Previous range	<b>≠</b>	e_PRNDL					
					0010)				_Drive5					
									CeTRGR_					1
			Engine Torque	>=	-8192	Nm	Previous range	<b>≠</b>	e_PRNDL					
									_Drive5					1
			Engine Torque	<=	8191.75	Nm	IMS is 7 position configuration	=	0	Boolean				
							If the "IMS 7 Position config" =							
			If the above conditions are met				1 then the "previous range"							1
			then, Increment Fail Timer				criteria above must also be				>=	0.225	Seconds	
							satsified when the "current							
			KE 1171   E				range" = "Transition 13"							I
			If Fail Timer has Expired then								>=	15	Fail Counts	
			Increment Fail Counter				+				<u> </u>			4
			Fail Case 4		Transition 8		Disable Fail Case 4 if last							
			Current range	=	(bit state	Range	positive range was Drive 6 and							
			Ĭ		0111)		current range is transition 8							
							Cot inhibit hit to a if DDND!							
							Set inhibit bit true if PRNDL =							
	1		1199197 1699		FALSE		1100 (rev) or 0100 (Rev-Neu transition 11)							
			Inhibit bit (see definition)	=	FALSE		Set inhibit bit false if PRNDL =							I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mi Illui
			Steady State Engine Torque Steady State Engine Torque If the above conditions are met then Increment Fail Timer	e <= 8191.75 Nm t			>= 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:					
			PRNDL State	Reverse (bit state 1100)  Transition 11				
			PRNDL State	e = (bit state Range 0100)				
			PRNDL State	Transition 11				
			PRNDL State  Above sequencing occurs in	0100)				
			Then delay timer increments  Delay timer	5				
			Range Shift State	Complete				
			Absolute Attained Gear Slip Attained Gear Attained Gear	r <= Sixth				
			Throttle Position Output Speed If the above conditions are met	n >= 8.000183105 pct n >= 200 rpm				
			Increment Fail Timer	r			>= 20 Seconds	
			Fail Case 6  Current range	Illegal (bit e = state 0000 or 1000 or 0001)	A Open Circuit Definition (flag set false if the following conditions are met):	Transilian		
			and	1	Current Range	Transition 11 (bit ≠ state 0100)		
			A Open Circuit (See Definition)	) = FALSE Boolean	or	Neutral (bit		
					Last positive state	≠ state 0101)		
					Previous transition state	Transition ≠ 8 (bit state 0111)		
					Fail case 5 delay timer	= 0 sec		
			If the above Condtions are met then, Increment Fail timer	DDNDL circuit			>= 6.25 Seconds	
			Current PRNDL State	7,501 - 1101				
			Previous PRNDL state Input Speed	ADCP = IIII				
				= 150 RPW <= 2.736938477 ratio				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold	Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
- Oystelli	Oouc	Beschpton	Reverse Trans Ratio If the above Condtions are met then, Increment Fail timer	>= 3.14					Containon		>=	6.25	Seconds	
			P182E will report test fail when any of the above 7 fail cases are met											_
							Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Engine Torque Signal Valid	>= <= >= <= >=	9 31.990234 400 7500 5 TRUE	Volts Volts RPM RPM Sec Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:		o, P0717, P072 BF, P077C, P0					
								P0107, P010 P0175, P020 P0205, P020 P0301, P030	1, P0102, P010 08, P0171, P01 01, P0202, P02 06, P0207, P02 02, P0303, P03 07, P0308, P04	72, P0174, 03, P0204, 08, P0300, 04, P0305,				
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	PRNDL State is		ark or eutral	Enumeration								One Trip
		Start	The following events must occur Sequentially										Fachla Time	
			Initial Engine speed	<=	50	RPM					>=	0.25	Enable Time (Sec)	
			Then Engine Speed Between Following Cals											
			Engine Speed Lo Hist Engine Speed Hi Hist		50 480	RPM RPM					>=	0.06875	Enable Time (Sec)	
			Then Final Engine Speed		650	RPM RPM						1.25		
			Final Transmission Input Speed	>=	40	NPW	DTC has Ran this Key Cycle? Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage Hyst High (enables above this value) Ignition Voltage Hyst Low (disabled below this value)	= >= <= >= <=	FALSE 6 31.990234 5	Boolean V V V	>=	1.25	Fail Time (Sec)	<u>'</u>

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thresh Value		Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
2,							P1915 Status is	<b>≠</b>	Test Failed This Key On or Fault Active			. 1		
						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)	= FAL		Boolean Volts					>=	280	Fail Counts (25ms loop)	One Trip
			Ignition Voltage Low Hyst (run crank goes false when below this value)	2	: V	/olts					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) Ignition Voltage High Hyst (run crank goes true when above this	= TRU		Boolean Volts					>=	280	Fail Counts	One Trip
			value) Ignition Voltage Low Hyst (run crank goes false when below this value)	2		/olts					Out of	280	(25ms loop)  Sample Counts (25ms loop)	
							ECM run/crank active status available ECM run/crank active status	=	TRUE FALSE	Boolean Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:							
Variable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D Stuck Off [CB26]	Fail Case 1 Case: Steady State 2nd Gear								F	lease See		One Trip
			Gear slip	>= 40	0 F	RPM					_ T		Neutral Timer (Sec)	
			Intrusive test: commanded 3rd gear											

System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illur
				Table Based Time Please >= see Table 2 in Supporting Documents			•	
			If Above Conditions have been mel	ı				
			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 Table 5 For Neutral Timer	
			Gear slip	>= 400 RPM			>= Neutral Time (Sec) Cal	
			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 fai counter				>= 3 5th Gear Fail Count	
			and CB26 Fail Count				or CB26 Fail Count	
					PRNDL State defaulted inhibit RVT	= FALSE Boolean = FALSE Boolean		
					IMS fault pending indication TPS validity flag	= FALSE Boolean = TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for RVT A OR B	>= 0 RPM		
					(A) Output speed enable (B) Accelerator Pedal enable	>= 100 RPM >= 0.5004883 Pct		
					Common Enable Criteria Ignition Voltage Lo	>= 9 Volts		l
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo Engine Speed Hi	>= 400 RPM <= 7500 RPM		
					Engine Speed is within the	>= 5 Sec		
					allowable limits for Throttle Position Signal valid			
					HSD Enabled	= TRUE Boolean = TRUE Boolean		
					Transmission Fluid	>= -6.65625 °C		1
					Temperature Input Speed Sensor fault			
					Output Speed Sensor fault	= FALSE Boolean = FALSE Boolean		
					Default Gear Option is not	= TRUE		
					present	- 1100		1

Component/	Fault	Monitor Strategy	Malfunction		shold	Secondary Malfunction	Enable	Time	Mi Illur
System	Code	Description	Criteria	Va	lue Disable		Conditions TCM: P0716, P0717, P0722, P0723,	Required	illur
					Conditions:	DTC's:			
					conditions.	D103.	1 1026		
							ECM: P0101, P0102, P0103, P0106,		
							P0107, P0108, P0171, P0172, P0174,		
							P0175, P0201, P0202, P0203, P0204,		
							P0205, P0206, P0207, P0208, P0300,		
							P0301, P0302, P0303, P0304, P0305,		
							P0306, P0307, P0308, P0401, P042E		
			Primary Offgoing Clutch is						One
		Pressure Control (PC) Solenoid D	exhausted (See Table 13 in						
iable Bleed Solenoid (VBS)	P2/15	Stuck On [CB26] (Dynamic)	Supporting Documents for	= TRUE	Boolean				
		, ,,,	Exhaust Delay Timers)						
			Primary Oncoming Clutch	_ Maximum					
			Pressure Command Status						
			Primary Offgoing Clutch Pressure	Clutch					
			Command Status	= exhaust					
				command					
			Range Shift Status	≠ Initial Clutch					
			Attained Coar Slin	Control	RPM				
			Attained Gear Slip	<= 50	KPIVI				
			If above coditons are true,						
			increment appropriate Fail 1						
			Timers Below:						
			fail timer 1	>	Fail Time (Sec)				
			(2-1 shifting with throttle)	>= 0.400390023	raii Tiille (Sec)				
			fail timer 1	>= 0.5	Fail Time (Sec)				
			(2-1 shifting without throttle)	0.0	1 411 111110 (000)				
			fail timer 1	>= 0.400390625	Fail Time (Sec)				
			(2-3 shifting with throttle)		` ′				
			fail timer 1 (2-3 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1						
			(2-4 shifting with throttle)	>= 0.400390625	Fail Time (Sec)				
			fail timer 1						
			(2-4 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1	0.400200725	F-11 Thur (C-1)				
			(6-4 shifting with throttle)	>= 0.400390625	Fail Time (Sec)				
			fail timer 1	>= 0.5	Fail Time (Sec)				
			(6-4 shifting without throttle)	- 0.5	rair fillie (Sec)				
			fail timer 1	>= 0.700195313	Fail Time (Sec)				
			(6-5 shifting with throttle)		(556)				
			fail timer 1	>= 0.5	Fail Time (Sec)				
			(6-5 shifting without throttle)		. ( /				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers If fail timer is greater than				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and Reference Supporting Table 15 for Fail Timer 2	
			threshold increment corresponding gear fail counter and total fail					
			counter				<sub>2</sub> Fail Counter	
			2nd gear fail counter				>= 3 From 2nd Geal OR	
			6th gear fail counter				>= 3 Fail Counter From 6th Gear OR	
			total fail counter				>= 3 Total Fail Counter	
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.65625 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 200 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE 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		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st					One Trip
			Attained Gear slip If the Above is True for Time	Table Based Time Please				
			Intrusive test: (CBR1 clutch exhausted)	supporting documents				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Tin Requ		III
System	Code	Description		<= 3.112670898	mananotion	CONTUNIONS		nequ	n ou	۳
				>= 2.705322266						
			If the above parameters are true	9						1
							>=	1.1	Fail Timer (Sec)	,
							^-	1.1		
							>=	5	Fail Count in	
									1st Gear or	
									Total Fail	
							>=	5	Counts	
			Fail Case 2 Case: Steady State 3rd Gea	r						1
				Table Based						
				value Please						
			Max Delta Output Spee	Refer to Table rpm/sec 22 in						
			Hysteresi							
				supporting documents						L
				Table Based						1
				value Pleace						1
			Min Delta Output Spee	Refer to Table						
			Hysteresi							ı
				supporting						ı
				documents						ı
				Table Based Time Please						ı
				Pofor to Table						ı
			If the Above is True for Time	>= Refer to Yabic Sec						
				supporting						ı
				documents						l
			Intrusive test							L
			(C35R clutch exhausted							ı
				0 <= 3.112670898 0 >= 2.705322266						ı
			If the above parameters are true							ı
			ii tile above parameters are tru							Ш
							>=	1.1	Fail Timer (Sec)	1
							>=	3	Fail Count in	1
								J	3rd Gear	1
									Or Total Fail	1
							>=	5	Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gea	r					Courts	1
			Substitution of the substi	Table Based						1
				ualua Diagga						1
			Max Delta Output Spee	Refer to Table rpm/sec 22 in						1
			Hysteresi							1
				supporting						1
				documents Table Based						1
				value Please						
			Min Delta Output Speed	Refer to Table						
			Hysteresi							
			1	supporting						1
				documents	1		- 1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		able ditions				ime Juired	III
Oyalelli	Code	Description	Vinteria .	Table Based		COIL				net.	<u></u>	T
			If the Above is True for Time	Refer to Table								
				17 in supporting								
				documents								
			Intrusive test: (C1234 clutch exhausted)									
				<= 0.798217773								
				>= 0.693725586								
			If the above parameters are true							1.1	Fail Timor (Coo)	,
									>=		Fail Timer (Sec) Fail Count in	
									>=	3	4th Gear	
											or Total Fail	
									>=	5	Counts	
			Fail Case 4 Case: Steady State 5th Gear	Table Based								
				value Disease								
			Max Delta Output Speed	Refer to Table rpm/sec								
			Hysteresis	>= 22 in rpm/sec supporting								
				documents								
				Table Based value Please								
			Min Delta Output Speed	Refer to Table								
			Hysteresis	23 in supporting								
				documents								
				Table Based								
				Time Please Refer to Table Sec								
			If the Above is True for Time	17 111								
				supporting documents								
			Intrusive test:									
			(C35R clutch exhausted)									
				<= 0.798217773 >= 0.693725586								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	)
									>=	3	Fail Count in	
											5th Gear or	
									>=	5	Total Fail	
					PRNDL State defaulted	= F.	ALSE	Boolean			Counts	1
					inhibit RVT	= F.	ALSE	Boolean				1
					IMS fault pending indication		ALSE	Boolean				
					output speed TPS validity flag		0 RUE	RPM Boolean				
					HSD Enabled		RUE	Boolean				
	1		i .	1	Hydraulic_System_Pressurize		RUE	Boolean				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Спета	Disabl Conditions	A OR B  (A) Output speed enable (B) Accelerator Pedal enable Ignition Voltage Lo Ignition Voltage Lo Engine Speed Lo 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 Output Speed Sensor fault Default Gear Option is not present	>= 100 Nm >= 0.5004883 Nm >= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec >= 10.00061 Pct >= 45 Nm <= 8191.875 Nm >= -6.65625 °C = FALSE Boolean = TRUE  TCM: P0716, P0717, P0722, P0723,	кециней	muni.
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		P0306, P0307, P0308, P0401, P042E  Test Failed This Key	>= 0.3 Fail Time (Sec) out 0.375 Sample Time (Sec)	
					P2770 Status is not    Ignition Voltage   Ignition Voltage   Engine Speed   Engine Speed   Engine Speed   Engine Speed   Engine Speed   Is within the   allowable limits for	= On or Fault Active >= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		
				Disabl Conditions		TCM: None ECM: None		

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria			shold lue	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
System	Code	Pressure Control (PC) Solenoid D				Va	ilue	Manunction		Conditions			Requi	reu	One Tri
Variable Bleed Solenoid (VBS)	P2721	Control Circuit High (CB26 VBS)	1	The HWIO reports a high voltage (open or power short) error flag	=	TRUE	Boolean					>=	0.3	Fail Time (Sec)	
		(0525 750)										out of	0.375	Sample Time (Sec)	
										Test Failed				(===)	1
								P2721 Status is not	=	This Key On or					
								F2721 Status is 110t	=	Fault					
								1 10 17 16		Active					
								Ignition Voltage Ignition Voltage	>= <=	9 31.990234	Volts Volts				
								Engine Speed	>=	400	RPM				
								Engine Speed	<=	7500	RPM				
								Engine Speed is within the allowable limits for	>=	5	Sec				
							Disable	MIL not Illuminated for	TCM: None						
							Conditions:	DTC's:	ECM: None						
Variable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1	Case: Steady State 1st Gear											One Tri
		Stuck Oil										F	Please See		
				Gear slip	>=	400	RPM							Neutral Timer	
												N	leutral Time Cal	(Sec)	
				Intrusive test:									oui		
				commanded 2nd gear											
					to	lease refer Table 3 in	Shift Time (Sec)								
				If attained Gear ≠ 2nd for Time			Shift Time (Sec)								
				If Above Conditions have been	D	ocuments									
				met, Increment 1st gear fail								>=	2	1st Gear Fail	
				counter										Count	
														or C1234 Clutch	
				and C1234 fail counter								>=	14	Fail Count	
			Fail Case 2	Case: Steady State 2nd Gear								Ι,	DI C		
												1 1	Please See Table 5 For	Neutral Timer	
				Gear slip	>=	400	RPM						leutral Time	(Sec)	
				Intervalva taat									Cal		
				Intrusive test: commanded 3rd gear											
				<b>.</b>	Pl	lease refer									
				If attained Gear ≠ 3rd for Time		Table 3 in	Shift Time (Sec)								
						Supporting locuments									
				If Above Conditions have been										2nd Gear Fail	
				met, Increment 2nd gear fail counter								>=	2	Count	
				counter										or	
				and C1234 fail counter								>=	14	C1234 Clutch	
	l	I	1	3.13 3 120 1 Idii GOUINGI	l							1		Fail Count	1

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tim Requi		III
Gyalelli	Code	Description	Fail Case 3	Case: Steady State 3rd Gear	· ·				Conditions			rtequi		T
				·····, ·····							F	Please See		
				Gear slip	>= 400	RPM					, т	able 5 For	Neutral Timer	
				Gear Stip	>= 400	KPIVI					>= N	eutral Time	(Sec)	
												Cal		
				Intrusive test:										
				commanded 4th gear										
					Please refe	r								
				If attained Gear ≠ 4th for time	to Table 3 in	Shift Time (Sec)								
				ii attaineu Geai 7 4tii ioi tiine	Supporting	Shill Tille (Sec)								
					Documents									
				If Above Conditions have been									3rd Gear Fail	
				met, Increment 3rd gear fail							>=	2	Count	ı
				counter									Count	ı
													or	
	1		1	and C1234 fail counter							>=	14	C1234 Clutch	
	1										ļ^-	17	Fail Count	1
	1		Fail Case 4	Case: Steady State 4th Gear										
	1		1									Please See		L
	1		1	Gear slip	>= 400	RPM						able 5 For	Neutral Timer	L
	1		1	2031 3115							N	eutral Time	(Sec)	П
												Cal		L
				Intrusive test:										ı
				commanded 5th gear										ı
					Please refe	r								ı
				If attained Gear = 5th For Time	>= to Table 3 ii	Shift Time (Sec)								ı
														ı
				15 A1	Documents	;								ı
				If Above Conditions have been								2	4th Gear Fail	
				met, Increment 4th gear fail							>=	3	Count	ı
				counter										L
													or C1234 Clutch	
				and C1234 fail counter							>=	14	Fail Count	ı
			-				PRNDL State defaulted	=	FALSE	Boolean	1		Fall Coulit	ł
							inhibit RVT	=	FALSE	Boolean				L
	1		1				IMS fault pending indication	=	FALSE	Boolean	1			П
							TPS validity flag	=	TRUE	Boolean				L
	1		1				Hydraulic System Pressurized	=	TRUE	Boolean				П
	1		1				Minimum output speed for	_						П
	1		1				RVT	>=	0	RPM				
	1		1				A OR B							
	1		1				(A) Output speed enable	>=	100	RPM				П
	1		1				(B) Accelerator Pedal enable	>=	0.5004883	Pct				L
							Common Enable Criteria							L
	1		1				Ignition Voltage Lo	>=	9	Volts				П
							Ignition Voltage Hi	<=	31.990234	Volts				ı
	1		1				Engine Speed Lo	>=	400	RPM				П
							Engine Speed Hi	<=	7500	RPM				L
	1		1				Engine Speed is within the							L
	1		1				allowable limits for	>=	5	Sec				П
	1		1				Throttle Position Signal valid	=	TRUE	Boolean	1			L
	1		1				HSD Enabled	=	TRUE	Boolean				L
	1		1				Transmission Fluid				1			
							Temperature	>=	-6.65625	°C				۱
							Input Speed Sensor fault	=	FALSE	Boolean				۱
	1	I					Output Speed Sensor fault	=	FALSE	Boolean	1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Default Gear Option is not	= TRUE		
					present	= INUE		
				Disable	Add as at Illians in a tool form	TOLA DOTAL DOTAL DOTAL		
				Disable Conditions:	MIL not illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182F		
				Containon	2.00.	11022		
						ECM. D0101 D0102 D0102 D0107		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174,		
						P0175, P0201, P0202, P0203, P0204,		
						P0205, P0206, P0207, P0208, P0300,		
						P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
						1 0000/1 0001/1 0000/1 0101/1 0122		
		Dracoura Cantral (DC) Calanaid F	Primary Offgoing Clutch is					One Tr
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	exhausted (See Table 10 in Supporting Documents for	= TRUE Boolean				
			Exhaust Delay Timers)					
			Primary Oncoming Clutch Pressure Command Status					
				pressurized Clutch				
			Primary Offgoing Clutch Pressure Command Status	= exhaust				
			Command Status	command				
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip					
			If the above conditions are true					
			increment appropriate Fail 1 Timers Below:					
			fail timer 1	>= 0.400390625 sec				
			(2-6 shifting with throttle) fail timer 1	2- 0.400370023 Sec				
			(2-6 shifting without throttle)	>= 0.5 sec				
			fail timer 1	>= 0.400390625 sec				
			(3-5 shifting with throttle) fail timer 1	0.100070020 300				
			(3-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1	>= 0.400390625 sec				
			(4-5 shifting with throttle) fail timer 1	130070020 000				
			(4-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1	>= 0.400390625 sec				
			(4-6 shifting with throttle) fail timer 1					
			(4-6 shifting without throttle)	>= 0.5 sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and Reference Supporting Table 15 for Fail Timer 2	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter				Fail Counter	
			2nd gear fail counter				>= 3 From 2nd Gear	r
			3rd gear fail counter				>= 3 Fail Counter From 3rd Gear	
			4th gear fail counter				>= 3 Fail Counter From 4th Gear	
			total fail counter				>= 3 Total Fail Counter	
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver On output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.65625 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 200 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:			
						ECM: P0101, P0102, P0103, P0106, P0107, 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 (VB:	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear					One Tri

Component/	Fault Code	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	
System	Code	Description	Criteria	Table Based	IVIAITUITCUOTI	Conditions	Kequired	· ·
				value Dieses				
			May Dalta Output Speed					
			Max Delta Output Speed	>= rpm/sec				
			Hysteresis					
				supporting				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed	>= Refer to Table rpm/sec				
			Hysteresis	23 in 1911/Sec				
				supporting				
				documents				
				Table Based				
				Time Please				
			ICH AL LE CE	>= Refer to Table Sec				
			If the Above is True for Time	>= 17 in Sec				
				supporting	1			
				documents	1			
			Intrusive test:	accaments				
			(C35R clutch exhausted)					
				<= 1.529052734				
				>= 1.328979492				
			If the above parameters are true	7- 1.320777472				
			ii tile above parameters are tide					
							>= 1.1 Fa	il Timer (Sec)
								ail Count in
							>= 3	5th Gear
								OR
							>= 3	Total Fail Counts
			Fail Case 2 Case: 6th Gear					Counts
			Fail Case 2 Case: 6th Gear	Toble Deced				
				Table Based				
				value Please				
			Max Delta Output Speed	>= Refer to Table rpm/sec 22 in				
			Hysteresis					
				supporting				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed	>= Refer to Table rpm/sec 23 in				
			Hysteresis					
				supporting				
				documents				
				Table Based				
				Time Please				
			If the Above to Torre for Three	>= Refer to Table Sec				
			If the Above is True for Time	>= 17 in Sec				
	- 1			supporting	1			l
	- 1			documents	1			l
			Intrusive test:		1			
	- 1		(CB26 clutch exhausted)		1			
	- 1			<= 1.529052734	1			
	- 1				1			
	- 1			>= 1.328979492	1			
			If the above parameters are true		1			l
					1		>= 1.1 Fa	il Timer (Sec)
	- 1		I .		1		1	()

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable			ime	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	<u> </u>	Req	uired	Illum.
							>=	3	Fail Count in	
									6th Gear	
									OR	
							>=	3	Total Fail	
					DDNDI Ctoto defaulted	FALCE Declare			Counts	ł
					PRNDL State defaulted	= FALSE Boolean				
					inhibit RVT	= FALSE Boolean				
					IMS fault pending indication	= FALSE Boolean				
					output speed	>= 0 RPM				
					TPS validity flag HSD Enabled	= TRUE Boolean = TRUE Boolean				
						= TRUE Boolean				
					Hydraulic_System_Pressurize	= TRUE Boolean				
					0					
					A OR B	100 N::-				
					(A) Output speed enable	>= 100 Nm				
	I				(B) Accelerator Pedal enable	>= 0.5004883 Nm				
	I				Ignition Voltage Lo	>= 9 Volts				
	I				Ignition Voltage Hi	<= 31.990234 Volts				
	I				Engine Speed Lo	>= 400 RPM				
					Engine Speed Hi	<= 7500 RPM				
					Engine Speed is within the	>= 5 Sec				
					allowable limits for					
					if Attained Gear=1st FW	>= 10.00061 Pct				
					Accelerator Pedal enable					
					if Attained Gear=1st FW	>= 45 Nm				
					Engine Torque Enable	7- 10 1411				
					if Attained Gear=1st FW	<= 8191.875 Nm				
					Engine Torque Enable	V- 0171.070 WIII				
					Transmission Fluid	>= -6.65625 °C				
					Temperature					
					Input Speed Sensor fault	= FALSE Boolean				
					Output Speed Sensor fault	= FALSE Boolean				
					Default Gear Option is not	= TRUE				
					present	- INOL				
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,				
				Conditions:	DTC's:	P182E				
						ECM: P0101, P0102, P0103, P0106,				
						P0107, P0108, P0171, P0172, P0174,				
						P0175, P0201, P0202, P0203, P0204,				
						P0205, P0206, P0207, P0208, P0300,				
	I					P0301, P0302, P0303, P0304, P0305,				
1						P0306, P0307, P0308, P0401, P042E				
		Pressure Control (PC) Solenoid E	The HWIO reports a law walkage							One Trip
Variable Bleed Solenoid (VBS)	P2729	Control Circuit Low	The HWIO reports a low voltage	= TRUE Boolean			>=	0.3	Fail Time (Sec)	l '
	I	(C1234 VBS)	(ground short) error flag							
	I						out	0.275	Sample Time	
	I						of	0.375	(Sec)	
						Test Failed				1
	I					This Key				
	I				P2729 Status is not	= On or				
						Fault				
1						Active				
•	•	•	•	•	•		•			•

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
- Gystem	Code	Description	Gracial Cracial			Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.990234 400 7500 5	Volt Volt RPM RPM Sec		Key	uncu	
					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	0.3	Fail Time (Sec)	One Trip
						P2730 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= <= >= <= >=	Test Failed This Key On or Fault Active 9 31.990234 400 7500	Volt Volt RPM RPM Sec	of		(Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2763	Torque Converter Clutch Pressure High	The HWIO reports a low pressure/high voltage (open or power short) error flag		Boolean					>= out of	4.4 5	Fail Time (Sec) Sample Time (Sec)	Two Trips
						P2763 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	= <= >= <= >=	Test Failed This Key On or Fault Active 9 31.990234 400 7500 5 TRUE	Volt Volt RPM RPM Sec Boolean			, ,	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, ECM: None	P0659					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				ime juired	Mil Illum.
Variable Bleed Solenoid (VBS)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	The HWIO reports a high pressure/low voltage (ground short) error flag		TRUE	Boolean					>= out	4.4	Fail Time (Sec) Sample Time	One Trip
							P2764 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	= >= <= >= <= >= =	Test Failed This Key On or Fault Active 9 31.990234 400 7500 5 TRUE	Volt Volt RPM RPM Sec Boolean	of		(Sec)	
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658 ECM: None	, P0659					
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error Delay timer		TRUE 0.1125	Boolean sec					>= Out of	62 70	Fail counts (≈ 10 seconds) Sample Counts (≈ 11 seconds)	
							Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 9 31.990234 Run	sec Volt Volt	Oi		(*Tracconday	
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Communication	U0100	Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	=	TRUE	Boolean					>=	12	sec	One Trip
							Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 9 31.990234 Run	sec Volt Volt				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tir Requ	ne uired	Mil Illum.
Transmission Control Module (TCM)	P0562	Ignition voltage at the TCM is low for an extended period of time.	Ignition Voltage	<=	10	Volts					= Out of	8	Fail counts (1000ms loop) Sample Counts (1000ms loop)	No Mil
							Ignition Voltage Hyst Hi (enabled above this value) Ignition Voltage Hyst Lo (disabled below this value) Engine Speed	> <= >	5 2 1350	Volts Volts RPM				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P0563	Ignition voltage at the TCM is high for an extended period of time.	Ignition Voltage	>=	18	Volts					= Out of	10 12	Fail counts (1000ms loop) Sample Counts (1000ms loop)	No Mil
							Ignition Voltage Hyst Hi (enabled above this value) Ignition Voltage Hyst Lo (disabled below this value)	> <=	5	Volts Volts				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P0602	Transmission Electro-Hydraulic Control Module Not Programmed	Non-Programmed TECHM Failure	=	TRUE	Boolean					C	Runs continously		No Mil
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0602 ECM: None						
High Side Driver 1	P0659	Actuator Supply Voltage Circuit High	During the controller power-up, prior to the HSD being turned on, the HWIO reports that power short failure is	=	TRUE	Boolean					>= out	4	Fail Counts	No Mil
							P0659 Status is not	=	Test Failed This Key On or Fault Active		of	6	Sample Counts	
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Mode Switch	P071A	Transmission Mode Switch A Circuit	Tow Haul Mode Switch state	=	TRUE	Boolean					>=	600	Fail Time (Sec)	No Mil

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Tir Requ		Mil Illum.
					Ignition Voltage H Engine Speed Lo Engine Speed H Engine Speed is within the allowable limits for	>= i <=	31.990234 400 7500 5	Volts RPM RPM Sec			
				Disab Condition		TCM: P1762 ECM: None					
Mode Switch	P071D	Transmission Mode Switch B Circuit	Sport Mode Switch state	= TRUE Boolean					>= 600	Fail Time (Sec)	No Mil
					Ignition Voltage Lo Ignition Voltage H Engine Speed Lo Engine Speed H Engine Speed is within the allowable limits for	<= >= i <=	9 31.990234 400 7500 5	Volts Volts RPM RPM Sec			
				Disab Condition		TCM: P1762 ECM: None					
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gear  Gear Box Slip  Intrusive Shift to 2nd  Commanded Gear Previous  Gear Ratio  Gear Ratio	= 1st Locked Gear <= 3.111816406					Please Refer to Table 5 in Supporting Documents	Neutral Timer (Sec)	No Mil
			If the above parameters are true						>= 1 >= 3	sec	
					Ignition Voltage Lo Ignition Voltage H Engine Speed Lo Engine Speed H Engine Speed is within the allowable limits for Output Speed	<= >= <= >= >=	9 31.990234 400 7500 5 110	Volts Volts RPM RPM Sec RPM	7= 3	counts	
					Range Shift State		Range Shift Completed	ENUM			
					Transmission Fluic Temperature High-Side Driver is Enablec Throttle Position Signal Valid from ECM	>=     =	-6.65625 TRUE TRUE	°C Boolean Boolean			
					Input Speed Sensor faul	=	FALSE FALSE	Boolean Boolean			

Component/	Fault	Monitor Strategy	Malfunction		eshold	Secondary Malfunction		Enable Conditions				me	Mil Illum.
System	Code	Description	Criteria	V.	alue	Default Gear Option is not					Keq	uired	mum.
						present	=	TRUE					
					Dibi-	MIL or at Illiano to at a different	TOM DOZ1/ D	0717 00700	D0700				
					Disable Conditions:	MIL not Illuminated for DTC's:		0/1/, P0/22,	, P0/23,				
							ECM: P0101, P P0107, P0108,						
							P0175, P0201,	P0202, P020	3, P0204,				
							P0205, P0206, P0301, P0302,						
							P0306, P0307,	P0308, P040	1, P042E				
Mode Switch	P078F	Transmission Mode Switch C Circuit	Winter Mode Switch state	= TRUE	Boolean					>=	600	Fail Time (Sec)	No Mil
						Ignition Voltage Lo Ignition Voltage Hi	>= <=	9 31.990234	Volts Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi Engine Speed is within the	<= >=	7500 5	RPM				
						allowable limits for	>=	3	Sec				
					Disable	MIL not Illuminated for	TCM: P1762						
					Conditions:	DTC's:	ECM: None						
							LGW. None						No Mil
Mode Switch	P07CE	Transmission Mode Switch D Circuit	Tour Mode Switch state	= TRUE	Boolean				\ / II	>=	600	Fail Time (Sec)	- 100 10111
						Ignition Voltage Lo Ignition Voltage Hi	>= <=	9 31.990234	Volts Volts				
						Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						allowable limits for							
					Disable	MIL not Illuminated for	TCM: P1762						
					Conditions:	DTC's:	ECM: None						
													No Mil
Mode Switch	P07D1	Transmission Mode Switch E Circuit	Comfort Mode Switch state	= TRUE	Boolean	1 20 1/10			\ / II	>=	600	Fail Time (Sec)	- 140 14111
						Ignition Voltage Lo Ignition Voltage Hi	>= <=	9 31.990234	Volts Volts				
						Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
						Engine Speed is within the	>=	5	Sec				
						allowable limits for							
					Disable	MIL not Illuminated for	TCM: P1762						
					Conditions:	DTC's:	ECM: None						
							LOW. NOTE						

Component/	Fault	Monitor Strategy	Malfunction			shold alue		Secondary Malfunction		Enable Conditions			Time Requi		Mil Illum.
System  Mode Switch	Code P07D4	<b>Description</b> Transmission Mode Switch F Circuit	Criteria Normal Mode Switch state	١.		Boolea	n	wanunction		Conditions		>=	-		
Mode Switch	P07D4	Transmission Mode Switch F Circuit	Normal Mode Switch State	=	TRUE	Boolea	n	Ignition Voltage Lo	>=	9	Volts	>=	600	Fail Time (Sec)	INO IVIII
								Ignition Voltage Hi	<=	31.990234	Volts				
								Engine Speed Lo	>=	400	RPM				
								Engine Speed Ei	<=	7500	RPM				
								Engine Speed is within the							
								allowable limits for	>=	5	Sec				
							Disable	MIL not Illuminated for	TCM: P1762						
						Co	nditions:	DTC's:	FOM None						
									ECM: None						
Transmission Fluid Pressure Switch	P0842	Transmission Fluid Pressure (TFP) Sensor A Circuit Low Voltage	C35R Hydraulic pressure	<=	50	Кра									No Mil
			Hydraulic Delay Timer (Table		See Table 7										
			Based)	>=	for Delay	Sec									
			Check for Switch to be in		Timer Cal										
			Exhausted Position after delay, If									>=	42	Fail Counts	
			so then Increment Fail Counter	ı									12	Tuli Odunio	
			Note: Subsequent fail counts	T											
			require C35R pressure above this												
			value to re-enable fail logic.	>	50	Kpa									
			Results in one fail count per clutch												
			transition					T							
								Transmission Fluid	>=	-6.65625	°C				
								Temperature Lo Transmission Fluid							
								Temperature Hyst Hi (disable	Not >=	120	°C				
								above this)	1400 > -	120	Ü				
								Transmission Fluid							
								Temperature Hyst Lo (enable	<=	255.99219	°C				
								below this)							
								Ignition Voltage Lo	>=	9	Volts				
								Ignition Voltage Hi	<=	31.990234	Volts				
								Engine Speed Lo	>=	400	RPM				
								Engine Speed Hi Engine Speed is within the	<=	7500	RPM				
				l				allowable limits for	>=	5	Sec				
				l				Default Gear Action	=	FALSE					
				l				High Side Driver ON	=	TRUE					
				1				RVT Status	=	Normal					
				l				Hydraulic Pressure Available	=	TRUE					
								Engine Speed Min	>=	550	RPM				
				l				PRNDL State	=	Drive 1-					
				l						Drive 6					
				l											
				l			Disable	MIL not Illuminated for	TCM: P0711.	P0712, P0713.	, P0716.				
				l		Co	nditions:			2, P0723, P075					
				1						7, P0973, P097					
				l					P0977, P191	5, P182E					
				l											
				1					ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres		Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
Transmission Fluid Pressure	P0843	Transmission Fluid Pressure (TFP)		>= 70		Кра	Mandiotori		Conditions			rtequ	iieu	No Mil
Switch	P0043	Sensor A Circuit High Voltage	C35R Hydraulic pressure			кра								
			Hydraulic Delay Timer (Table	See Ta >= for D		Sec								
			Based)	Time		500								
			Check for Switch to be in										F 110	
			Pressurized Position after delay, If so then Increment Fail Counter								>=	57	Fail Counts	
			Note: Subsequent fail counts											1 1
			require C35R pressure below this	70										
			value to re-enable fail logic. Results in one fail count per clutch	< 70	)()	Кра								
			transition											] ]
							Transmission Fluid	>=	-6.65625	°C				
							Temperature Lo Transmission Fluid							
							Temperature Hyst Hi (disable	Not >=	120	°C				
							above this)							
							Transmission Fluid Temperature Hyst Lo (enable	<=	255.99219	°C				
							below this)							
							Ignition Voltage Lo Ignition Voltage Hi	>=	9 31.990234	Volts Volts				
							Engine Speed Lo	<= >=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the	>=	5	Sec				
							allowable limits for Default Gear Action	=	FALSE					
							High Side Driver ON	=	TRUE					
							RVT Status Hydraulic Pressure Available	=	Normal TRUE					
							Engine Speed Min	>=	550	RPM				
							PRNDL State	=	Drive 1-					
							T KNDE State	_	Drive 6					
						Disable								
						Conditions:	DTC's:		22, P0723, P075 57, P0973, P097					
								P0756, P075 P0977, P191		4, P0970,				
								ECM: None						
Transmission Fluid Pressure	P0872	Transmission Fluid Pressure (TFP)	CB26 Hydraulic pressure	<= 50	0	KPa					<u> </u>			No Mil
Switch	1 3072	Sensor C Circuit Low Voltage		See Ta		u								
			Hydraulic Delay Timer (Table Based)	>= for D	elay	Sec								
			Check for Switch to be in	Time	r Cal									
			Exhausted Position after delay, If								>=	8	Fail Counts	
			so then Increment Fail Counter											
			Note: Subsequent fail counts require CB26 pressure above this											
			value to re-enable fail logic.	> 50	0	Кра								
			Results in one fail count per clutch											
1	l	I	transition				l				I			1 1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold ilue	Secondary Malfunction		Enable Conditions		R	Time equired	Mil Illum.
						Transmission Fluid Temperature Lo	>=	-6.65625	°C			
						Transmission Fluid						
						Temperature Hyst Hi (disable above this)	Not >=	120	°C			
						Transmission Fluid						
						Temperature Hyst Lo (enable below this)	<=	255.99219	°C			
						Ignition Voltage Lo	>=	9	Volts			
						Ignition Voltage Hi	<=	31.990234	Volts			
						Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM			
						Engine Speed is within the						
						allowable limits for	>=	5	Sec			
						Default Gear Action High Side Driver ON	=	FALSE TRUE				
						RVT Status	=	Normal				
						Hydraulic Pressure Available	=	TRUE	DDM			
						Engine Speed Min	>=	550 Drive 1-	RPM			
						PRNDL State	=	Drive 6				
					Disable	MIL not Illuminated for	TOM: D0711	D0712 D0712	D071/			
					Conditions:			, P0712, P0713 22, P0723, P075				
							P0756, P075	57, P0973, P097				
							P0977, P191	5, P182E				
							ECM: None					
Transmission Fluid Pressure Switch	P0873	Transmission Fluid Pressure (TFP) Sensor C Circuit High Voltage	CB26 Hydraulic Pressure	>= 700	KPa							No Mil
Switch		ochsor o official ringir voltage	Hydraulic Delay Timer (Table	See Table 8								
			Based)	>= for Delay Timer Cal	Sec							
			Check for Switch to be in	Timer car								
			Pressurized Position after delay,							>= 11	Fail Counts	
			If so then Increment Fail Counter  Note: Subsequent fail counts									
			require CB26 pressure below this									
			value to re-enable fail logic.	< 700	kpa							
			Results in one fail count per clutch transition									
						Transmission Fluid	>=	-6.65625	°C			
						Temperature Lo Transmission Fluid			-			
						Temperature Hyst Hi (disable	Not >=	120	°C			
						above this)						
						Transmission Fluid Temperature Hyst Lo (enable	<=	255.99219	°C			
						below this)	,-					
						Ignition Voltage Lo	>=	9	Volts			
						Ignition Voltage Hi Engine Speed Lo	<= >=	31.990234 400	Volts RPM			
						Engine Speed Hi	<=	7500	RPM			
						Engine Speed is within the	>=	5	Sec			
I	I	I				allowable limits for				l		I

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable	Time	Mil
System	Code	Description	Criteria	Value	<u> </u>	Conditions	Required	Illum
					Default Gear Action	= FALSE		
					High Side Driver ON RVT Status	= TRUE = Normal		
					Hydraulic Pressure Available			
					Engine Speed Min	= TRUE >= 550 RPM		
					Erigine Speed Will	>= 550 RPM Drive 1-		
					PRNDL State	= Drive 6		
						Dilve 0		
				Disable	MIL not Illuminated for	TCM: P0711, P0712, P0713, P0716,		
				Conditions		P0717, P0722, P0723, P0751, P0742,		
						P0756, P0757, P0973, P0974, P0976,		
						P0977, P1915, P182E		
						ECM: None		
Transmission Fluid Pressure	P0877	Transmission Fluid Pressure (TFP)	C1234 Hydraulic pressure	<= 50 KPa				No N
Switch	1 0077	Sensor D Circuit Low Voltage	0 1204 Trydraulic pressure					
			Hydraulic Delay Timer (Table	See Table 6				
			Based)	>= for Delay Sec				
			· ·	Timer Cal				
			Check for Switch to be in				12	
			Exhausted Position after delay, If so then Increment Fail Counter				>= 12 Fail Counts	
			Note: Subsequent fail counts					
			require C1234 pressure above this					
			value to re-enable fail logic.	> 50 kpa				
			Results in one fail count per clutch					
			transition					
			transition.		Transmission Fluid			
					Temperature Lo	>= -6.65625 °C		
					Transmission Fluid			
					Temperature Hyst Hi (disable	Not >= 120 °C		
					above this)			
					Transmission Fluid			
					Temperature Hyst Lo (enable	<= 255.99219 °C		
					below this)	_		
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM <= 7500 RPM		
					Engine Speed Hi Engine Speed is within the			
					allowable limits for	>= 5 Sec		
					Default Gear Action	= FALSE		
					High Side Driver ON	= FALSE = TRUE		
					RVT Status	= Normal		
					Hydraulic Pressure Available	= TRUE		
					Engine Speed Min	>= 550 RPM		
						Drive 1-		
					PRNDL State	= Drive 6		
							1	

Component/	Fault	Monitor Strategy	Malfunction			shold lue		Secondary Malfunction		Enable Conditions				me	Mil Illum.
System	Code	Description	Criteria		Va	iiue	Disable	MIL not Illuminated for	TCM: D0711	, P0712, P0713,	D0716		Requ	uired	illum.
							Conditions:			, P0712, P0713, 22, P0723, P075					
							0011411101101	5.00		57, P0973, P097					
									P0977, P19		.,				
									ECM: None						
Transmission Fluid Pressure		Transmission Fluid Pressure (TFP)													No Mil
Switch	P0878	Sensor D Circuit High Voltage	C1234 Hydraulic pressure		700	KPa									
			Hydraulic Delay Timer (Table		See Table 6										
			Based)		for Delay	Sec									
			Check for Switch to be in		Timer Cal										
			Pressurized Position after delay,									>=	12	Fail Counts	
			If so then Increment Fail Counter									1	12	r un odunts	
			Note: Subsequent fail counts												1
			require C1234 pressure below this												
			value to re-enable fail logic.	<	700	Kpa									
			Results in one fail count per clutch transition												
			transition					Transmission Fluid				1			-
1								Temperature Lo	>=	-6.65625	°C				
								Transmission Fluid							
								Temperature Hyst Hi (disable	Not >=	120	°C				
1								above this)							
								Transmission Fluid		255 00210	00				
								Temperature Hyst Lo (enable below this)	<=	255.99219	°C				
1								Ignition Voltage Lo	>=	9	Volts				
								Ignition Voltage Hi	<=	31.990234	Volts				
								Engine Speed Lo	>=	400	RPM				
								Engine Speed Hi	<=	7500	RPM				
								Engine Speed is within the	>=	5	Sec				
								allowable limits for Default Gear Action	=	FALSE					
								High Side Driver ON	=	TRUE					
								RVT Status	=	Normal					
								Hydraulic Pressure Available	=	TRUE					
								Engine Speed Min	>=	550	RPM				
								PRNDL State	=	Drive 1-					
										Drive 6					
							Disable	MIL not Illuminated for	TCM: P0711	, P0712, P0713,	P0716,				
							Conditions:	DTC's:		22, P0723, P075					
										57, P0973, P097	4, P0976,				
				I					P0977, P19	15, P182E					
									ECM: None						
									20111110110						
Verlahla Dia al Calamatil (1700)	D00/5	Pressure Control (PC) Solenoid B	The HWIO reports an invalid		TDUE	D. 1							4.4	F-11 Thurs (C. )	No Mil
Variable Bleed Solenoid (VBS)	P0965	Control Circuit Rationality Test (C35R VBS)	voltage (out of range) error flag		TRUE	Bool	ean					>=	4.4	Fail Time (Sec)	
		(CON VDO)		I								out		Sample Time	
												of	5	(Sec)	
								Ignition Voltage	>=	9	Volts				1
				l				Ignition Voltage	<=	31.990234	Volts	1			I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
7,2						Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >=	400 7500 5 Test Failed	RPM RPM Sec				
						P0965 Status is not	=	This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0969	Pressure Control (PC) Solenoid C Control Circuit Rationality Test (C456/CBR1 VBS)	The HWIO reports an invalid voltage (out of range) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	No Mil
										out of	5	Sample Time (Sec)	
						P0969 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed Engine Speed is within the allowable limits for	= >= >= <= >=	Test Failed This Key On or Fault Active 9 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Mode 3 Multiplex Valve	P0976	Shift Solenoid BControl Circuit Low (Mode 3 Solenoid)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	1.2	Sec	No Mil
										out of	1.5	Sec	
						P0976 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= <= <= <= >=	Test Failed This Key On or Fault Active 9 31.990234 400 7500 5	Volts Volts RPM RPM Sec				

Component/	Fault	Monitor Strategy	Malfunction		eshold	Secondary		Enable			Tin		Mil
System	Code	Description	Criteria	V:	alue Disable Conditions:	Malfunction  MIL not Illuminated for DTC's:	TCM: None	Conditions			Requ	urea	Illum.
							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	No Mil
								Test Failed		out of	1.5	Sec	-
						P0977 Status is not	=	This Key On or Fault					
						Ignition Voltage Ignition Voltage Engine Speed	>= <= >=	Active 9 31.990234 400	Volts Volts RPM				
						Engine Speed Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Fransmission Fluid Pressure	P0989	Transmission Fluid Pressure (TFP) Sensor E Circuit Low Voltage	CBR1/C456 Hydraulic pressure	<= 50	Кра								No Mil
		Consol E on tak 2011 Tokago	Hydraulic Delay Timer (Table Based)	See Table 9 >= for Delay Timer Cal									
			Check for Switch to be in Exhausted Position after delay, If so then Increment Fail Counter							>=	17	Fail Counts	
			Note: Subsequent fail counts require C35R pressure above this value to re-enable fail logic. Results in one fail count per clutch transition	> 50	kpa								
			u ansiuon			Transmission Fluid Temperature Lo	>=	-6.65625	°C				
						Transmission Fluid Temperature Hyst Hi (disable above this)	Not >=	120	°C				
						Transmission Fluid Temperature Hyst Lo (enable below this)	<=	255.99219	°C				
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= <= >=	9 31.990234 400	Volts Volts RPM				
						Engine Speed Hi Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				
						Default Gear Action High Side Driver ON RVT Status	= = =	FALSE TRUE Normal					
						Hydraulic Pressure Available Engine Speed Min	=	TRUE 550	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction	Enable Conditions			Time Requir		Mil Illum.
						PRNDL State	= Drive 1- Drive 6					
					Disable Conditions:		TCM: P0711, P0712, P0713, P07 P0717, P0722, P0723, P0751, P0 P0756, P0757, P0973, P0974, P0 P0977, P1915, P182E	0742,				
							ECM: None					
Transmission Fluid Pressure Switch	P0990	Transmission Fluid Pressure (TFP) Sensor E Circuit High Voltage	CBR1/C456 Hydraulic pressure	>= 700	Кра							No Mil
			Hydraulic Delay Timer (Table Based)	See Table 9 >= for Delay Timer Cal	Sec							
			Check for Switch to be in Pressurized Position after delay, If so then Increment Fail Counter	Timor our					>=	30	Fail Counts	
			Note: Subsequent fail counts require C35R pressure above this value to re-enable fail logic. Results in one fail count per clutch	< 700	kpa							
			transition			Transmission Fluid Temperature Lo	>= -6.65625	°C				-
						Transmission Fluid Temperature Hyst Hi (disable above this)	Not >= 120	°C				
						Transmission Fluid Temperature Hyst Lo (enable below this)	<= 255.99219	°C				
						Ignition Voltage Lo Ignition Voltage Hi	<= 31.990234 V	/olts				
						Engine Speed Lo Engine Speed Hi Engine Speed is within the	<= 7500 F	RPM RPM				
						allowable limits for Default Gear Action High Side Driver ON	= FALSE = TRUE	Sec				
						RVT Status Hydraulic Pressure Available Engine Speed Min PRNDL State	_ Drive 1-	RPM				
							Drive 6					
					Disable Conditions:		TCM: P0711, P0712, P0713, P07 P0717, P0722, P0723, P0751, P0 P0756, P0757, P0973, P0974, P0 P0977, P1915, P182E	0742,				
							ECM: None					
Mode Switch	P1762	Transmission Mode Switch Signal Circuit (rolling count)	Rolling count value received from BCM does not match expected value		Boolean				>=	3	Fail Counter	No Mil

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	III
											>	10	Sample Timer	
							Pattern Switch Message Health Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	= >= <= >=	TRUE 400 7500 5	Boolean RPM RPM Sec			(Sec)	
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
Up Tap Down Switch D)	P1765	Upshift Switch Circuit #2	Fail Case 1	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 0	Boolean								N
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 0	Boolean								
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	= 0	Boolean								
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	= 0	Boolean								
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 0	Boolean								
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	= 0	Boolean								
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 1	Boolean								
				Tap Up Switch Stuck in the Up Position in Park Enabled	= 1	Boolean								
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0	Boolean								l
				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								1
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 1	Boolean								l
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	= 1	Boolean								
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	= 1	Boolean								
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 1	Boolean								
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	= 1	Boolean								
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 0	Boolean								
				Tap Up Switch Stuck in the Up Position in Park Enabled	= 0	Boolean								
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0	Boolean								
				Tap Up Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	= TRUE	Boolean					>=	600	Fail Time (Sec)	)

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions		Tim Requi		Mil Illum.
0,000		2000p	3			Ignition Voltage Lo	>=	9	Volts	l		
						Ignition Voltage Hi	<=	31.990234	Volts			
						Engine Speed Lo	>=	400	RPM			
						Engine Speed Hi Engine Speed is within the	<=	7500	RPM			
						allowable limits for	>=	5	Sec			
						allowable littlits for		Test Failed				
								This Key				
						P1765 Status is	≠	On or				
								Fault				
								Active				
					Disable	MIL not Illuminated for	TCM: P1767	, P1761, P182E	, P1915			
					Conditions:	DTC's:	ECM: Nama					
							ECM: None					
Tap Up Tap Down Switch			Fail Case 1 Tap Down Switch Stuck in the									No Mil
(TUTD)	P1766	Downshift Switch Circuit #2	Down Position in Range 1 Enabled	= 0	Boolean							
			Tap Down Switch Stuck in the	= 0	Boolean							
			Down Position in Range 2 Enabled									
			Tap Down Switch Stuck in the		5 1							
			Down Position in Range 3 Enabled	= 0	Boolean							
			T D 0 11 01 11 11									
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 0	Boolean							
			Down Fosition in Nange 4 Enabled									
			Tap Down Switch Stuck in the	= 0	Boolean							
			Down Position in Range 5 Enabled	= 0	Боогеан							
			Tap Down Switch Stuck in the									
			Down Position in Range 6 Enabled	= 0	Boolean							
			Tap Down Switch Stuck in the Down Position in Range Neutral	= 1	Boolean							
			Enabled	- '	boolean							
			Tap Down Switch Stuck in the									
			Down Position in Range Park	= 1	Boolean							
			Enabled Tap Down Switch Stuck in the									
			Down Position in Range Reverse	= 0	Boolean							
			Enabled	- 0	boolean							
			Tap Down Switch ON	= TRUE	Boolean					>= 1	sec	
			Fail Coop 2									-
			Fail Case 2 Tap Down Switch Stuck in the	= 1	Boolean							
			Down Position in Range 1 Enabled	· '	Societii							
			Tap Down Switch Stuck in the									
			Down Position in Range 2 Enabled	= 1	Boolean							
			Tap Down Switch Stuck in the	= 1	Boolean							
		1	Down Position in Range 3 Enabled	· .	_ 5010411							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Т	hreshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1	Boolean								
			Tap Down Switch Stuck in the Down Position in Neutral Enabled Tap Down Switch Stuck in the	= 0	Boolean								
			Down Position in Park Enabled	= 0	Boolean								
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	= 0	Boolean								
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	= TRUE	Boolean					>=	600	sec	
						Time Since Last Range Change Ignition Voltage Lo	>= >=	1	Sec Volts				
						Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	<= >= <=	18 400 7500	Volts RPM RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						P1766 Status is	≠	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1767, ECM: None	P1761, P182E	P1915				
Tap Up Tap Down Switch (TUTD)	P1767	Up and Down Shift Switch Circuit #2	TUTD Circuit Reads Invalid Voltage	= TRUE	Boolean					>=	60	Fail Time (Sec)	No Mil
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>=	9 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
						P1767 Status is	≠	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1761 ECM: None						

Component/	Fault	Monitor Strategy	Malfunction		reshold	Secondary		Enable				ime	Mil
System	Code	Description	Criteria		/alue	Malfunction		Conditions			Req	uired	Illum.
Tap Up Tap Down Switch (TUTD)	P1876	Tap Up and Down Enable Switch Circuit	Current range	Park or = Reverse o Neutral	r Range State								Special No MIL
			TUTD Enable Switch is Active	= TRUE	Boolean					>= >=	3 5	Fail Time (Sec) Fail Counts	
						Ignition Voltage Lo Ignition Voltage Hi Vehicle Speed Lo Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= <= >= <= >=	9 31.990234 511 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts KPH RPM RPM Sec	2=	3	rail Courts	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815, I P1825, P1877 ECM: None						
Transmission Control Module (TCM)	P2537	Ignition Switch Accessory Position Circuit Low	TCM Accessory Input  Note: If P2537 has not passed or failed this key cycle, a pass counter will be incremented if the Accessory input is TRUE (high). Once the delay time is satisfied, this pass counter will then be evaluated to determine pass or fail. If the pass criteria has not been met a fail is reported.	= FALSE	Boolean					<	1	Pass Counts (12.5ms loop)	No Mil
			·		Disable Conditions:	P2537 P2537 Propulsion System Active Delay timer  MIL not Illuminated for DTC's:	# # = >= TCM: None	Test Pass This Key On Test Failed This Key On TRUE 32	Boolean Sec				
High Side Driver 2	P2670	Actuator Supply Voltage B Circuit Low	The HWIO reports a low voltage (open or ground short) error flag	= TRUE	Boolean					>= out of	0	Fail Counts Sample Counts	No Mil

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
		·				P2670 Status is not High Side Driver 2 On	=	Test Failed This Key On or Fault Active True	Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
High Side Driver 2	P2671	Actuator Supply Voltage B Circuit High	During the controller power-up, prior to the HSD being turned on, the HWIO reports that power short failure is	= TRUE	Boolean					>= out	0	Fail Counts	No Mil
						P2671 Status is not	=	Test Failed This Key On or Fault Active		of	0	Sample Counts	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2719	Pressure Control (PC) Solenoid D Control Circuit Rationality Test (CB26 VBS)	The HWIO reports an invalid voltage (out of range) error flag	= TRUE	Boolean					>= out of	4.4	Fail Time (Sec) Sample Time (Sec)	No Mi
						P2719 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= <= >= <= >=	Test Failed This Key On or Fault Active 9 31.990234 400 7500 5	Volts Volts RPM RPM Sec	oi.		(See)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2728	Pressure Control (PC) Solenoid E Control Circuit Rationality Test (C1234 VBS)	The HWIO reports an invalid voltage (out of range) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	No Mil
		(								out of	5	Sample Time (Sec)	

# 16 OBDG03 TCM Summary Tables T76 (6 Speed Unique)

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
-,			2.1.00		-	P2728 Status is not	=	Test Failed This Key On or Fault				**	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	Active 9 31.990234 400 7500 5	Volt Volt RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2762	Torque Converter Clutch Pressure Control Solenoid Control Rationality Test	The HWIO reports an invalid voltage (out of range) error flag	= TRUE	Boolean					>= out	4.4	Fail Time (Sec) Sample Time	No Mil
						P2762 Status is not  Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= <= >= <= >=	Test Failed This Key On or Fault Active 9 31.990234 400 7500 5	Volt Volt RPM RPM Sec	of		(Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Communication	U0121	Loss Communications with ABS (Anti lock Brake System)	CAN messages from ABS are not received by the TCM	= TRUE	Boolean	Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 9 31.990234 Run	sec Volt Volt	>=	12	sec	No Mil
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						
Communication	U0140	Loss Communications with BCM (Body Control Module)	CAN messages from BCM are not received by the TCM	= TRUE	Boolean	Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 9 31.990234 Run	sec Volt Volt	>=	12	sec	No Mil

# 16 OBDG03 TCM Summary Tables T76 (6 Speed Unique)

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Secondary Enable Time Value Malfunction Conditions Require					Mil Illum.				
					Disable Conditions:	DTC's:							
Communication	U0293	Loss Communications with HPCM (Hybrid Powertrain Control Module)	CAN messages from HPCM are not received by the TCM		Boolean					>=	12	sec	No Mil
						Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= <=	3 9 31.990234 Run	sec Volt Volt				

### 16 OBDG03 Diagnostic 2D Tables TCM T76 (6 Speed)

Table 1

Axis	0.00	64.00	128.00	192.00	256.00	320.00	384.00	448.00	512.00 N*m
Curve	100.00	120.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00 RPM

Table 2

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

Table 3

Axis	-6.67	-6.66	40.00	٥С
Curve	409.59	3.50	3.50	Sec

Table 4

Axis	-6.67	-6.66	40.00	٥С
Curve	409.59	2.99	2.00	Sec

Table 5

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

Table 6

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	409.00	3.60	1.60	1.40	1.40	Sec

Table 7

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	409.00	3.40	1.40	1.30	1.20	Sec

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	409.00	3.60	1.60	1.50	1.40	Sec

#### 16 OBDG03 Diagnostic 2D Tables TCM T76 (6 Speed)

#### Table 9

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

#### Table 10

Axis	-30.00	-20.00	0.00	30.00	60.00	٥С
Curve	8.85	3.75	1.31	0.28	0.28	Sec

#### **Table 11**

Axis	-30.00	-20.00	0.00	30.00	60.00	٥С
Curve	5.00	1.70	0.40	0.25	0.25	Sec

#### Table 12

Axis	-30.00	-20.00	0.00	30.00	60.00	٥С
Curve	8.00	2.20	0.70	0.25	0.25	Sec

#### Table 13

Axis	-30.00	-20.00	0.00	30.00	60.00	٥С
Curve	5.20	1.60	0.50	0.27	0.23	Sec

#### Table 14

Axis	-30.00	-20.00	0.00	30.00	60.00	٥С
Curve	5.00	1.50	0.70	0.25	0.25	Sec

#### Table 15

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

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

### 16 OBDG03 Diagnostic 2D Tables TCM T76 (6 Speed)

#### <u>Table 17</u>

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

#### <u>Table 18</u>

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10	٥С
Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00	٥С

#### **Table 19**

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10	٥С
Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00	٥С

#### Table 20

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10	٥С
Curve	256.00	10.00	8.00	8.00	8.00	8.00	8.00	8.00	256.00	⁰С

#### Table 21

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

#### Table 22

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

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			Threshold Value	Secondary Malfunction		Enable Conditions			Time Required		Mil Illum.
Longitudinal Acceleration Sensor	C1253	Longitudinal Acceleration Sensor Circuit High	G Sensor	≧	1.71	G	Two fault occurances accumulated or continuous	=	TRUE		>	5.0	sec	Specia No MII
							System Voltage	> ≦	10 32	volt volt				
							Vehicle speed	≧	1	kph				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U007	3, P175F					
Longitudinal Acceleration Sensor	C1252	Longitudinal Acceleration Sensor Circuit Low	G Sensor	≦	-1.71	G	Two fault occurances accumulated or continuous	=	TRUE		>	5.0	sec	Specia No MII
							System Voltage	>	10	volt				
								≦	32	volt				
							Vehicle speed	≧	1	kph				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U007	3, P175F					
Longitudinal Acceleration Sensor	C1254	Longitudinal Acceleration Sensor Performance	G Sensor variation (Calculated from vehicle speed)	≧	0.027	G	Two fault occurances accumulated or continuous	=	TRUE		>	5.0	sec	Specia No MII
							System Voltage	>	10	volt				
								≦	32	volt				
							Stuck at a high Stuck at a low		OFF OFF		>	> 1.0 sec		
							Absolute of G Sensor Variation	≦	0.011	G				
						Disable Conditions:	CAN diagnosis MIL not Illuminated for DTC's:	TCM: U007	OFF 3, P175F					
System Voltage	P0561	System Voltage Performance Diagnostic	ABS(VIGN-VBatt)	≧	3	V	Propulsion System Active Starter Motor Engaged	= TRUE = FALSE			>	4	Sec	One Tri
							Vbatt(PVIGN) Run Crack status	>= = TRUE	5	V				

Past ROM Diagnosis Result from Operating State Rom Operation State Rom Operation State Rom Operation State Rom Diagnosis Result from Operation State Rom Dia	OR Sult = Fail	Malfunction  MIL not Illuminated for DTC's:  System Voltage	Conditions TCM: U0100, P0885, P2534、U0073、P0563 ECM: None	Required  Immediately	One Trip
Fast ROM Diagnosis I from Operation S RAM Diagnosis Result from Operating S	em = Fail  OR sult = Fail		P2534、U0073、P0563	Immediately	One Trip
Fast ROM Diagnosis I from Operation S RAM Diagnosis Result from Operating S	OR Sult = Fail	System Voltage		Immediately	One Trip
from Operation S  RAM Diagnosis Result from Operating S	sult = Fail	System Voltage			
from Operation S  RAM Diagnosis Result from Operating S	sult = Fail	System Voltage			
		System Voltage			
			= from IGN-ON before Power-Off		
Fast RAM Diagnosis I				Immediately	One Trip
	OR sult = Fail				
from Operation S	em	System Voltage	= from IGN-ON before Power-Off		
			belote Fower-Off		
CPU Diagnosis Result from Operating S	em = Fail			Immediately	One Trip
Semicondutor-Relay Stuck Off Diagnosis I from Operating S	em				
Semicondutor-Relay Stuck On Diagnosis I from Operating S					
		System Voltage	= from IGN-ON before Power-Off		
dule Long-Term Memory Non-volatile memory (st. dynamic) checksum misi	tch = TRUE	None			One Trip
	Disable Conditions:	: MIL not Illuminated for DTC's:	TCM: None		
on Range Switch Circuit Fail Case 1 The range signal from the	TR switch signal is in a "no range signal"		ECM: None	20 6	One Trip
		System voltage	>= 10 V	> 30 Sec	
		System voltage	=< 32 V		
	Disable Conditions:	: MIL not Illuminated for DTC's:	TCM: None ECM: None		
n l		Range Switch Circuit Fail Case 1 The range signal from the TR switch signal is in a "no range signal" state	Range Switch Circuit  Fail Case 1  The range signal from the TR switch signal is in a "no range signal" state  System voltage  System voltage	Range Switch Circuit Fail Case 1 The range signal from the TR switch state System voltage System voltage The range signal from the TR switch state System voltage The range signal from the TR switch state System voltage The range signal from the TR switch state System voltage The range signal from the TR switch state System voltage The range signal from the TR switch state System voltage The range signal from the TR switch state System voltage The range signal from the TR switch state System voltage The range signal from the TR switch state System voltage The range signal from the TR switch state System voltage The range signal from the TR switch state System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch System voltage The range signal from the TR switch	Range Switch Circuit  Fail Case 1  The range signal from the TR switch signal is in a "no range signal" state  System voltage  System voltage  System voltage  System voltage  The range signal from the TR switch signal is in a "no range signal" state  System voltage  System voltage  The range signal from the TR switch signal is in a "no range signal" state  System voltage  System voltage  The range signal from the TR switch signal is in a "no range signal" state  System voltage  System voltage  The range signal from the TR switch signal is in a "no range signal" state  System voltage  The range signal from the TR switch signal is in a "no range signal" state  System voltage  System voltage  The range signal from the TR switch signal is in a "no range signal" state  System voltage  System voltage  The range signal from the TR switch signal is in a "no range signal" state  System voltage  System voltage  The range signal from the TR switch signal is in a "no range signal" state  System voltage  System voltage  The range signal from the TR switch signal is in a "no range signal" state  System voltage  System voltage  The range signal from the TR switch signal is in a "no range signal" state  System voltage  System voltage  The range signal from the TR switch signal is in a "no range signal" state  System voltage  System volt

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable		Time	<u></u>	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions		Requir	ed	Illum.
			Fail Case 2 The range signal from the TR switch	switch signal is in a "no range signal" state			>	5	Sec	
			SWICH	Sidle	System voltage	>= 10 V				
					System voltage					
						200				
					Engine speed - Calculated turbine					
					speed	value)				
						050				
					Calculated turbine speed	250 >= (calibration rpm				
					·	value)				
					LU patern					
					ATF Temperature Clutch Status					
				Disable Conditions:		TCM: U0100, P0717, P0711, P0712,				
						P0713				
						ECM: None				
A/T Range (TR) Switch	P0706	Transmission Range Switch	The range signal from the TR	more than one "range signal" is detected			>	2	Sec	One Trip
		Performance	switch	/E			>	2	Sec	
				(Except combination of D and L which has overlap by design; defaults to D	System voltage System voltage					
						, , , , , , , , , , , , , , , , , , , ,				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None				
				Disable Conditions.	WILL HOL HIGHHINATED TO DTC 5.	TCW. None				
						ECM: None				
Transmission Fluid	P0711	Transmission Fluid Temperature	ATF Fluid temperature stuck in				>=	10	Fail Time (Min)	One Trip
Temperature Sensor (TFT)		Sensor Performance	temperature zone A/T Fluid temperature	<= 10 C°						
			A Frida temperature	10 0						
			A/T Fluid temperature	>= -40 C°	Custom valtaga	) >= 10 V				
			Avi Fluid temperature	>= -40 C	System voltage	>= 10 V				
					System voltage	=< 32 V				
					Range	D or L Range				
					Engine speed					
					Vehicle speed Pedal position					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: D0705, D0706				
				Disable Conditions.	WILL HOL HIGHHINATED TO DTC 5.	1 CW. P0703, P0700				
						ECM: None				
Transmission Fluid	P0712	Transmission Fluid Temperature	A/T Fluid temperature	>= 180 C°	Cuntor:li	. 10	>=	5	Fail Time (Sec)	One Trip
Temperature Sensor (TFT)		Sensor Circuit Low Voltage (short to ground).			System voltage System voltage					
		,			.,					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None				
				DISADIE CONUITIONS:	with not manificated for DTC S	TOW. NUTE				
1						ECM: None	1			1

Component/	Fault	Monitor Strategy	Malfunction		eshold	Secondary		Enable		1	Tir		Mil
System Transmission Fluid	Code P0713	Description Transmission Fluid Temporature	Criteria  A/T Fluid temperatura		alue C°	Malfunction		Condition	S	-	Requ 5		Illum.
Temperature Sensor (TFT)	P0/13	Transmission Fluid Temperature Sensor Circuit High Voltage (open or short to power).	A/T Fluid temperature	-40	C	System voltage System voltage		10 32	V V	>=	5	Fail Time (Sec)	One Trip
					Disable Conditions:	Vehicle speed : MIL not Illuminated for DTC's		7	mph				
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit No Signal	Fail Case 1 Primary pulley speed	1 < 150	RPM					>=	5	Sec	One Trip
Selisui (1133)						System voltage System voltage		10 32	V V				
						Secondary Pulley speed	>=	1000	RPM				
			Fail Case 2								500		
		Check pulse input	Pulse inpu	t No pulse		System voltage	· >=	10	V	>=	500	msec	
						System voltage		32	V				
						Latest calculated Primary pulley speed		1000	RPM				
					Disable Conditions:	MIL not Illuminated for DTC's							
ATT Valida Canad Canada	D0721	Outrot Carad Carana Dafamana	F-11 C 1 Out-ut	150	DDM		ECM: None				10		O T-!-
A/T Vehicle Speed Sensor	P0721	Output Speed Sensor Performance	Fail Case 1 Output gear speed	l < 150	RPM	System voltage System voltage		10 32	V V	>=	10	sec	One Trip
(Output Gear Speed Sensor)						Secondary Pulley speed Range Calculated turbine speed is experienced after engagement	>= D Range or L <	1500 Range or R 300	rpm Range rpm				
						Output gear speed is not experienced after engagement	>	250	rpm				
					Disable Conditions:		TCM: P0705,	P0706					
							ECM: None						
		Pulse input	Fail Case 2 Pulse inpu	No pulse		System voltage		10	V	>=	500	msec	
						System voltage Latest calculated		32 730	v RPM				
						Output gear speed		730	KPM				
					Disable Conditions:	: MIL not Illuminated for DTC's	TCM: None ECM: None						
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF		(40 + Vehicle			LCIVI. INUTIE						One Trip
			Torque converter slip	>= speed [ mph ] x 1.6/2)	RPM					>=	30	Sec	
I	I	I	I	I		System voltage	>=	10	V	I			l

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
					System voltage	e =< 32 V		
						Commanded		
					TCC Mode	Lock		
				Disable Conditions	Lock up command oil pressure : MIL not Illuminated for DTC's			
				Disable Collditions	. WILL HOL HIGHINAted for DTC S	: TGW: P0/1/		
						ECM: TBD(engine speed)		
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	The LU coast learning value CLPrsL; with A/C OFF CLPrsLACON; with A/C ON	=< -0.1 MPa			Immediately	One Trip
					System voltage	>= 10 V		
					System voltage	e =< 32 V		
					LU coast learning contro	Experienced at least once in the same		
					TCC Slip	o < 100 rpm		
					Engine speed Temperature			
					remperature	< 140 degC		
					TCC Mode	Commanded Lock		
				Disable Conditions	: MIL not Illuminated for DTC's	TCM: P2763, P2764, P0741, P0742,		
						P0705, P0706, P0717, P0711, P0712, P0713, P0841, P0842, P0843, P0885, P0961, P0962, P0963, U100		
Secondary pulley Speed	P0792	Intermediate Shaft Speed Sensor	Fail Case 1 Secondary pulley speed	< 150 RPM			> 5 Sec	One Trip
Sensor		Circuit Performance	Secondary paney speed	100 10111	System voltage	e >= 10 V	300	
					System voltage	, )_ 10 V		
		Check Secondary pulley speed			System voltage	e =< 32 V		
					Primary pulley speed	i>= 1000 rpm		
					,, ,,,,,			
			Fail Case 2 Check pulse input	No pulse	System voltage	e >= 10 V	> 500 msec	
					System voltage			
					Latest calculated Secondary pulley			
					speed			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Τ	Time Require		Mil Illum.
Эузісііі	Couc	Безеприон	Smorta					Require		main.
				Disable Conditions:	MIL not Illuminated for DTC's:					
Auxiliary Shift Gear In Neutral	P0796	Pressure Control Solenoid Valve 3				ECM: None	┼			One Trip
		Stuck Off [Gear ratio in Neutral (1st gear)]	Actual auxiliary shift gear ratio	>= 2.232			>=	2	sec	
		Check current			System voltage System voltage					
		commanded gear ratio and actual gear ratio			Engine speed Output gear speed					
					Secondary pulley speed	> 300 rpm				
					Range	D Range or L Range				
					Pedal position Current commanded auxiliary shift gear	= 1st Gear				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P2715,P2714, P0797, P0721, P0792, P0706, P0705, P0970, P0971, P2720, P2721, U0100, U0073				
						ECM: TBD(engine speed) TBD(Pedal position)				
Auxiliary Shift Gear Interlock	P0797	Pressure Control Solenoid Valve 3 Stuck On	<u>Fail Case 1</u> Actual auxiliary shift gear ratio	without +/-50% range of designed			>=	200	msec	One Trip
/ Incorrect Auxiliary Shift Gear Ratio		[Gear ratio fail (2nd gear)]		2nd gear ratio						
		Check vehicle deceleration and the actual gear ratio			System voltage System voltage					
					Engine speed Output gear speed					
					Secondary pulley speed	> 300 rpm				
					Vehicle speed					
					Vehicle G Current commanded auxiliary shift gear	= 2nd gear				
		Check current commanded gear ratio and actual gear ratio	<u>Fail Case 2</u> Actual auxiliary shift gear ratio	within +/-10% range of designed			>=	500	msec	
				1st gear ratio						

Maillandian   Code	Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System unitary   - 20		Code		Criteria	Value			Required	Illum.
Fight special									
Compare actual pressure with   Target secondary pressure   Part   Pressure						System voltage	=< 32 V		
Disable Conditions						Engine speed	> 625 rpm		
Possible Conditions									
Probable Conditions									
Secretary pulsy Presure  Compare actual presure with target presure  Actual secondary pressure - > 12 MPa  Compare actual pressure target target secondary pressure - > 12 MPa  Compare actual pressure target target secondary pressure - > 12 MPa  Compare actual pressure target target secondary pressure - > 12 MPa  Compare actual pressure target target secondary pressure - > 12 MPa  Compare actual pressure target target target target target secondary pressure - > 12 MPa  Compare actual pressure target									
Current commanded auxiliary   2 dig days   1 dig set									
Secondary pulses Pressure   Pressure state   Pressure									
P0792, P070e, P0705, P0707,									
P2720_P272_TURDIO_U0073   ECAN_TBE/prights speed)   P2720_P272_TURDIO_U0073   ECAN_TBE/prights speed   P2720_P272_TURDIO_U0073   ECAN_TBE/prights speed   Engine speed   P2720_P272_TURDIO_U0073   ECAN_TBE/prights speed   P2720_P272_TURDIO_U007_TURD					Disable Conditions:	MIL not Illuminated for DTC's			
PO841   Facus   Facu									
PO841   Facus   Facu							FCM: TBD(engine speed)		
Focusion Fluid Pressure Performance Rationally Pressure Performance Rationally Pressure Actual secondary pressure Performance Rationally Pressure Actual secondary pressure Performance Rationally Pressure Performance Rational Pressure									
Performance Rationality  Actual secondary pressure  Compare actual pressure with  target pressure  Compare actual pressure with  target pressure  Compare actual pressure  System voltage  Primary Pulley  Compare Dange  Compare Compare  Compare Com		P0841		Fail Case 1					One Trip
Compare actual pressure with target secondary pressure   System voltage   >= 10	Secondary pulley Pressure			Actual secondary pressure -	> 0.675 MPa			5 sec	
Target pressure  System voltage Range D Range Primary Pulley > 306 rpm Scondary Pulley > 230 rpm   Vehicle Speed Rate of Change  < 31 mph   Pulley rnilo Rate of Change  < 31 mph   Pulley rnilo Rate of Change  < 21 %   Mil. not Illuminated for DTC's: TCM: P0717, P0792, P0721, U0100, P0706,			r chormance Rationality						
Target pressure  System voltage Range D Range Primary Pulley > 306 rpm Scondary Pulley > 230 rpm   Vehicle Speed Rate of Change  < 31 mph   Pulley rnilo Rate of Change  < 31 mph   Pulley rnilo Rate of Change  < 21 %   Mil. not Illuminated for DTC's: TCM: P0717, P0792, P0721, U0100, P0706,	Sensor		Compare actual pressure with	Target secondary pressure		System voltage	>= 10 V		
Primary Pulley   306   rpm   Secondary Pulley   230   rpm				. J					
Secondary Pulley   230   rpm			3						
Secondary Pulley   230   rpm						Primary Pulley	> 306 rpm	ŀ	
Vehicle Speed Rate of Change							· ·	i	
Pedal position Rate of Change   Conditions:   Pedal position Rate of Change   MIL not Illuminated for DTC's:   TCM: PD705, PD963, PD971, U0100, PD706, PD705, PD963, PD981, PD842, PD843, PD885   ECM: TBD(engine speed)						Vehicle Speed Rate of Change	< 31 mph		
Disable Conditions:   Mil. not Illuminated for DTC's:   TCM: P0717, P0792, P0721, U0100, P0706, P0705, P0963, P0961, P0842, P0843, P0885   ECM: TBD(engine speed)									
P0706, P0705, P0963, P0961, P0842, P0843, P0885     ECM: TBD(engine speed)     Eall Case 2					Disable Conditions				
P0843, P0885   ECM: TBD(engine speed)					Disable Conditions.	WILE HOL III MINIMARCA TOF DTC 3			
Fail Case 2  Target secondary pressure - > 1.2 MPa  Actual secondary pressure - > 1.2 MPa  System voltage >= 10 V  Range D Range Engine speed >= 450 rpm Vehicle Speed >= 7 mph Pedal position >= 12.5 % Target secondary pressure >= 0 MPa									
Fail Case 2  Target secondary pressure - > 1.2 MPa  Actual secondary pressure - > 1.2 MPa  System voltage >= 10 V  Range D Range Engine speed >= 450 rpm Vehicle Speed >= 7 mph Pedal position >= 12.5 % Target secondary pressure >= 0 MPa							ECM: TRD(onging speed)		
Target secondary pressure - > 1.2 MPa  Actual secondary pressure System voltage >= 10 V  Range D Range Engine speed >= 450 rpm Vehicle Speed >= 7 mph Pedal position >= 12.5 % Target secondary pressure >= 0 MPa							LCIVI. TBD(eligilie speed)		
Actual secondary pressure  Range D Range Engine speed >= 450 rpm   Vehicle Speed >= 7 mph Pedal position >= 12.5 % Target secondary pressure >= 0 MPa					12 MDa			10 coc	
Range D Range  Engine speed >= 450 rpm    Vehicle Speed >= 7 mph  Pedal position >= 12.5 %  Target secondary pressure >= 0 MPa				raiget secondary pressure -	> 1.2 Wra			TO Sec	
Engine speed >= 450 rpm  Vehicle Speed >= 7 mph  Pedal position >= 12.5 %  Target secondary pressure >= 0 MPa				Actual secondary pressure		System voltage	>= 10 V		
Engine speed >= 450 rpm  Vehicle Speed >= 7 mph  Pedal position >= 12.5 %  Target secondary pressure >= 0 MPa									
Engine speed >= 450 rpm  Vehicle Speed >= 7 mph  Pedal position >= 12.5 %  Target secondary pressure >= 0 MPa						Range	D Range		
Pedal position >= 12.5 % Target secondary pressure >= 0 MPa							· ·		
Target secondary pressure >= 0 MPa									
A/1 Fluid lemberalurel < 180 C* J						A/T Fluid temperature			

Component/	Fault	Monitor Strategy	Malfunction	Thresho	old	Secondary	1	Enable		1	Time		Mil
System	Code	Description	Criteria	Value		Malfunction		Conditions			Required		Illum.
Gjata	5545	Sees. pass.		14.40		A/T Fluid temperature		10	C°		rioquii ou		
				Di	oisable Conditions:	MIL not Illuminated for DTC's:	P0706, P0705 P0842, P0843 U0073, P0711 ECM: TBD(en	P0963, P096 P0741, P276 P0712, P071	52, P0961, 54, P2763,				
Secondary pulley Pressure Sensor	P0842	Transmission Fluid Pressure Sensor Circuit Low Voltage Check input voltage	Sensor circuit Input Voltage	<= 0.09 vol	ilts	System voltage	>=	10	V	>=	5	sec	One Trip
Sensor		Check input voltage				System voltage		32	V				
						A/T Fluid temperature	>	-20	Cº				
				Di	Disable Conditions:	MIL not Illuminated for DTC's:							
							ECM: None						
Secondary pulley Pressure Sensor	P0843	Transmission Fluid Pressure Sensor Circuit High Voltage Check input voltage	Sensor circuit Input Voltage	>= 4.7 vol	ilts	System voltage System voltage	>= =<	10 32	V V	>=	5	sec	One Trip
						A/T Fluid temperature Target pressure of Secondary Pressure Solenoid	<=	-20 5.7	C° MPa				
				Di	Disable Conditions:	MIL not Illuminated for DTC's:							
ROM Assembly	P0863	ROM Read error	ROM assembly read error	= TRUE		System voltage	ECM: None	6.5	V	>=	10	sec	One Trip
							P range or N ra	ange None					
				Di	Disable Conditions:	MIL not Illuminated for DTC's:							
			ROM assembly communication				ECM: None			-			$\vdash$
		Communication error	error	= TRUE		System voltage System voltage		10 32	V V	>=	10	sec	
						Range	P range or N ra	ange					

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
					Output speed sensor pulse input starting from IGN-ON			
				Disable Conditions:	MIL not Illuminated for DTC's:			
Transmission Fluid Drassura	P0871	Transmission Fluid Pressure Switch	Fail Case 1			ECM: None		One Trip
Transmission Fluid Pressure Switch	P06/1	Performance	High clutch pressure switch status	= ON	_		> 1.5 sec	One mp
					High clutch pressure command			
					ROM assembly communication status	Not communicating		
				Disable Conditions:		TCM: P0705, P0706, P0796, P2715,		
						ECM: None		
			Fail Case 2 High clutch pressure switch status	= ON			> 1.5 sec	
					Range High clutch pressure command Engine speed			
					Current commanded auxiliary shift gear			
					Vehicle speed	< 7 Mph		
					ROM assembly communication status	Not communicating		
				Disable Conditions:		TCM: P0705, P0706, P0796, P2715, ECM: None		
			Fail Case 3 High clutch pressure switch status	= OFF			Refer to Table sec	
					Range High clutch pressure command	D range or L range >= 0.2 MPa		
					Current commanded auxiliary shift gear			

Component/	Fault	Monitor Strategy		Malfunction	Т	hreshold	Secondary	T T	Enable		1	Time		Mil
System	Code	Description		Criteria	'	Value	Malfunction		Conditions			Required		Illum.
						. ==	High Clutch pressure solenoic			- 4		quii ou		
							command curren		50	mA				
							High Clutch pressure solenoic		60	mA				
							monitor curren	[						
							Engine speed		550	rpm				
							Output gear speed Secondary pulley speed		300 300	rpm rpm				
							Secondary pulley speed		300	трпп				
							Actual auxiliary shift gear ratio	<	1.1					
							Pedal position		7.8	%				
							ROM assembly communication	Not commur	nicating					
							status MIL not Illuminated for DTC's	TCM: DOZOF	5 D0704 D0704	D2715				
							WILL HOL HIGHINIATED TO DTC S	ECM: None		), F2/15,				
Input Voltage	P0885	Transmission Control Module (TCM) Power Relay Control Circuit		Power Source	< 8.4	V					>=	200	msec	One Trip
		r ower Relay Control Circuit					System voltage	>	11	V				
							.,							
						Disable Conditions:	MIL not Illuminated for DTC's	TCM: Non	e					
	P0961	Line Pressure Control Solenoid Valve	Fail Case 1					ECM: Non	e		1			One Trip
Line Pressure Solenoid		Performance	<u> </u>											ono mp
		Check pulley ratio												
				(Primary pulley speed /Secondary	> 2.55						>=	200	msec	
				pulley speed)			Ranne	D Pange or	L Range or R R	anna				
							Engine Speed		600	rpm				
							Primary pulley speed		500	rpm				
							Key On time	>=	500	ms				
							Vehicle G	>=	-0.051	G				
							Output speed	<=	107	rpm				
							0							
							Secondary pulley speed	1	61	rpm				
							Pedal pressed		TRUE	_				
		Check pulley ratio	Fail Case 2				Interval time after 1st detection	>=	1	sec				
		oncer puncy ratio		(Primary pulley speed /Secondary	. 225							100	mana	
				pulley speed)	> 3.35			]			>=	100	msec	
									L Range or R R					
							Engine Speed Primary pulley speed		600	rpm				
							334	,	500	rnm				
								,	000	rpm				
1	I							I						l l

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			nreshold Value	Secondary Malfunction		Enable Conditions			Time Required		Mil Illum.
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							Key On times	>=	500	ms				
							Vehicle G	>=	-0.051	G				
							Output speed or	<=	107	rpm				
							Secondary pulley speed	>	61	rpm				
							Pedal pressec	=	TRUE					
							Interval time after 1st detection	>=	1	sec				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P071	7, P0721					
								ECM: None						
Line Pressure Solenoid	P0962	Line Pressure Control Solenoid Valve Control Circuit Low Voltage	Monitored current	<=	200	mA					>=	200	msec	One Trip
		Control Circuit Low Voltage	Commanded current	>=	750	mA	System voltage	>=	10	V				
							System voltage	=<	32	V				
							Hardware circuitry detects	=	TRUE					
							short to ground				1			
							Fille Lle22nie 20ieiloid	=	ON					
							commono							
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P096 ECM: None						
Line Pressure Solenoid	P0963	Line Pressure Control Solenoid Valve Control Circuit High Voltage	Monitored current	<=	200	mA					>=	200	msec	One Trip
		Control Circuit Flight Voltage	Commanded current	>=	750	mA	System voltage	>=	10	V				
							System voltage	=<	32	V				
							Hardware circuitry detects	=	FALSE					
							short to ground							
							Line Pressure Solenoid							
							command	=	ON					
						D: 11 0 1"	MIL III . I I BTOL	TOM DOO						
						Disable Conditions:	MIL not Illuminated for DTC's:	ECM: None						
Primary Pressure Solenoid	P0965	Pressure Control Solenoid Valve 2	Fail Case 1 Pulley ratio (Primary pulley speed	>=	2.0	and					>=	5	Sec	One Trip
Timary Fressure Solenoid		Performance	/Secondary pulley speed)	<=	2.4	anu					/-	3	300	
				<=	2.4		Range	D Range or	L Range or R R	ange				
							Engine Speed	>	500	rpm				
							Target pulley ratio	<	1.2					
			Fail Case 2 Pulley ratio (Primary pulley speed		0.35	and		i				5	Sec	
			/Secondary pulley speed)			and					>=	Э	260	
				<=	0.75		Ranne	D Range or	L Range or R R	ange				
I	1	ı	ı	ı			Kange	D Ivalige Of	L Manye of R R	unge	1			1 1

System   Code   Description   Cotton	Component/	Fault	Monitor Strategy	Malfunction		Threshold	Secondary	I	Enable		I	Time		Mil
Principal Procuse Sciences   Principal Procuse Sciences Values   Principal Procuse Sciences Values   Principal Procuse Sciences Values   Principal Procuse Sciences Values   Principal P							Malfunction						d	
Principle   Second   Principle   Princip							Engine Speed	i						
Princip Princip Posture Scienced   Princip P														
Princy Prosure Science   Princy								,	500	rnm				
Princy Pressure Sciences   Princy									000					
Princy Pressure Sciences   Princy														
Princy Pressure Sciences   Princy								ļ						
Printing   Pessure Salerald   Printing   Pessure Control Salerald   Winds   Pessure Salerald   Printing   Printing   Pessure Salerald   Printing   Pessure Salerald   Printing   Printing   Pessure Salerald   Printing   Printing   Printing   Printing   Printing   Printing   Printing   Printing   Printing							Target pulley ratio	>	1.55					
Printing   Pessure Salerald   Printing   Pessure Control Salerald   Winds   Pessure Salerald   Printing   Printing   Pessure Salerald   Printing   Pessure Salerald   Printing   Printing   Pessure Salerald   Printing   Printing   Printing   Printing   Printing   Printing   Printing   Printing   Printing						Disable Conditions:	MIL not Illuminated for DTC's	TCM: P0717.	P0792. P0842	2. P0843.				
Privary Pressure Scientist   Privary Pressure Control Scientist Valves STO   Privary Pressure Scientist   Privary Pressure Scienti								P0841, P0962	, P0963, P096	1, P0966,				
Printing Pressure Salarond Pressure Control Salarond Valve 2 Control Circust Low Voltage STG Commanded current = 200 mA System voltage = 10 V System volta								P0967, P0706	, P0705, U010	00				
Printing Pressure Salarond Pressure Control Salarond Valve 2 Control Circust Low Voltage STG Commanded current = 200 mA System voltage = 10 V System volta								ECM: TBD(E	ngine speed)					
Primary Pressure Salandar		P0966	Pressure Control Solenoid Valve 2					,	J 1 /					One Trip
System vellage 22 V Hardware circuity detects short to ground Plinary Pressure Solenoid Control Circuit High Veltage Open Control Circuit H	Primary Pressure Solenoid					mA					>	480	msec	
Hordware circulty detects shart to ground a TRUE  Primary Pressure Solenoid  Primary Pressure Solenoid				Commanded current	>= 750	mA								
Primary Pressure Solenoid   P0967   Pressure Cartrial Solenoid Value 2   Commanded current   P100							System voltage	=<	32	V				
Primary Pressure Sciencid Primary Pressure S							Hardware circuitry detects short to		TDUE					
Disable Conditions: MIL not Illuminated for DTCs: TCAL P0967  Primary Pressure Sciencial P0967 Pressure Control Sciencial Valve 2 Control Circuit High Voltage Open Commanded current 3- 750 mA System voltage 3- 10 V  System							ground	=	IRUE		ļ			
Disable Conditions: MIL not Illuminated for DTCs: TCAL P0967  Primary Pressure Sciencial P0967 Pressure Control Sciencial Valve 2 Control Circuit High Voltage Open Commanded current 3- 750 mA System voltage 3- 10 V  System							Drimany Drossura Salanaia							
Primary Pressure Solenoid Possure Control Solenoid Valve 2 Control Circuit High Vatage Open Commanded current Commanded current Commanded current Primary Pressure Solenoid Possure Control Solenoid Valve 2 Control Circuit High Vatage Open Commanded current Commanded current Primary Pressure Solenoid Possure Circuit Value System votage Possure Solenoid Primary Pressure Solenoid Valve Solenoid Va									ON					
Primary Pressure Solenoid Possure Control Solenoid Valve 2 Control Circuit High Vatage Open Commanded current Commanded current Commanded current Primary Pressure Solenoid Possure Control Solenoid Valve 2 Control Circuit High Vatage Open Commanded current Commanded current Primary Pressure Solenoid Possure Circuit Value System votage Possure Solenoid Primary Pressure Solenoid Valve Solenoid Va														
Primary Pressure Solenoid P0967 Pressure Control Solenoid Valve 2 Control Circuit High Voltage Open Commanded current >= 750 mA System voltage >= 10 V System voltage =< 32 V Hardware circuitry delects short to ground = FALSE Primary Pressure Solenoid = ON Disable Conditions: MIL not illuminated for DTC's TCM-P0966 ECM. None  P0970 Pressure Control Solenoid Valve 3 Nontrol Circuit High Voltage Open One Trip One Tri						Disable Conditions:	MIL not Illuminated for DTC's	TCM: P0967						
Control Circuit High Voltage Open  Control Circuit High Voltage Open  Commanded current >= 750 mA  System voltage >= 10 V  System voltage =< 32 V  Hardware circuitry detects short to ground = FALSE  Primary Pressure Solenoid command = ON  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None  Perssure Control Solenoid Valve 3  Monitored current <= 200 m/A  System voltage >= 10 V  System voltage   >= 0 N  One Trip  One Trip  One Trip  One Trip								ECM: None						
Commanded current >= 750 mA System voltage >= 10 V  System voltage =< 32 V  Hardware circuitry detects short to ground = FALSE  Primary Pressure Solenoid = ON  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None  P0970 Pressure Control Solenoid Valve 3 Meetered current co. 200 m/A	Primary Pressure Solenoid	P0967		Monitored current	<= 200	mA					>	200	msec	One Trip
System voltage =< 32 V  Hardware circultry detects short to ground = FALSE  Primary Pressure Solenoid = ON command = ON co			Control Circuit High Voltage Open											
System voltage =< 32 V  Hardware circultry detects short to ground = FALSE  Primary Pressure Solenoid = ON command = ON co														
Hardware circuitry detects short to ground = FALSE  Primary Pressure Solenoid command = ON  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None  P0970 Pressure Control Solenoid Valve 3  Meditand current co. 200 mp.A.				Commanded current	>= 750	mA	System voltage	>=	10	V				
Hardware circuitry detects short to ground = FALSE  Primary Pressure Solenoid command = ON  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None  P0970 Pressure Control Solenoid Valve 3  Meditand current co. 200 mp.A.														
Hardware circuitry detects short to ground = FALSE  Primary Pressure Solenoid command = ON  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None  P0970 Pressure Control Solenoid Valve 3  Meditand current co. 200 mp.A.							System voltage	=<	32	V				
Primary Pressure Solenoid command  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None    P0970   Pressure Control Solenoid Valve 3   Monitored current co. 200 m/h   P0970   P09							- J							
Primary Pressure Solenoid command  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None    P0970   Pressure Control Solenoid Valve 3   Monitored current co. 200 m/h   P0970   P09														
Primary Pressure Solenoid command  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None    P0970   Pressure Control Solenoid Valve 3   Monitored current co. 200 m/h   P0970   P09														
Primary Pressure Solenoid command  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None    P0970   Pressure Control Solenoid Valve 3   Monitored current co. 200 m/h   P0970   P09														
Primary Pressure Solenoid command  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None    P0970   Pressure Control Solenoid Valve 3   Monitored current co. 200 m/h   P0970   P09														
Primary Pressure Solenoid command  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None    P0970   Pressure Control Solenoid Valve 3   Monitored current co. 200 m/h   P0970   P09														
Primary Pressure Solenoid command  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None    P0970   Pressure Control Solenoid Valve 3   Monitored current co. 200 m/h   P0970   P09														
Primary Pressure Solenoid command = ON  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None    Disable Control Solenoid Valve 3   Monitored current co. 200 m/h   P0970   Pressure Control Solenoid Valve 3   Monitored current co. 200 m/h   P0970   P09							Handrian danish data da akada k				ļ			
Primary Pressure Solenoid command  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None    Disable Control Solenoid Valve 3   Monitored current co. 200 mg/s.							-	=	FALSE					
Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None  Low Brake (I/R) Solonoid P0970 Pressure Control Solenoid Valve 3 Monitored current and 200 mm A 200							5							
Disable Conditions: MIL not Illuminated for DTC's: TCM: P0966  ECM: None    Disable Conditions									ON					
Low Brake (I/R) Solonoid P0970 Pressure Control Solenoid Valve 3 Maniform current at 200 mm A Solonoid P0970 Pressure Control Solenoid Valve 3 Maniform current at 200 mm A Solonoid P0970 Pressure Control Solenoid Valve 3 Maniform current at 200 mm A Solonoid P0970 Pressure Control Solenoid Valve 3 Maniform current at 200 mm A Solonoid P0970 Pressure Control Solenoid Valve 3 Maniform current at 200 mm A Solonoid P0970 Pressure Control Solenoid Valve 3 Maniform current at 200 mm A Solonoid P0970 Pressure Control Solenoid Valve 3 Maniform current at 200 mm A Solonoid P0970 Pressure Control Solenoid Valve 3 Maniform current at 200 mm A Solonoid P0970 Pressure Control Solenoid Valve 3 Maniform current at 200 mm A Solonoid P0970							command							
Low Brake (I/R) Solonoid P0970 Pressure Control Solenoid Valve 3 Monitored current - 200 mA						Disable Conditions:	MIL not Illuminated for DTC's	TCM: P0966						
Low Brake (I/R) Solonoid P0970 Pressure Control Solenoid Valve 3 Monitored current - 200 mA								ECM No.						
		P0970	Pressure Control Solenoid Value 2					ECIVI: None			-			One Trin
	Low Brake (L/B) Solenoid	1 3770	Control Circuit Low Voltage STG	Monitored current	<= 200	mA					>	480	msec	One mp

Component/	Fault	Monitor Strategy	Malfunction Criteria		nreshold	Secondary Malfunction		Enable		Time		Mil Illum.
System	Code	Description	Criteria Commanded current		Value mA	манипстюн System voltage System voltage	>= =<	Conditions 10 32	V V	Required		IIIum.
						Hardware circuitry detects short to ground	=	TRUE				
						Low Brake (L/B) Solenoid command		ON				
						command						
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0971					
							ECM: None					<u> </u>
Low Brake (L/B) Solenoid	P0971	Pressure Control Solenoid Valve 3 Control Circuit High Voltage Open	Fail Case 1 Monitored current	<= 200	mA					> 200	msec	One Trip
			Commanded current	>= 750	mA	System voltage System voltage	>= =<	10 32	V V			
						Hardware circuitry detects short to ground	=	FALSE				
						Low Brake (L/B) Solenoid command		ON				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0970					
							ECM: None					
			Fail Case 2 Monitored voltage of Low Brake (L/B) Solenoid's drive circuit	>= 8	V					> 200	msec	
						Low Brake (L/B) Solenoid command duty	=	0	%			
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None					
Longitudinal Acceleration	P175F	Acceleration Sensor Signal Message	Fail Case 1	≥ 20	Error counts	CAN Communication Status	ECM: None =	Receive		immediate		Special
Sensor		Counter Incorrect	Error Conter	(window time								No MIL
						System Voltage	≧	9	volt			
					d when ARC CAN signal is with Expected ARC value							
			Fail Case 2 Comm. Message Invalid Between BCM and TCM	= TRUE	Boolean	System voltage	>=	10	V	> 2	Sec	
			Bow and Tow									
										or		

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	1	Enable		Time	Mil
System	Code	Description	Criteria	Value	Malfunction		Conditions		Required	Illum.
-,					System voltage over Min for	>	2	sec	> ID Periodic Interval × 5 times	
					Ignition On for		2	sec		
					F 1		(00			
					Engine speed Calculated turbine speed	>=	600 600	rpm		
					Calculated turbline speed	>=	000	rpm		
ROM Assembly	P1790	Data mismatch	Data miss match between ROM	= TRUE						One Trip
		Data Mismatch	assembly data and NVM data	= IRUE						
					ROM assembly read succeed	=	TRUE			
					Output speed sensor pulse input	-				
					starting from IGN-ON	=	None			
					Ÿ					
				5 6						
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None				
						ECM: None				
Internal Control Modul Driver	P17C9	Voltage Level Monitor After the	Fail Case 1 Actuator Supply Voltage	< 7.55 volt					>= 5 sec	<del> </del>
Performance		Semiconductor Relay								
										One trip
					Power Source	>=	8.4 V			1
					Power Source - Actuator Supply Voltage	=<	3 V			
					- Actuator Supply Voltage					
					System voltage	>	9 V			
					System voltage	<	32 \	/		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None				
				Disable conditions.	WILE FIRST MAINING TO DE TO SE					
						ECM: None				
			Fail Case 2 Fail of Actuator on lower side of semi-conductor-Relay	= TRUE					Same as Actuator error	
			Semi-conductor-Relay							
					Power Source	>=	8.4 V			
					Power Source		3 V			
					- Actuator Supply Voltage					
					System voltage		9 V			
					System voltage	<	32 \	/		
					Actuator Supply Voltage	<	8.4 V			
					riolados cappij voltage		0.1 1			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM, Non-				
				Disable Conditions:	IVITE THOU IIIIUITIITIALEU TOF DTC S	TOWE NOTE				
						ECM: None				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System Voltage	P2534	Ignition voltage Diagnosis(Low) by ignition switch open circuit	TCM Status	= ACC Mode	Engine Controller Run Crank Terminal Status for ACC Voltage Diagnosis	= TRUE	>= 7 sec	One Trip
					Engine 12 Volt Starter Motor Commanded On for ACC Voltage Diagnosis	= FALSE		
					Propulsion System Active for ACC Voltage Diagnosis	= TRUE		
					CAN Communication Status for ACC Voltage Diagnosis	= Normal		
Auxiliary Shift Gear Interlock	P2714	Pressure Control (PC) Solenoid 4 - Stuck Off	<u>Fail Case 1</u> Actual auxiliary shift gear ratio	outside a +/-50% range of designed			>= 200 msec	One Tri
/ Incorrect Auxiliary Shift Gear Ratio		[Gear ratio fail (1st gear)] Check vehicle deceleration and		1st gear ratio	System voltage System voltage			
		the actual gear ratio			Engine speec Output gear speec Secondary pulley speec Range Vehicle speec Vehicle G Current commanded auxiliary shift gear	> 300 rpm > 300 rpm D Range or L Range >= 7 Mph		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P2715,P0797, P0796, P0721, P0792, P0706, P0705, P0970, P0971, P2720, P2721, U0100, U0073 ECM: TBD(engine speed) TBD(Pedal position)		
		Check current commanded gear ratio and actual gear ratio	Fail Case 2 Actual auxiliary shift gear ratio	within +/-10% range of designed 2nd gear ratio	System voltage System voltage Engine speec Output gear speed Secondary pulley speed Range Vehicle speec Pedal positior Current commanded auxillary shift gear	=< 32 V  > 625 rpm > 300 rpm > 300 rpm D Range or L Range >= 7 Mph >= 7.8 % = 1st Gear	>= 500 msec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value Disable Condit	Secondary Malfunction ions: MIL not Illuminated for DTC's	Enable Conditions : TCM: P2715,P0797, P0796, P0721, P0792, P0706, P0705, P0970, P0971, P2720, P2721, U0100, U0073  ECM: TBD(engine speed) TBD(Pedal position)	Time Required	Mil Illum.
			Fail Case 3 High clutch pressure switch status	s = ON	Engine spee Vehicle spee High clutch pressure comman Current commanded auxiliar shift gea	d > 400 rpm d < 7 Mph d =< 0 MPa	> 1.5 sec	
			Fail Case 4 High clutch proscure switch status	Disable Condit	High clutch pressure switch vali judgemer High clutch pressure statu changed from OFF to ON durin engagement to D rang	d = FALSE s = TRUE		
			High clutch pressure switch status	i = ON	Engine spee Vehicle spee Rang High clutch pressure comman Current commanded auxiliar shift gez High clutch pressure switch vali judgemer	d < 7 Mph e D Range or L Range d =< 0 MPa y = 1st Gear	> 1.5 sec	
				Disable Condit	ions: MIL not Illuminated for DTC's	: TCM: P2714, P0797, P0796, P2715, P0970, P0971, P2720, P2721, P0721, P0792, P0717, P0706, P0705, P0871 ECM: TBD(engine speed)		
Auxiliary Shift Gear In Neutral	P2715	Pressure Control Solenoid Valve 4 Stuck On [Gear ratio in Neutral (2nd gear)] Check current commanded gear ratio and actual gear ratio	Actual auxiliary shift gear ratio	>= 2.232	System voltag System voltag Engine spee	e =< 32 V	>= 2 sec	One Trip

Component/	Fault	Monitor Strategy	Malfunction		Threshold	Secondary		Enable			Time		Mil
System	Code	Description	Criteria		Value	Malfunction		Conditions			Require		Illum.
						Output gear speed	>	300	rpm				
						Secondary pulley speed	>	300	rpm				
						Range Pedal position	D Range or L	7.8	%				
						Current commanded auxiliary	>=	2nd gear	/0				
						shift gear		zna goar					
					Disable Conditions:	MIL not Illuminated for DTC's:							
								5, P0705, P097 I, U0100, U007					
							1 2720,1 272	,, 00,00, 000,					
							ECM: TBD(er	igine speed) edal position)					
	P2720	Pressure Control Solenoid Valve 4					TBD(F	euai position)					One Tri
High Clutch (H/C) Solenoid		Control Circuit Low Voltage STG	Monitored current	<= 200	) mA					>	200	msec	
			Commanded current	>= 750	) mA	System voltage	>=	10	V				
						System voltage	=<	32	V				
						Hardware circuitry detects short to							
						ground	=	TRUE					
										1			
						High Clutch (H/C) Solenoic	=	ON					
						command							
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P2721						
High Clutch (H/C) Solenoid	P2721	Pressure Control Solenoid Valve 4	Fail Case 1 Monitored current	<= 200	) mA					>	200	msec	One Tri
		Control Circuit High Voltage Open				Custom valtage		10	V				
			Commanded current	>= 750	) mA	System voltage System voltage	>= =<	10 32	V				
						System voltage		32	•				
						Hardware circuitry detects short to	=	FALSE					
						ground	_	TALSE					
						High Clutch (H/C) Solenoid							
						command	=	ON					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P2720						
							ECM: None						
			Fail Case 2 Monitored voltage				EOWI. NOTIC						-
			of High Clutch (H/C) Solenoid's	>= 8	V					>	200	msec	
			drive circuit										
						High Clutch (H/C) Solenoid	=	0	%				
						command duty							
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
							ECM: None						
T00150-1	P2763	Torque Converter Clutch (TCC)									_	-	OneTri
TCC Linear Solenoid		Pressure Control Solenoid Valve Control Circuit High Voltage Open	Monitored current	<= 200	) mA					>	5	Sec	
		Control Circuit riight voltage Open	Commanded current	>= 750	) mA	System voltage	>=	10	V				
						System voltage	=<	32	V				
						Hardware circuitry detects short to ground	=	FALSE					

Component/	Fault	Monitor Strategy	Malfunction		Threshold	Secondary		Enable			Time		Mil
System	Code	Description	Criteria		Value	Malfunction TCC Linear Solenoic command	=	Conditions ON			Require	d	Illum.
					Disable Conditions	s: MIL not Illuminated for DTC's:	TCM: P2764						
							ECM: None						
TCC Linear Solenoid	P2764	Torque Converter Clutch (TCC) Pressure Control Solenoid Valve Control Circuit Low Voltage STG	Monitored curren	t <= 20	0 mA					>=	480	msec	OneTrip
			Commanded Current	t >= 75	0 mA	System voltage System voltage	>= =<	10 32	V V				
						Hardware circuitry detects short to	=	TRUE					
						TCC Linear Solenoic command	=	ON					
					Disable Conditions	: MIL not Illuminated for DTC's:	TCM: P2763						
	P2796	Electric Oil Pump Electrical Failure	Fail Case 1 Monitored State Duty Signa	1			ECM: None						Special
Electric Oil Pump	F 2770	During Being Indicated Driving	From Electril Oil Pump		5 %					>	1.0	sec	No MIL
						Ignition ON for	>	0.36	sec				
						Input voltage Input Voltage over Min for	> >	10 0.52	V sec				
						Electric Oil Pump commanded ON for		1.0	sec				
						Relay commanded	=	ON					
			Fail Case 2 Monitored State Duty Signa			State Signal Frequency State Signal Frequency	> <	90 110	Hz Hz				
			From Electril Oil Pump		4 %					>	1.0	sec	
						Ignition ON for	>	0.36	sec				
						Input voltage Input Voltage over Min for	> >	10 0.52	V sec				
						Electric Oil Pump commanded ON for	>	1.0	sec				
						Relay commanded	=	ON					
						State Signal Frequency State Signal Frequency	> <	90 110	Hz Hz				
		Electric Oil Pump Electrical Failure During Being Indicated Stopping	Fail Case 1 Monitored State Duty Signa From Electril Oil Pump		5 %					>	1.0	sec	
						Ignition ON for	>	0.36	sec				

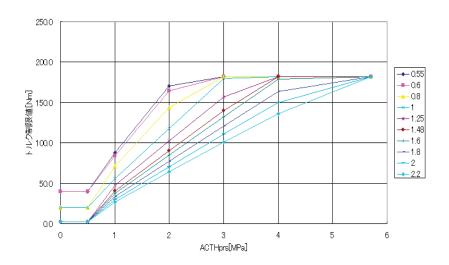
Component/	Fault	Monitor Strategy	Malfunction	Т	hreshold	Secondary		Enable		1	Time		Mil
System	Code	Description	Criteria		Value	Malfunction Input voltage	>	Conditions 10	V		Required		Illum.
						Input Voltage over Min for		0.52	sec				
						Electric Oil Pump commanded OFF for	>	0.25	sec				
						Relay commanded ON for	>	0.52	sec				
						State Signal Frequency State Signal Frequency	> <	90 110	Hz Hz				
			Fail Case 2 Monitored State Duty Signa From Electril Oil Pump		%					>	1.0	sec	
						Ignition ON for	>	0.36	sec				
						Input voltage Input Voltage over Min for	> >	10 0.52	V sec				
						Electric Oil Pump commanded OFF for		0.25	sec				
						Relay commanded ON for	>	0.52	sec				
						State Signal Frequency State Signal Frequency	> <	90 110	Hz Hz				
Electric Oil Pump	P2797	Electric Oil Pump Performance	First Time Line pressure	< 0.06	Мра					>	1.0	sec	Special No MIL
						Ignition ON for	>	0.36	sec				
						Input voltage Input Voltage over Min for	> >	10 0.52	V sec				
						Relay commanded		ON	300				
						Start stop control commanded		ON					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P084	41, P0842, P0843 Dil Pump Electrica					
							ECM: None	•					
			Second Line pressure	< 0.06	Мра					>	1.0	sec	
						Ignition ON for	>	0.36	sec				
						Input voltage	>	10	V				
						Input Voltage over Min for		0.52	sec				
						Relay commanded		ON					
						Start stop control commanded		ON different from first	time)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			nreshold Value Disable Conditions:			Enable Conditions , P0842, P084 Pump Electric	43		Time Require		Mil Illum.
Relay of Electric Oil Pump	P2799	Stuck ON	Monitored State Duty Signal From Electril Oil Pump	<b>≠</b>	0	%	Ignition ON for	>	0.36	sec	>	5.0	sec	Special No MIL
							Input voltage Relay commanded	> =	10 OFF	V				
Communication	U0073	Controller Area Network Bus Communication Error	CAN Bus Detects Invalid Message Error	=	TRUE	Boolean					> or > IE	3 O Periodic Inte	Sec erval × 5 times	One Trip
							System voltage System voltage over Min for Ignition On for	>= >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	10 2 2	V sec sec				
							Engine speed Calculated turbine speed	>= >=	600 600	rpm rpm				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Communication	U0100	Lost Communications with Engine Control System	Comm. Message Invalid Between ECU and TCM	=	TRUE	Boolean					> or > IE	2 D Periodic Inte	Sec erval × 5 times	One Trip
							System voltage System voltage over Min for Ignition On for	>= >	10 2 2	V sec sec				
							Engine speed Calculated turbine speed	>= >=	600 600	rpm rpm				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						

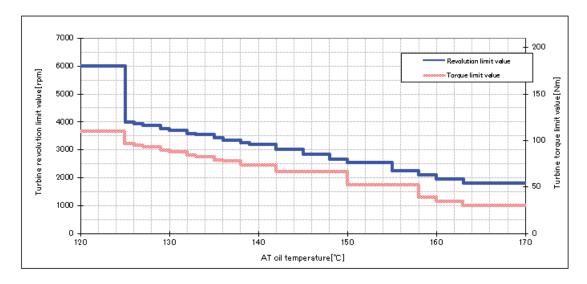
### 16 OBDG03 Diagnostic 2D Tables TCM T54 (CVT)

											Units
Axis	-55	-20	-19	-10	-9	0	1	40	41	200	Deg C
Curve	10.2	10.2	7.5	7.5	5.5	5.5	3.5	3.5	2.5	2.5	Sec

#### Zone A,B torque limit



#### Zone C torque limit



Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			reshold /alue		Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
Acceleration Sensor	C124F	The lateral accleration signal is stuck at a low magnitude out of range because of a low circuit	Lateral accleration magnitude	>=	-3.85	g's						>=	105	seconds	Special No MIL
		because of a low circuit	Lateral accleration magnitude is within the range above for		120	Sec						out of	120	sample	
								Lateral accleration magnitude Lateral accleration magnitude is within the range above for Sensor Type	>= >= =	-3.85 105 Voltage Directional Proportion	g's Sec				
								Transmission Type	=	ate Clutch to Clutch Transmissi on					
								Lateral acceleration sensor circuit low diagnostic enable Battery Voltage Battery Voltage Battery voltage is within the	= <= >=	TRUE 31.99902 9	Boolean Volts Volts				
								allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode	>= <= >= =	0.1 31.99902 9 FALSE	Sec Volts Volts Boolean				
								Ignition voltage and SFL conditions met for	>=	0.1	Sec				
						Cc	Disable anditions:	MIL not Illuminated for DTC's:	TCM: If calib (U0073, U01		ate the MIL				
									ECM: None						
Acceleration Sensor	C1250	The lateral accleration signal is stuck at a high magnitude out of range because of a high circuit	Lateral accleration magnitude		3.85	g's						>=	105	seconds	Special No MIL
			Lateral accleration magnitude is within the range above for		120	Sec						out of	120	sample	-
								Lateral accleration magnitude Lateral accleration magnitude is within the range above for	>= >=	3.85 105 Voltage	g's Sec				
								Sensor Type	=	Directional Proportion ate					
								Transmission Type	=	Clutch to Clutch Transmissi on					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshole Value	t	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
Gystem		Scotipadii			74.00	Disable	Lateral acceleration sensor circuit high diagnostic enable Battery Voltage Battery Voltage Is within the allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode Ignition voltage and SFL conditions met for MIL not Illuminated for	= \ <= \>= \ <= \>= \ <= \>= \ TCM: If calit	TRUE 31.99902 9 0.1 31.99902 9 FALSE 0.1	Boolean Volts Volts Sec Volts Volts Boolean Sec	. Coquirou	
						Conditions:	DTC's:	(U0073, U01 ECM: None				
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	>= 0.53	g's	;						Special No MIL
							Lateral accleration magnitude Lateral accleration magnitude Lateral accleration magnitude is within the range above for Diagnostic shifting override command	<= >= >=	3.85 0.53 90 FALSE	g's g's Sec Boolean		
							Attained Gear State Attained Gear Slip Transmission Type	= <=	1st through 6th 100 Clutch to Clutch	RPM		
							High Side Driver 1 On Vehicle Speed Lateral acceleration stuck in range diagnostic enable Battery Voltage Battery Voltage	= >= = <= >=	Transmissi on TRUE 15 TRUE 31.99902	Boolean kph Boolean Volts Volts		
							Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode Ignition voltage and SFL	>= >= <= >=	0.1 31.99902 9 FALSE	Sec Volts Volts Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction	Enable Conditions	R	Time equired	Mil Illum.
System	Code	Description	Citeria		V	Disable Conditions:	MIL not Illuminated for	TCM: If calibrated to illuminate the MIL (P0716, P0717, P0721, P0722, P0723, P078F, P07C0, P077B, P077C, P077D, P215C, U0073)  ECM: None		equireu	
								ECIVI. NOTIE			
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	=	TRUE	Boolean			>= 5	Fail Counts	One Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0601 ECM: None			
Transmission Control Module (TCM)	P0603	Transmission Electro-Hydraulic Control Module Long-Term Memory Reset	Non-volatile memory (static or dynamic) checksum failure at Powerup		TRUE	Boolean			Runs		One Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0603 ECM: None			
Transmission Control Module (TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access Memory	RAM Read/Write Failure (Single Word)	=	TRUE	Boolean			>= 5	Fail Counts	One Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0604 ECM: None		Sample Count	
Transmission Control Module (TCM)	P062F	Transmission Electro-Hydraulic Control Module Long Term Memory Performance	TCM Non-Volatile Memory bit Incorrect flag at Powerdown	=	TRUE	Boolean			Runs		One Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P062F ECM: None			
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>=	142.1016	°C			>= 5	Fail Time (Sec	One Trip
			Fail Case 2 Substrate Temperature Ignition Voltage Note: either fail case can set the	>= >=	50 18	°C Volts			>= 2	Fail Time (Sec	)
							Ignition Voltage Lo Ignition Voltage Hi Substrate Temp Lo Substrate Temp Hi Substrate Temp Between Temp Range for Time	>= 8.59961 Volts <= 31.99902 Volts >= 0 °C <= 170 °C >= 0.25 Sec			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum
					P0634 Status is	<i>‡</i>	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	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (open or ground short) error flag	= TRUE Boolean					>= out	4	Fail Counts	One T	
									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							
						ECIVI. INOTIE						
Transmission Control Module (TCM)	P0667	TCM Internal Temp (substrate) Sensor Circuit Range/Performance	lf transmission oil temp to substrate temp Δ									Two
			If TCM substrate temp to power up temp Δ	Refer to Table 20 in Supporting documents								
			Both conditions above required to increment fail counter Note: table reference temp = to						>=	3000	Fail Counts (100ms loop)	
		the median temp of trans oil temp, substrate temp and power up temp.						Out of	3750	Sample Counts (100ms loop)		
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>=	700	Pass Counts (100ms loop)	
									Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Accelerator Position Signal Valid	=	TRUE	Boolean				
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= <= >=	8.59961 31.99902 400	Volts Volts RPM				
					Engine Speed Lo Engine Speed Hi		7500	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
		Pro-				Engine Speed is within the	Î		Co-	· ·	
						allowable limits for	>=	5	Sec		
						Brake torque active	=	FALSE			
						Below describes the brake					
						torque entry criteria					
						Engine Torque	>=	90	N*m		
						Throttle	>=	30.0003	Pct		
						Transmission Input Speed	<=	200	RPM		
						Vehicle Speed	<=	8	Kph		
						Transmission Range	<b>≠</b>	Park			
						Transmission Range		Neutral			
						PTO	=	Not Active			
						Set Brake Torque Active	:				
						TRUE if above conditions are	>=	7	sec		
						met for:					
						Below describes the brake					
						torque exit criteria					
						Brake torque entry criteria	=	Not Met			
								Clutch			
						Objects bendered to accommo		Hydraulic			
						Clutch hydraulic pressure	≠	Air Purge			
								Event			
						01.11		CeTFTD_e			
						Clutch used to exit brake	=	_C3_RatlE			
						torque 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			
								This Key			
						P0667 Status is	<b>≠</b>	On or			
						. coo, cialas is	,	Fault			
								Active			
								Active			
					Disable	MIL not Illuminated for	TCM: P0658	P0668 P0669	P06AD		
					ditions:			16, P0712, P071			
				0011	iditions.	D10 3.		23, P0962, P0963			
								70, P0971, P2150			
							P2721, P272		J, 1 2120,		
							1 2/21,1 2/2	27,12730			
							ECM∙ P010	1, P0102, P0103	P0106		
								1, P0102, P0103 08, P0171, P0172			
							01, P0202, P0203				
							)6, P0207, P0208				
								00, P0207, P0200 02, P0303, P0304			
								02, P0303, P0302 07, P0308, P0401			
							1 0300, F030	77, 110300, F040	, I U4ZE		
	+			CeTFTI_e_Vo	+		-			1	Two
Transmission Control Module	P0668	TCM internal temperature (substrate)	Type of Sensor Used								Trips
(TCM)	1 0000	thermistor failed at a low voltge	Type of Sellsof Osed	p							ilips
	I	I	I .	l h	- 1		I			I	I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value		Secondary Malfunction		Enable Conditions				ime uired	Mil Illum.
oyo.o	0000	200011541011	If TCM Substrate Temperature											
			Sensor = Direct Proportional and	<= -249	°C									
			Temp											
			If TCM Substrate Temperature	240	00									
			Sensor = Indirect Proportional and Temp	>= -249	°C									
			Either condition above will satisfy											•
			the fail conditions								>=	60	Fail Timer (Sec)	
							Ignition Voltage Lo	>=	8.59961	Volts				
							Ignition Voltage Hi	<=	31.99902	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							allowable Illilits for		Test Failed					
									This Key					
							P0668 Status is	<b>≠</b>	On or					
									Fault					
									Active					
						Disable	MIL not Illuminated for	TCM, None						
					Co	onditions:	DTC's:	I CIVI. INOTIE						
					00	martions.		ECM: None						
smission Control Module		TCM internal temperature (substrate)		CeTFTI_e_										Two
Л)	P0669	thermistor failed at a high voltage	Type of Sensor Used	= ItageDirect	Pro									Trips
,		3 3	If TOM Cubatrata Tamparatura	p										
			If TCM Substrate Temperature Sensor = Direct Proportional and	>= 249	°C									
			Temp	/= 24/	C									
			If TCM Substrate Temperature											
			Sensor = Indirect Proportional and	<= 249	°C									
			Temp											
			Either condition above will satisfy the fail conditions								>=	60	Fail Timer (Sec)	
							Ignition Voltage Lo	>=	8.59961	Volts				
							Ignition Voltage Hi	<=	31.99902	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi Engine Speed is within the	<=	7500	RPM				
							allowable limits for	>=	5	Sec				
							anovazio ininio ioi		Test Failed					
									This Key					
							P0669 Status is	≠	On or					
									Fault					
							Forth holds had 1000		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	=	FALSE					
							Module							
							Estimated Motor Power Loss Fault	=	FALSE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required			
5,500	-540	200, provi	2.000.00	Disab Condition	le MIL not Illuminated for	TCM: P0716, P0717, P0722, P07	3				Illum
	TCM Power-up Temp Sensor Circuit Range/Performance	If TCM power-up temp to substrate temp Δ  If transmission oil temp to power up temp Δ	supporting documents  Refer to Table  18 in							Two Trips	
			Both conditions above required to increment fail counter Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.				0	u et	3000 3750	Fail Counts (100ms loop) Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until				0	u ıt	700 875	Pass Counts (100ms loop) Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	= TRUE Bo >= 8.59961 V <= 31.99902 V >= 400 F <= 7500 F >= 5	lean lean lits lits PM PM ec	01		(Tooms Toop)	
					Brake torque active Below describes the brake torque entry criteria Engine Torque Throttle Transmission Input Speed Vehicle Speed Transmission Range Transmission Range PTO Set Brake Torque Active TRUE if above conditions are	>= 30.0003 <= 200 R <= 8 H ≠ Park ≠ Neutral = Not Active	*m ct PM ph				
					met for: Below describes the brake torque exit criteria Brake torque entry criteria						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Clutch hydraulic pressure	Clutch Hydraulic ≠ Air Purge Event		
					Clutch used to exit brake torque active	CeTFTD_e = _C3_RatlE nbl		
					The above clutch pressure is greater than this value for one loop	>= 600 kpa		
					Set Brake Torque Active FALSE if above conditions are met for:	>= 20 Sec		
					P06AC Status is	Test Failed This Key ≠ On or Fault Active		
				Disable Conditions:		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 power-up thermistor circuit						Two
(TCM)	P06AD	voltage low	Power Up Temp	<= -59 °C	Ignition Voltage Lo	>= 8.59961 Volts	>= 60 Fail Time (Sec	Trips
					Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= 8.59961 Volts <= 31.99902 Volts >= 400 RPM <= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec Test Failed This Key		
					P06AD Status is	≠ On or Fault Active		
					For Hybrids, below conditions must also be met Estimated Motor Power Loss	>= 0 kW		
					Estimated Motor Power Loss greater than limit for time Lost Communication with	>= 0 Sec		
					Hybrid Processor Control  Module Estimated Motor Power Loss	= FALSE = FALSE		
					Fault	TALSE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
·					Disable ditions:	MIL not Illuminated for DTC's:	TCM: P0716, ECM: None	P0717, P0722	2, P0723				
Transmission Control Module	P06AE	TCM power-up thermistor circuit	Power Up Temp	>= 164 °C						>=	60	Fail Time (Sec)	Two
(TCM)		voltage high				Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for P06AE Status is	>= <= >= <= >=	8.59961 31.99902 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec				Trips
				Disable ditions:	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									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 Note: table reference temp = to							>=	3000	Fail Counts (100ms loop)	
			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 Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	= = >= <= >= <= >=	TRUE TRUE 8.59961 31.99902 400 7500 5	Boolean  Volts Volts RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
•					Below describes the brake torque entry criteria		·	
					Engine Torque	>= 90 N*m		
					Throttle	>= 30.0003 Pct		
					Transmission Input Speed	<= 200 RPM		
					Vehicle Speed	<= 8 Kph		
					Transmission Range	≠ Park		
					Transmission Range	≠ Neutral		
					PTO Set Brake Torque Active	= Not Active		
					TRUE if above conditions are	>= 7 sec		
					met for:	, 360		
					Below describes the brake			
					torque exit criteria			
					Brake torque entry criteria	= Not Met		
						Clutch		
					Clutch hydraulic pressure	≠ Hydraulic		
						Air Purge		
						Event CeTFTD_e		
					Clutch used to exit brake	= _C3_RatlE		
					torque 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		
					D0711 Chahua la	This Key ≠ On or		
					P0711 Status is	≠ On or Fault		
						Active		
						Active		
				Disabl	MIL not Illuminated for	TCM: P0658, P0668, P0669, P06AD,		
				Conditions	: DTC's:	P06AE, P0716, P0712, P0713, P0717,		
						P0722, P0723, P0962, P0963, P0966,		
						P0967, P0970, P0971, P215C, P2720,		
						P2721, P2729, P2730		
						ECM: P0101, P0102, P0103, P0106,		
						P0107, P0108, P0171, P0172, P0174,		
						P0175, P0201, P0202, P0203, P0204,		
						P0205, P0206, P0207, P0208, P0300,		
						P0301, P0302, P0303, P0304, P0305,		
						P0306, P0307, P0308, P0401, P042E		
Transmission Fluid	Denis	Transmission fluid temperature		CeTFTI_e_Vo				Two
Temperature Sensor (TFT)	P0712	thermistor failed at a low voltage	Type of Sensor Used	_				Trips
. , ,	1		If Transmission Fluid Tomosratura	р				
			If Transmission Fluid Temperature Sensor = Direct Proportional and	<= -74 °C				
			Temp	/4 0				
	1		If Transmission Fluid Temperature					
	1		Sensor = Indirect Proportional and					
	1		Temp					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Either condition above will satisfy				>= 60 Fail Time (Sec)	
			the fail conditions		Ignition Voltage Lo	>= 8.59961 Volts	` '	
					Ignition Voltage Hi	<= 31.99902 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the	>= 5 Sec		
					allowable limits for	Test Failed		
						This Key		
					P0712 Status is	≠ 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	= FALSE		
					Module	· / LOE		
					Estimated Motor Power Loss	= FALSE		
					Fault	= FALSE		
				Diaghla	MII wat Illuminatad fan	TOM DOZI/ DOZIZ DOZIZ DOZIZ		
				Disable Conditions:	MIL not illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723		
				Conditions.	D103.	ECM: None		
						20		
Transmission Fluid		Transmission fluid temperature		CeTFTI_e_Vo				Two
Temperature Sensor (TFT)	P0713	thermistor failed at a high voltage	Type of Sensor Used	= ItageDirectPro				Trips
Tomporataro concor (11 1)		and an aright remage		р				
			If Transmission Fluid Temperature Sensor = Direct Proportional and	>= 174 °C				
			Sensoi = Direct Proportional and Temp	>= 1/4				
			If Transmission Fluid Temperature					
			Sensor = Indirect Proportional and	<= 174 °C				
			Temp					
			Either condition above will satisfy				>= 60 Fail Time (Sec)	
			the fail conditions				y ou Tail Time (See)	
					Ignition Voltage Lo	>= 8.59961 Volts <= 31.99902 Volts		
					Ignition Voltage Hi Engine Speed Lo	<= 31.99902 Volts >= 400 RPM		
					Engine Speed Eo	<= 7500 RPM		
					Engine Speed is within the			
					allowable limits for	>= 5 Sec		
						Test Failed		
						This Key		
					P0713 Status is	≠ On or		
						Fault		
	1					Active		
				Disable	MIL not Illuminated for	TCM: P0713, P0716, P0717, P0722,		
	1			Conditions:	DTC's:			
	1							
	1					ECM: None		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tii Requ	me uired	Mil Illum.
Transmission Input Speed Sensor (TISS)		Input Speed Sensor Performance	Transmission Input Speed Sensor Drops	>=	900	RPM					>=	0.8	Fail Time (Sec)	One Trip
							Engine Torque is Engine Torque is Engine Speed Engine Speed Engine Speed is within the allowable limits for Vehicle Speed is Throttle Position is	>= <= >= <= >= >= >=	0 8191.88 400 7500 5 10	N*m N*m RPM RPM Sec Kph Pct				
							Transmission Input Speed is The previous requirement has been satisfied for	>= >=	0	RPM Sec				
							The change (loop to loop) in transmission input speed is The previous requirement has been satisfied for Throttle Position Signal Valid Engine Torque Signal Valid Ignition Voltage Ignition Voltage		8191.88  0 TRUE TRUE 8.59961 31.99902 Test Failed This Key On or Fault Active	RPM/Loop Sec Boolean Boolean Volts Volts				
					Disable Conditions			01, P0102, P010						
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	<	33	RPM					>=	4.5	Fail Time (Sec)	One Trip
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	<	653.13	RPM	Controller uses a single power supply for the speed sensors  Engine Torque is	= >=	1 80	Boolean N*m				
							Engine Torque is Vehicle Speed Engine Torque Signal Valid Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <=	8191.88 10 TRUE 8.59961 31.99902 400 7500	N*m Kph Boolean Volts Volts RPM RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		hreshold Value	Secondary Malfunction	Enable Conditions			ime uired	Mil Illum.
						P0717 Status is not	Test Failed This Key				
					Disab Condition		TCM: P0722, P0723 ECM: P0101, P0102, P0103				
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<= 35	RPM			>=	4.5	Fail Time (Sec)	One Trip
Sellsul (TUSS)		vollage	Selisti Raw Speed			P0722 Status is not  Transmission Input Speed Check Engine Torque Check Throttle Position Transmission Fluid Temperature Disable this DTC if the PTO is	Fault				
						Engine Torque Signal Valid Throttle Position Signal Valid Ignition Voltage is Ignition Voltage is Engine Speed is Engine Speed is Engine Speed is within the allowable limits for	= TRUE Boolean >= 8.59961 Volts <= 31.99902 Volts >= 400 RPM <= 7500 RPM >= 5 Sec				
						Enable_Flags Defined Below The Engine Torque Check is TRUE, if either of the two following conditions are TRUE Engine Torque Condition 1	Range				
						Range Shift Status OR Transmission Range is Engine Torque is Engine Torque is Engine Torque is Engine Torque is	completed  = Park or Neutral >= 8191.75 N*m <= 8191.75 N*m				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold lue		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
2,3						•		The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE							
								TIS Check Condition 1 Transmission Input Speed is Transmission Input Speed is	>= <=	653.13 5350	RPM RPM				
								TIS Check Condition 2 Engine Speed without the brake applied is	>=	3200	RPM				
								Engine Speed with the brake applied is	>=	3200	RPM				
								Engine Speed is Controller uses a single power	<=	8191.88 1	RPM Boolean				
								supply for the speed sensors Powertrain Brake Pedal is Valid	=	TRUE	Boolean				
							Disable ditions:	MIL not Illuminated for DTC's:		1, P0102, P010					
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed		105	RPM						>=	0	(Sec)	One Trip
			Output Speed Delta	<=	8192	RPM						>=	0	Enable Time (Sec)	
			Output Speed Drop	>	650	RPM						>=	1.5	Output Speed Drop Recovery Fail Time (Sec)	
			AND		Driven range	1								Tall Time (See)	
			Transmission Range is	=	(R,D)										
								Range_Disable OR	=	FALSE	See Below				
								Neutral_Range_Enable	=	TRUE	See Below				
								And Neutral_Speed_Enable are TRUE concurrently	=	TRUE	See Below				
								Transmission_Range_Enable Transmission_Input_Speed_E nable	=	TRUE TRUE	See Below 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					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum
0,0.0	5500	2000.1940.1			Disable this DTC if the PTO is			Dooloon		
					active	=	1	Boolean		
					Ignition Voltage is	>=	8.59961	Volts		
					Ignition Voltage is	<=	31.99902	Volts		
					Engine Speed is	>=	400	RPM RPM		
					Engine Speed is Engine Speed is within the	<=	7500	KPIVI		
					allowable limits for	>=	5	Sec		
					Enable_Flags Defined Below					_
					Transmission_Input_Speed_E					
					nable is TRUE when either TIS					
					Condition 1 or TIS Condition 2 is TRUE:					
					IS TRUE.					
					TIS Condition 1 is TRUE when					
					both of the following conditions	>=	0	Enable Time		
					are satsified for			(Sec)		
					Input Speed Delta	<=	4095.88	RPM		
					Raw Input Speed	>=	500	RPM		
					TIO 0 0 ! TRUE !					
					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		Mandad	ENUM		
					Transmission Range is	=	Neutral	ENUM		
							Reverse/N			
					Transmission Range is	=	eutral	ENUM		
							Transitonal			
							Neutral/Dri			
					Transmission Range is	=	ve	ENUM		
					Transmission Range is	_	Transitiona	LIVOIVI		
					And when a dran account		I			
					And when a drop occurs					
					Loop to Loop Drop of	>	650	RPM		
					Transmission Output Speed is		000			
					Range_Disable is TRUE when					7
					any of the next three					
					conditions are TRUE			E		
					Transmission Range is	=	Park	ENUM		
							Park/Reve			
					Transmission Range is	=	rse	ENUM		
							Transitonal			
							ON (Fully	ENU		
					Input Clutch is not	=	Applied)	ENUM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time equired	Mil Illum.
					Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified	> 1.5 Seconds			
					for Transmission Output Speed	> 130 RPM			
					The loop to loop change of the Transmission Output Speed is	< 20 RPM			
					The loop to loop change of the Transmission Output Speed is	> -10 RPM			
					Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE Transmission Range is	= Neutral ENUM Reverse/N			
					Transmission Range is	= eutral ENUM Transitiona I Neutral/Dri			
					Transmission Range is	ve ENUM Transitiona			
					Time since a driven range (R,D) has been selected	Table Based Time Please Sec Refer to Table 21 in supporting documents			
					Transmission Output Speed Sensor Raw Speed Output Speed when a fault was detected	>= 500 RPM >= 500 RPM			
				Disab Condition:		TCM: P0973, P0974, P0976, P0977 ECM: P0101, P0102, P0103, P0121, P0122, P0123			
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be Met	>= 750 Kpa			>= 2	Enable Time (Sec)	Two Trips
			(A) TCC Slip Error @ TCC On Mode	Refer to Table >= 1 in RPM Supporting			>= 5	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode	Documents >= 130 RPM			>= 5	Fail Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold /alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
		,	If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter							>=	2	TCC Stuck Off Fail Counter	
						TCC Mode	=	On or Lock					
						Ignition Voltage Lo	>=	8.59961	Volts				
						Ignition Voltage Hi	<=	31.99902	Volts				
						Engine Speed Engine Speed	>= <=	400 7500	RPM RPM				
						Engine Speed is within the	>=	5	Sec				
						allowable limits for Engine Torque Lo	>=	50	N*m				
						Engine Torque Ei	>= <=	8191.88	N*m				
						Throttle Position Lo	>=	8.0002	Pct				
						Throttle Position Hi 2nd Gear Ratio Lo	<= >=	99.9985 2.19482	Pct Ratio				
						2nd Gear Ratio High	>= <=	2.52515	Ratio				
						3rd Gear Ratio Lo	>=	1.42285	Ratio				
						3rd Gear Ratio High 4th Gear Ratio Lo	<= >=	1.63708 1.06946	Ratio Ratio				
						4th Gear Ratio High	<=	1.23047	Ratio				
						5th Gear Ratio Lo	>=	0.79053	Ratio				
						5th Gear Ratio Hi 6th Gear Ratio Lo	<= >=	0.90955 0.62305	Ratio Ratio				
						6th Gear Ratio High	<=	0.71692	Ratio				
						Transmission Fluid	>=	-6.6563	°C				
						Temperature Lo Transmission Fluid		0.0000					
						Temperature Hi	<=	130	°C				
						PTO Not Active	=	TRUE	Boolean				
						Engine Torque Signal Valid Throttle Position Signal Valid	=	TRUE TRUE	Boolean Boolean				
						Dynamic Mode	=	FALSE	Boolean				
						,		Test Failed					
						P0741 Status is	<b>≠</b>	This Key On or					
						1 0741 Status is	7	Fault					
								Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P071 P0742, P27		, P0723,				
							FOM DO16	1 D0100 D010	2 D010/				
								01, P0102, P010 08, P0171, P017					
								01, P0202, P020					
								06, P0207, P020					
								02, P0303, P030 07, P0308, P040					
Torque Converter Clutch	D0742	TCC Systom Stuck ON	TOC Clin Canada	>- F0	RPM								One Trip
(TCC)	PU/42	TCC System Stuck ON	TCC Slip Speed										'
			TCC Slip Speed	<= 13	RPM					>=	1.5	Fail Time (Sec)	
			If Above Conditions Have been							^-	1.0	. 311 11110 (300)	
			Met, and Fail Timer Expired,							>=	6	Fail Counter	
1	1	1	Increment Fail Counter							I			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illun
					TCC Mode	=	Off			
					Enable test if Cmnd Gear =		1	Boolean		
					1stFW and value true	=	1	Duoiean		
					Enable test if Cmnd Gear =		0	Boolean		
					2nd and value true	=	U	Duoiean		
					Engine Speed Hi	<=	6000	RPM		
					Engine Speed Lo	>=	500	RPM		
					Vehicle Speed HI	<=	511	KPH		
					Vehicle Speed Lo	>=	1	KPH		
					Engine Torque Hi	<=	8191.88	Nm		
					Engine Torque Lo	>=	80	Nm		
					Current Range	≠	Neutral	Range		
					Current Range	≠	Reverse	Range		
					Transmission Sump					
					Temperature	<=	130	°C		
					Transmission Sump					
					Temperature	>=	18	°C		
					Throttle Position Hyst High	>=	5.0003	Pct		
					AND	-	0.0000			
					Max Vehicle Speed to Meet					
					Throttle Enable	<=	8	KPH		
					Once Hyst High has been met,					
					the enable will remain while	>=	2.0004	Pct		
					Throttle Position	>=	2.0004	FUL		
					Disable for Throttle Position		75	Pct		
						>=	75	PU		
					Disable if PTO active and	=	1	Boolean		
					value 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 in MUMD and value	=	1	Boolean		
					true	_		Doolcan		
					Disable if in TUTD and value	=	1	Boolean		
					true	=	ı	boolean		
					4 Wheel Drive Low Active	=	FALSE	Boolean		
					Disable if Air Purge active and		0	Dooloon		
					value false	=	0	Boolean		
					RVT Diagnostic Active	=	FALSE	Boolean		
					Ignition Voltage	>=	8.59961	V		
					Ignition Voltage	<=	31.99902	V		
					Vehicle Speed	<=	511	KPH		
					Engine Speed	>=	400	RPM		
					Engine Speed	<=	7500	RPM		
					Engine Speed is within the	~-				
					allowable limits for	>=	5	Sec		
					Engine Torque Signal Valid	=	TRUE	Boolean		
					Throttle Position Signal Valid	=	TRUE	Boolean		
					THOUSE FOSILOH SIGNAL VALID	=	Test Failed	DOORGII		
					1					
					D0740 Ct-1		This Key			
					P0742 Status is	≠	On or			
					1		Fault			
					1		Active			
					1					
					1					- 1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum
						Disable Conditions		P0741, P27 ECM: P010 P0107, P01 P0175, P02 P0205, P02 P0301, P03		s, P0106, 2, P0174, 3, P0204, 8, P0300, 4, P0305,				
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip Commanded Gear Gear Ratio Gear Ratio If the above parameters are true	= <= >=	400 1st Lock 1.20959 1.09436	RPM rpm					>= =	0.2 5	Fail Tmr Fail Counts Neutral Timer (Sec)	Two Trips
											>=	0.3	Fail Timer (Sec)	
							Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Transmission Fluid Temperature Range Shift State	>= <= >= <= >= >=	8.59961 31.99902 400 7500 5 -6.6563 Range Shift	Volts Volts RPM RPM Sec °C	>=	δ	Counts	
							TPS OR Output Speed Throttle Position Signal Valid from ECM 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	>= >= = = = = = = = = = = = = = = = = =	Completed  0.5005  67  TRUE  TRUE  TRUE  FALSE  FALSE  TRUE	% RPM Boolean Boolean Boolean Boolean Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions		Tim Requi		Mil Illum.
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						Disable Conditions:	MIL not Illuminated for DTC's:			, P0723,			
								P0107, P0 <sup>2</sup> P0175, P02 P0205, P02 P0301, P03	01, P0102, P0103 108, P0171, P017 201, P0202, P020 206, P0207, P020 302, P0303, P030 807, P0308, P040	72, P0174, 03, P0204, 08, P0300, 04, P0305,			
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>=	400	RPM							One Tri
			Commanded Gear Commanded Gear has Achieved	=	3rd	Gear							
			1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On If the above parameters are true	=	TRUE	Boolean							
			0								>= Please Refer to Table 16 in Supporting Documents	Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed If Gear Ratio And Gear Ratio	<= >= <=	400 3.82568 4.22839	RPM							
											>= 1.5	Fail Timer (Sec)	
							Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed Is within the allowable limits for High-Side Driver is Enabled Throttle Position Signal Valid from ECM Output Speed OR TPS	>= <= >= <= >= = >=	8.59961 31.99902 400 7500 5 TRUE TRUE 67 0.5005	Volts Volts RPM RPM Sec Boolean Boolean RPM	>= 5	Counts	
							Range Shift State	=	Range Shift Completed	ENUM			
							Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>= = = =	-6.6563 FALSE FALSE TRUE	°C Boolean Boolean			

Component/ Fau System Cod		Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E  ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Mode 2 Multiplex Valve P079	Shift Solenoid Valve B Stuck Off	Fall Case 1  Gear Box Slip  Intrusive Shift to 2nd Commanded Gear Previous Gear Ratio Gear Ratio If the above parameters are true	>= 400 RPM  = 1st Locked Gear <= 2.48218 >= 2.24585	Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed Is within the allowable limits for Output Speed OR TPS Range Shift State Transmission Fluid Temperature High-Side Driver is Enabled Throttle Position Signal Valid from ECM Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>= 8.59961 Volts <= 31.99902 Volts >= 400 RPM <= 7500 RPM >= 5 Sec >= 67 RPM >= 0.5005 % Range = Shift ENUM Completed >= -6.6563 °C = TRUE Boolean = TRUE Boolean = FALSE Boolean = TRUE	Please Refer to Table 5 in Neutral Timer Supporting (Sec) Documents  >= 1 sec >= 3 counts	One Tri

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold lue	Secondary Malfunction		nable nditions			Tin Requ		Mil Illum
Oyatem	Oouc	Description	O. NO. NO.			Disable	MIL not Illuminated for			2, P0723,		itoqo		
						Conditions:	DTC's:							
								ECM: D0101 D01	02 D0103	2 D0106				
								ECM: P0101, P010 P0107, P0108, P0						
								P0175, P0201, P0						
								P0205, P0206, P0						
								P0301, P0302, P0						
								P0306, P0307, P0	308, P04	01, P042E				
	D077/	Pressure Control (PC) Solenoid B	Fail Case 1											One T
ariable Bleed Solenoid (VBS)	P0776	Stuck Off [C35R]	Case: Steady State 3rd Gear											
			Commanded Gear		3rd	Gear								
			Gearbox Slip	>=	400	RPM					D	lease Refer		
											to		n Neutral Timer	
											>=	Supporting	(Sec)	
											[	Documents		
			Command 4th Gear once Output	<=	400	RPM								
			Shaft Speed If Gear Ratio	>=	1.09436									
			And Gear Ratio		1.20959									
											>=	3	Fail Timer (Sec)	
												3		1
			It the above condiations are true, Increment 3rd gear fail counter								>=	3	3rd Gear Fail Counts	
			increment sid gear fair counter										or	
			and C35R Fail counter								١.	14	3-5R Clutch	
											>=	14	Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear		5th	Coor								
			Commanded Gear	=	5111	Gear								
											Р	lease Refer		
			Gearbox Slip	\	400	Rpm							Neutral Timer	
			Ocarbox Shp	_	400	Кріп					1 :	Supporting	(Sec)	
												Documents		
			Intrusive Test: Command 6th Gear											
					Please refer									
			If attained Gear=6th gear Time		to Table 3 in	Shift Time (Sec)								
			ii attairea dear-otirgear riine		supporting	Start Table (Sec)								
			It the above condiations are true,		documents								5th Gear Fail	
			Increment 5th gear fail counter								>=	3	Counts	
													or	
			and C35R Fail counter								>=	14	3-5R Clutch	
			and SSSICT an Counter				DDNDI Ctoto dofordired	,	LVICE	Doctors	1		Fail Counts	-
							PRNDL State defaulted inhibit RVT		FALSE FALSE	Boolean Boolean				
							IMS fault pending indication		FALSE	Boolean				
							TPS validity flag	=	TRUE	Boolean				
							Hydraulic System Pressurized	=	TRUE	Boolean				
							Minimum output speed for RVT	>=	67	RPM				
							A OR B							
							(A) Output speed enable	>=	67	RPM	1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		ime Juired	Mil Illum
-		·			(B) Accelerator Pedal enable	>= 0.5005 Pct			
					Common Enable Criteria				
					Ignition Voltage Lo	>= 8.59961 Volts			
					Ignition Voltage Hi Engine Speed Lo	<= 31.99902 Volts >= 400 RPM			
					Engine Speed Lo Engine Speed Hi	<= 7500 RPM			
					Engine Speed is within the				
					allowable limits for	>= 5 Sec			
					Throttle Position Signal valid	= TRUE Boolean			
					HSD Enabled	= TRUE Boolean			
					Transmission Fluid	>= -6.6563 °C			
					Temperature				
					Input Speed Sensor fault	= FALSE Boolean			
					Output Speed Sensor fault Default Gear Option is not	= FALSE Boolean			
					present	= TRUE			
					present				
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,			
				Conditions:	DTC's:	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			
						P0300, P0307, P0306, P0401, P042E			
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B	Fail Case 1 Case: Steady State 1st						One Tr
		Stuck On [C35R] (Steady State)	Attained Gear slip	>= 400 RPM					
			Attained Gear Silp	Table Based					
				Time Please					
				Pofor to Table Enable Time					
			If the Above is True for Time	>= 4 in (Sec)					
				supporting					
				documents					
			Intrusive test:						
			(CBR1 clutch exhausted)						
			Gear Ratio						
			Gear Ratio						
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec)	
							>= 2	Fail Count in	
							2	1st Gear	
								or T-+-LF-''	
							>= 3	Total Fail	
			Fail Case 2 Case: Steady State 2nd gear				-	Counts	ł
			Gase. Steauy State 2110 geal	Table Based					
				value Please					
			Max Delta Output Speed	Pofor to 2D					
			Hysteresis						
			1.750.000.00	supporting					
	1	I		documents		I			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tin Requ	ne ired
			Min Delta Output Speed Hysteresis	Table 2 in supporting				
			If the Above is True for Time	1 / IN				
			Intrusive test: (CB26 clutch exhausted) Gear Ratio					
			Gear Ratio Gear Ratio If the above parameters are true				>= 1.1	Fail Timer (Sec)
							>= 3	Fail Count in 2nd Gear or
			Fail Case 3 Case: Steady State 4th gear				>= 3	Total Fail Counts
			Suse. Steady State Hill gear	Table Based value Please				
			Max Delta Output Speed Hysteresis	supporting documents				
			Min Delta Output Speed Hysteresis	Table 2 in				
				supporting documents Table Based Time Please Refer to Table >= 17 in Sec				
			If the Above is True for Time	>= 17 in Sec supporting documents				
			(C1234 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true					
			·				>= 1.1	Fail Timer (Sec)
							>= 3	Fail Count in 4th Gear or
			Fail Case 4 Case: Steady State 6th gear				>= 3	Total Fail Counts

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable onditions				ime Juired	Mi Illui
				Table Based								
			May Dolto Outrast Crossel	value Please								
			Max Delta Output Speed Hysteresis	>= Refer to 3D Table 1 in rpm/sec								
			riysteresis	supporting								
				documents								
				Table Based								
				value Please								
			Min Delta Output Speed	>= Refer to 3D rpm/sec								
			Hysteresis	Table 2 III								
				supporting								
				documents Table Based								
				Timo Dloggo								
				Refer to Table								
			If the Above is True for Time	>= 17 in Sec								
				supporting								
				documents								
			Intrusive test:									
			(CB26 clutch exhausted)									
			Gear Ratio						>=	1.1	Fail Timer (Sec)	
			Gear Ratio	>= 0.80945					>=	3	counts	
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear	
											or	
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean			Courits	
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurize	=	TRUE	Boolean				
					riyaraanc_System_rressanze	=	TRUE	Boolean				
	1				A OR B							
	1				(A) Output speed enable	>=	67	Nm	1			
					(B) Accelerator Pedal enable	>=	0.5005	Nm				
					Ignition Voltage Lo		8.59961	Volts				
	1				Ignition Voltage Hi Engine Speed Lo		31.99902 400	Volts RPM				
	1				Engine Speed Lo	>= <=	7500	RPM	1			
	1				Engine Speed is within the				1			
					allowable limits for	>=	5	Sec				
	1				if Attained Gear=1st FW	>=	5.0003	Pct				
	1				Accelerator Pedal enable	/-	3.0003	i Ul	1			l
	1				if Attained Gear=1st FW	>=	5	Nm	1			l
	1				Engine Torque Enable if Attained Gear=1st FW				1			
	1				Engine Torque Enable	<=	8191.88	Nm	1			
	1				Transmission Fluid				1			
	1				Temperature	>=	-6.6563	°C	1			l
	1				Input Speed Sensor fault	=	FALSE	Boolean	1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
бузівні	Code	Description	S. R.C. III		Vai		Output Speed Sensor fault	= FALSE Boolean	rroquirou	
						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		
ariable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch	_ Ma	aximum	Boolean				One Tri
			Pressure Command Status Primary Offgoing Clutch Pressure Command Status Range Shift Status	= e co	essurized Clutch exhaust emmand ial Clutch					
			Attained Gear Slip	(	Control 40	RPM				
			If the above conditions are true run appropriate Fail 1 Timers Below:							
			fail timer 1 (3-1 shifting with Closed Throttle) fail timer 1	>=		Fail Time (Sec)				
			(3-2 shifting with Throttle) fail timer 1	>= (	0.2998	Fail Time (Sec) Fail Time (Sec)				
			(3-2 shifting with Closed Throttle) fail timer 1 (3-4 shifting with Throttle)	>= (		Fail Time (Sec)				
			fail timer 1 (3-4shifting with Closed Throttle) fail timer 1	>=	0.5	Fail Time (Sec)				
			(3-5 shifting with Throttle) fail timer 1	>= (	0.2998	Fail Time (Sec) Fail Time (Sec)				
			(3-5 shifting with Closed Throttle) fail timer 1 (5-3 shifting with Throttle)	>= (		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) fail timer 1	>= (		Fail Time (Sec)				
			(5-4 shifting with Closed Throttle) fail timer 1	>= >=	0.5	Fail Time (Sec) Fail Time (Sec)				
			(5-6 shifting with Throttle) fail timer 1 (5-6 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thr V	eshold 'alue	Secondary Malfunction	Enable Conditions	Tim Requi		Mil Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers					Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter							
			3rd gear fail counter					>= 3	3rd gear fail counts OR 5th gear fail	
			5th gear fail counter Total fail counter					>= 3	counts OR total fail counts	
						TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled Default Gear Option is not present	>= -6.6563 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE 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			
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear					Please See	Neutral Timer	One Trip
			Gear slip Intrusive test: commanded 5th gear	>= 400	RPM			>= Neutral Time Cal	(Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Tim Requi		III
•			If attained Gear ≠5th for time	Please refer to Table 3 in Supporting Shift Time (Sec)						
			if the above conditions have been met	Documents						
			Increment 4th Gear Fail Counter					>= 3	4th Gear Fail Count OR	
			and C456 Fail Counters					>= 14	C456 Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear					Please See	Counts	ı
			Gear slip	>= 400 RPM				>= Table 5 For Neutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 6th gear	Please Refer				34.		
			If attained Gear ≠ 6th for time	to Table 2 in						
			if the above conditions have been met							
			Increment 5th Gear Fail Counter					>= 3	5th Gear Fail Count OR	
			and C456 Fail Counters					>= 14	C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gear					Please See	Counts	
			Gear slip	>= 400 RPM				>= Table 5 For Neutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear					Cdl		
			If attained Gear ≠ 5th for time	Please refer to Table 3 in Supporting Documents Shift Time (Sec)						
			if the above conditions have been met							
			Increment 6th Gear Fail Counter and C456 Fail Counter					>= 3	6th Gear Fail Count OR	
			and C456 Fail Counter					>= 14	C456 Fail Counts	
					PRNDL State defaulted inhibit RVT	= FALSE = FALSE	Boolean Boolean			1
					IMS fault pending indication TPS validity flag	= FALSE = TRUE	Boolean Boolean			
					Hydraulic System Pressurized Minimum output speed for	= TRUE	Boolean			
					RVT	>= 67	RPM			
					A OR B (A) Output speed enable (B) Accelerator Pedal enable	>= 67 >= 0.5005	RPM Pct			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		me uired	Mil Illum
5,00011		Section		- 2100	Common Enable Criteria				<u> </u>
					Ignition Voltage Lo	>= 8.59961 Volts			
					Ignition Voltage Hi	<= 31.99902 Volts			
					Engine Speed Lo Engine Speed Hi	>= 400 RPM <= 7500 RPM			
					Engine Speed is within the				
					allowable limits for	>= 5 Sec			
					Throttle Position Signal valid	= TRUE Boolean			
					HSD Enabled	= TRUE Boolean			
					Transmission Fluid Temperature	>= -6.6563 °C			
					Input Speed Sensor fault	= FALSE Boolean			
					OutputSpeed Sensor fault	= FALSE Boolean			
					Default Gear Option is not	= TRUE			
					present	= IKUL			
				Disable		TCM: P0716, P0717, P0722, P0723,			
				Conditions:	DTC's:	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			
		December (DO) Calcardel O	F-11 O 1						O T
ariable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st						One T
			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					
				documents					
			Intrusive test:						
			(CBR1 clutch exhausted)						
			Gear Ratio Gear Ratio						
			If the above parameters are true	>= 1.09430					
			ii iiio asovo paramotoro aro trae				>= 1.1	Fail Timer (Sec)	
							7- 1.1		
							>= 2	Fail Count in 1st Gear	
								or	
							>= 3	Total Fail	
							/= J	Counts	
			Fail Case 2 Case Steady State 2nd	Table Based					
				value Please					
			Max Delta Output Speed	Pofor to 3D					
			Hysteresis	Table 1 in					
				supporting					
	1	l	l	documents			I		ı

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	
-		•		Table Based				
				value Please				
			Min Delta Output Speed	>= Refer to 3D rpm/sec				
			Hysteresis	Table 2 III				
				supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Sec				
				17 111				
				supporting				
			Intrusive test:	documents				
			(CB26 clutch exhausted)					
			Gear Ratio	<= 1.20959				
			Gear Ratio					
			If the above parameters are true	1.07500				
			a.s above parameters are true					45
							>= 1.1 Fail Ti	mer (Sec)
							Fail	Count in
								d Gear
								or
							>= 3 Total f	fail counts
							j - J Total i	an counts
			5 10 0 0 0 0 0					
			Fail Case 3 Case Steady State 3rd	Table Deced				
				Table Based value Please				
			Max Delta Output Speed	Pofor to 3D				
			Hysteresis	>= Table 1 in rpm/sec				
			rrysteresis	supporting				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed	Defer to 2D				
			Hysteresis	>= Table 2 in rpm/sec				
				supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	Refer to Table Sec				
				17 111				
				supporting documents				
			Intrusive test:	uocuments				
			(C35R clutch exhausted)					
			Gear Ratio	<= 1.20959				
			Gear Ratio					
			If the above parameters are true					
							>= 1.1 Fail Ti	mer (Sec)
								Count in
							OR OR	d Gear
							Tot	tal Fail
								ounts
	1				PRNDL State defaulted	= FALSE Boolean		Janto

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold Ilue	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
Oyatem	Soue	Безоприон	Ontona	Va		inhibit RVT	=	FALSE	Boolean	required	am
						IMS fault pending indication	=	FALSE	Boolean		
						output speed TPS validity flag	>= =	0 TRUE	RPM Boolean		
						HSD Enabled	=	TRUE	Boolean		
						Hydraulic_System_Pressurize					
						d	=	TRUE	Boolean		
						A OR B					
						(A) Output speed enable	>=	67	Nm		
						(B) Accelerator Pedal enable	>=	0.5005	Nm		
						Ignition Voltage Lo Ignition Voltage Hi	>= <=	8.59961 31.99902	Volts Volts		
						Engine Speed Lo	>=	400	RPM		
						Engine Speed Et	<=	7500	RPM		
						Engine Speed is within the					
						allowable limits for	>=	5	Sec		
						if Attained Gear=1st FW		5.0003	Pct		
						Accelerator Pedal enable	>=	5.0003	PCI		
						if Attained Gear=1st FW	>=	5	Nm		
						Engine Torque Enable	/-	3	14111		
						if Attained Gear=1st FW	<=	8191.88	Nm		
						Engine Torque Enable					
						Transmission Fluid	>=	-6.6563	°C		
						Temperature Input Speed Sensor fault	=	FALSE	Boolean		
						Output Speed Sensor fault	=	FALSE	Boolean		
						Default Gear Option is not			Booloan		
						present	=	TRUE			
					Disable	MIL not Illuminated for	TCM: P0716	5, P0717, P0722	2, P0723,		
					Conditions:	DTC's:	P182E				
							FCM: P0101	I, P0102, P0103	3 P0106		
								08, P0171, P01			
								01, P0202, P02			
								06, P0207, P020			
								02, P0303, P03			
							P0306, P030	07, P0308, P04	01, P042E		
			Primary Offgoing Clutch is								One Trip
		Pressure Control (PC) Solenoid C	exhausted (See Table 11 in								One mp
Variable Bleed Solenoid (VBS)	P0797	Stuck On [C456] (Dynamic)	Supporting Documents for	= TRUE	Boolean						
		Stack on [6 100] (Byfiainie)	Exhaust Delay Timers)								
			Primary Oncoming Clutch	Maximum							
			Pressure Command Status	= pressurized							
			Primary Offgoing Clutch Pressure	Clutch							
			Command Status	= exhaust							
			Command Status	command							
			Range Shift Status	≠ Initial Clutch							
			_	Control <= 40	RPM						
			Attained Gear Slip	\- 4U	IXFIVI						
			If the above conditions are true								
			increment appropriate Fail 1								l l
			increment appropriate rail i								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum
-		·	fail timer 1 (4-1 shifting with throttle)	>=	0.2998	Fail Time (Sec)								
			fail timer 1  (4-1 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1	>=	0.2998	Fail Time (Sec)								
			(4-2 shifting with throttle) fail timer 1	\	0.5	Fail Time (Sec)								
			(4-2 shifting without throttle) fail timer 1	_										
			(4-3 shifting with throttle) fail timer 1	>=	0.2998	Fail Time (Sec)								
			(4-3 shifting without throttle) fail timer 1	>=	0.5	Fail Time (Sec)								
			(5-3 shifting with throttle)	>=	0.2998	Fail Time (Sec)								
			fail timer 1 (5-3 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (6-2 shifting with throttle)	>=	0.2998	Fail Time (Sec)								
			fail timer 1 (6-2 shifting without throttle)	>=	0.5	Fail Time (Sec)								
												otal Fail		
												ne = (Fail 1 Fail 2) See		
			If Attained Gear Slip is Less than								Tim	Enable ers for Fa	il	
			Above Cal Increment Fail Timers								>= Tin	ner 1, and eference		
											Sı	upporting		
												able 15 for ail 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	
			nti gear fair counter									3	From 4th Gear OR	
			5th gear fail counter								>=	3	Fail Counter From 5th Gear	
													OR Fail Counter	
			6th gear fail counter								>=	3	From 6th Gear	
			Total fail counter								>=	5	OR Total Fail	
			, oral rail ocalitor				TUT Enable temperature	>=	-6.6563	°C			Counter	
							Input Speed Sensor fault Output Speed Sensor fault	= =	FALSE FALSE	Boolean Boolean				
							Command / Attained Gear High Side Driver ON	<b>≠</b> =	1st TRUE	Boolean Boolean				
							output speed limit for TUT	>=	100	RPM				
							input speed limit for TUT PRNDL state defaulted	>= =	150 FALSE	RPM Boolean				
							IMS Fault Pending Service Fast Learn Mode	=	FALSE FALSE	Boolean Boolean				
							HSD Enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction	Enable Conditions		Tiı Requ	me uired	Mil Illum
Oystem	Code	Description	Ontona		va	luc		Conditions		rioqi	uncu	
						Disable Conditions:		TCM: P0716, P0717, P0722, P0723,				
						Conditions:	DTC's:	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				
												_
p Up Tap Down Switch	P0815	Upshift Switch Circuit	Fail Case 1 Tap Up Switch Stuck in the U		1	Boolean						Spe
UTD)			Position in Range 1 Enable Tap Up Switch Stuck in the U									No
			Position in Range 2 Enable		1	Boolean						
			Tap Up Switch Stuck in the U		1	Dooloon						
			Position in Range 3 Enable		1	Boolean						
			Tap Up Switch Stuck in the U		1	Boolean						
			Position in Range 4 Enable Tap Up Switch Stuck in the U									
			Position in Range 5 Enable		1	Boolean						
			Tap Up Switch Stuck in the U		1	Boolean						
			Position in Range 6 Enable		'	Doolean						
			Tap Up Switch Stuck in the U Position in Neutral Enable		1	Boolean						
			Tap Up Switch Stuck in the U									
			Position in Park Enable		1	Boolean						
			Tap Up Switch Stuck in the U	p _	1	Boolean						
			Position in Reverse Enable		TRUE					1	Fail Time (Coo)	
			Tap Up Switch O	IV =	IKUE	Boolean			>=	1	Fail Time (Sec)	
			Fail Case 2 Tap Up Switch Stuck in the U	р	1	Boolean						1
			Position in Range 1 Enable		1	Doolean						
			Tap Up Switch Stuck in the U		1	Boolean						
			Position in Range 2 Enable Tap Up Switch Stuck in the U									
			Position in Range 3 Enable		1	Boolean						
			Tap Up Switch Stuck in the U		1	Boolean						
			Position in Range 4 Enable		'	boolcan						
			Tap Up Switch Stuck in the U Position in Range 5 Enable		1	Boolean						
			Tap Up Switch Stuck in the U			5 1						
			Position in Range 6 Enable		1	Boolean						
			Tap Up Switch Stuck in the U		1	Boolean						
			Position in Neutral Enable		•							
			Tap Up Switch Stuck in the U Position in Park Enable		1	Boolean						
			Tap Up Switch Stuck in the U		1	Daalaan						
			Position in Reverse Enable	ed =	1	Boolean						
			Tap Up Switch O		TRUE	Boolean						
			NOTE: Both Failcase1 an Failcase 2 Must Be Me						>=	600	Fail Time (Sec)	
			r alicase 2 Iviust de Ivi	CI.								1
	1											1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria			Time Since Last Range Change Ignition Voltage Lo Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for		Required	
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled  Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1	Conditions:  Boolean  Boolean	DTC's:			Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range Park Enabled Tap Down Switch Stuck in the	= 1	Boolean				
			Down Position in Range Reverse Enabled	= 1	Boolean				
			Tap Down Switch ON	= TRUE	Boolean			>= 1 s	sec

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Condition	s		Time Require		Mil Illum
·			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1	Boolean						-		
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Neutral Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Park Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	=	1	Boolean								
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	=	TRUE	Boolean					>=	600	sec	
							Time Since Last Range Change	>=	1	Enable Time (Sec)				
							Ignition Voltage Lo Ignition Voltage Hi	>= <=	8.59961 31.99902	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi Engine Speed is within the	<=	7500	RPM				
							allowable limits for	>=	5 Test Faile	Sec d				
							P0816 Status is	<b>≠</b>	This Key On or					
							PUB TO STATUS IS	7	Fault					
									Active					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815, P1877, P191	, P0826, P182E 5, P1761	, P1876,				
Tap Up Tap Down Switch	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid	=	TRUE	Boolean		ECM: None			>=	60	Fail Time (Sec)	Special
(ТИТО)			Voltage				Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5 Test Failed This Key On or Fault	Volts Volts RPM RPM Sec				No MIL
		David Carlo (Calacid A				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1761 ECM: None	Active					Tour
Variable Bleed Solenoid (VBS)	P0961	Pressure Control (PC) Solenoid A Control Circuit Rationality Test (Line Pressure VBS)	The HWIO reports an invalid voltage (out of range) error flag	=	TRUE	Boolean					>= out	4.4	Fail Time (Sec) Sample Time	Two Trips
							Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec	of	5	(Sec)	
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0962	Pressure Control (PC) Solenoid A Control Circuit Low Voltage (Line Pressure VBS)	The HWIO reports a low voltage (ground short) error flag	=	TRUE	Boolean					>= out of	1.5 1.875	Fail Time (Sec) Sample Time (Sec)	One Trip
							Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 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			eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
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) Sample Time	Two Trips
											out of	5	(Sec)	
							Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 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 Tri
											out of	0.375	Sample Time (Sec)	
							Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0967	Pressure Control (PC) Solenoid B Control Circuit High Voltage (C35R VBS)	The HWIO reports a high voltage (open or power short) error flag	=	TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Tri
											out of	0.375	Sample Time (Sec)	
							Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec			\/	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				ime uired	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	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	Fail Time (Sec)	One Tri
						P0970 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= >= <= >= >=	Test Failed This Key On or Fault Active 8.59961 31.99902 400 7500	Volts Volts RPM RPM Sec	of	0.375	(Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0971	Pressure Control (PC) Solenoid C Control Circuit High Voltage (C456/CBR1 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= out of	0.3	Fail Time (Sec) Sample Time (Sec)	One T
						P0971 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= <= >= <= >=	Test Failed This Key On or Fault Active 8.59961 31.99902 400 7500	Volts Volts RPM RPM Sec	OI.		1000)	
					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	Fail Time (Sec) Sample Time (Sec)	One Tr
						P0973 Status is not	=	Test Failed This Key On or Fault Active				, ,	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions			Ti Rea	ime uired	Mil Illum.
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Shift Solinoid	P0974	Shift Solenoid A Control Circuit High (Mode 2 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRU	E Boolean					>= out of	1.2 1.5	Fail Time (Sec) Sample Time (Sec)	Two Trips
						P0974 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= <= <= <= >=	Test Failed This Key On or Fault Active 8.59961 31.99902 400 7500	Volts Volts RPM RPM Sec				-
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Mode 3 Multiplex Valve	P0977	Shift Solenoid B Control Circuit High (Mode 3 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRU	E Boolean					>= out of	1.2 1.5	Sec Sec	One Tri
						P0977 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 8.59961 31.99902 400 7500	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			eshold alue	Secondary Malfunction		Enable Conditions			Tii Requ	me uired	Mil Illum.
	Code	i		Rolling count value received from			alue	Walluffction		Conditions		1	Keqi	ulleu	Special
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)		BCM does not match expected value	=	TRUE	Boolean					>=	3	Fail Counter	No MIL
				valus								>	10	Sample Timer (Sec)	
								Tap Up Tap Down Message Health	=	TRUE	Boolean			, ,	
								Engine Speed Lo	>=	400	RPM				
								Engine Speed Hi	<=	7500	RPM				
								Engine Speed is within the allowable limits for	>=	5	Sec				
							Disable	MIL not Illuminated for	TCM: None						
							Conditions:	DTC's:							
									ECM: None						
Tap Up Tap Down Switch	P1765	Upshift Switch Circuit #2	Fail Case 1	Tap Up Switch Stuck in the Up	_	0	Boolean								Special
(TUTD)	1 1703	opsilit Switch Gircuit #2		Position in Range 1 Enabled	_	O	boolcan								No MIL
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	=	0	Boolean								
				Tap Up Switch Stuck in the Up	=	0	Boolean								
				Position in Range 3 Enabled Tap Up Switch Stuck in the Up		Ü	Boolean								
				Position in Range 4 Enabled	=	0	Boolean								
				Tap Up Switch Stuck in the Up	=	0	Boolean								
				Position in Range 5 Enabled 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	=	1	Boolean								
				Position in Park Enabled Tap Up Switch Stuck in the Up											
				Position in Reverse Enabled	=	0	Boolean								
				Tap Up Switch ON	=	TRUE	Boolean					>=	1	Fail Time (Sec)	
			Fail Case 2	Tap Up Switch Stuck in the Up	=	1	Boolean								1
				Position in Range 1 Enabled Tap Up Switch Stuck in the Up			Boolean								
				Position in Range 2 Enabled	=	1	Boolean								
				Tap Up Switch Stuck in the Up	=	1	Boolean								
				Position in Range 3 Enabled Tap Up Switch Stuck in the Up											
				Position in Range 4 Enabled	=	1	Boolean								
				Tap Up Switch Stuck in the Up	=	1	Boolean								
				Position in Range 5 Enabled Tap Up Switch Stuck in the Up			Deelee								
				Position in Range 6 Enabled	=	1	Boolean								
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	=	0	Boolean								
				Tap Up Switch Stuck in the Up	_	0	Boolean								
				Position in Park Enabled	=	U	DUUIEdII								
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean								
				Tap Up Switch ON	=	TRUE	Boolean								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
			NOTE: Both Failcase1 and								>=	600	Fail Time (Sec)	
			Failcase 2 Must Be Met				Time Since Last Range			Enable Time				1
							Change	>=	1	(Sec)				
							Ignition Voltage Lo		8.59961	Volts				
							Ignition Voltage Hi Engine Speed Lo	<=	31.99902	Volts RPM				
							Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM				
							Engine Speed is within the							
							allowable limits for	>=	5	Sec				
									Test Failed	I				
							P1765 Status is	≠	This Key On or					
							1 1700 Status is		Fault					
									Active					
						Disable	MIL not Illuminated for	TCM: D176	7 D1761 D193	E D1015				
						Conditions:	DTC's:	1 CIVI. 1 170	7,1 1701,1 102	.L,1 1715				
								ECM: None						
			Fail Case 1											Specia
Tap Up Tap Down Switch (TUTD)	P1766	Downshift Switch Circuit #2	Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	0	Boolean								No MI
(1010)			Down Fosition in Range i Enabled											
			Tap Down Switch Stuck in the	_	0	Boolean								
			Down Position in Range 2 Enabled	=	U	DOUIEAN								
			Tap Down Switch Stuck in the											
			Down Position in Range 3 Enabled	=	0	Boolean								
			Tap Down Switch Stuck in the	=	0	Boolean								
			Down Position in Range 4 Enabled											
			Tap Down Switch Stuck in the		0	Boolean								
			Down Position in Range 5 Enabled	=	U	DOUIEAN								
			Ton Down Cuitab Chuck in the											
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	0	Boolean								
			Tap Down Switch Stuck in the											
			Down Position in Range Neutral	=	1	Boolean								
			Enabled		·	Boolean								
			Tap Down Switch Stuck in the											
			Down Position in Range Park	=	1	Boolean								
			Enabled Tap Down Switch Stuck in the											
			Down Position in Range Reverse	=	0	Boolean								
			Enabled											
			Tap Down Switch ON	=	TRUE	Boolean					>=	1	sec	
			Fail Case 2											1
			Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1	Boolean								
			Down Position in Range i Enabled											
			Tap Down Switch Stuck in the		1	Poologe								
			Down Position in Range 2 Enabled	=	ı	Boolean								1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction	_	Enable Conditions				me uired	Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled		1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Neutral Enabled Tap Down Switch Stuck in the	=	0	Boolean								
			Down Position in Park Enabled		0	Boolean								
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	=	0	Boolean								
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	=	TRUE	Boolean					>=	600	sec	
						Disable	Time Since Last Range Change Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for P1766 Status is	>= >= <= >= >= #	1 8.59961 18 400 7500 5 Test Failed This Key On or Fault Active	Sec Volts Volts RPM RPM Sec				
Too Un Too Door Collish			THTD Clouds Double Levelle			Conditions:	DTC's:	ECM: None						Caralal
Tap Up Tap Down Switch (TUTD)	P1767	Up and Down Shift Switch Circuit #2	TUTD Circuit Reads Invalid Voltage	=	TRUE	Boolean	Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec	>=	60	Fail Time (Sec)	Special No MIL

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil
Oystem	Code	Description	Ontone	Disable	MIL not Illuminated for	TCM: P1761	Roquilou	
				Conditions:	DTC's:			
						ECM: None		
	DAGGE		Fail Case 1	Transition 1				One 7
ernal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Current range					
				1110) CeTRGR_e_				
			Previous range	≠ PRNDL_Drive Range				
				6				
				CeTRGR_e_				
			Previous range	≠ PRNDL_Drive Range				
				5				
			Range Shift State	= Range Shift Completed ENUM				
			Absolute Attained Gear Slip					
			Absolute Attained Gear Silp  Attained Gear					
			Attained Gear					
			Throttle Position Available					
			Throttle Position					
			Output Speed					
			Engine Torque Engine Torque					
			If the above conditions are met					
			then Increment Fail Timer				>= 1 Fail Second	ls
			If Fail Timer has Expired then				>= 5 Fail Count	
			Increment Fail Counter				>= 5 Fail Count	S
			Fail Case 2 Output Speed	<= 70 rpm				
			The following PRNDL sequence events occur in this exact order:					
				Drive 6 (bit Dongs				
			PRNDL state	state 0110) Range				
			PRNDL state = Drive 6 for					
				Transition 8				
			PRNDL state					
				0111)				
			PRNDL state	= Drive 6 (bit state 0110) Range				
				Transition 1				
			PRNDL state					
				1110)				
			Above sequencing occurs in					
			Neutral Idle Mode	= Inactive				
			If all conditions above are met					
			Increment delay Timer If the below two conditions are					
			met Increment Fail Timer				>= 3 Fail Second	ls
			delay timer	>= 1 Sec				
			Input Speed					
			If Fail Timer has Expired then				>= 2 Fail Count	
			Increment Fail Counter				>- Z Fail Coulit	,
			Fail Case 3	Transition 13	B 1	CeTRGR_		
			Current range		Previous range	≠ e_PRNDL		
				0010)		_Drive5 CeTRGR_		
			Engine Torque	>= -8192 Nm	Previous range	≠ e_PRNDL		
	1		Engine Torque	. 0172 19111	i ievious range	_Drive5	1	

System	Fault Code	Monitor Strategy Description	Malfunction Criteria		hreshold Value	Secondar Malfunctio		Enable Conditions				me uired	ı
		,	Engine Torque	<= 8191.	75 Nm	IMS is 7 position co	onfiguration	= 0	Boolean				十
						If the "IMS 7 Position	on config" =						
			If the above and the area and the			1 then the "prev	ious range"						
			If the above conditions are met			criteria above m				>=	0.225	Seconds	
			then, Increment Fail Timer			satsified when							П
						range" = "Tra							
			If Fail Timer has Expired then			Tango III							
			Increment Fail Counter							>=	15	Fail Counts	
			Fail Case 4										+
			I dii Case 4	Transiti		Disable Fail C	ase 4 if last						
			Current range	= (bit sta	ite Range	positive range was	Drive 6 and						
				0111	)	current range is	transition 8						
						Cod to both the both down or	K DDNDI						
						Set inhibit bit true							
				=	_	1100 (rev) or 010							
			Inhibit bit (see definition)	= FALS	E		ansition 11)						
						Set inhibit bit false							
							1001 (park)						
			Steady State Engine Torque		Nm								
			Steady State Engine Torque	<= 8191.	75 Nm								-
			If the above conditions are met							>=	0.225	Seconds	-
			then Increment Fail Timer							>=	0.225	SECONOS	1
			If the obeye Conditions have been										-
			If the above Condtions have been							>=	15	Fail Counts	
			met, Increment Fail Counter										-
			Fail Case 5 Throttle Position Available	= TRU	Boolean								٦
			The following PRNDL sequence										
			events occur in this exact order:										1
				Reverse	(bit _								
			PRNDL State	= state 11									
				Transitio									
			PRNDL State	= (bit sta									
			1 KWDE State	0100									
			PRNDL State	= Neutral									
				state 01									
			anuni oi i	Transitio									
			PRNDL State										
			1	0100									- [
			Above sequencing occurs in	<= 1	Sec								
			Then delay timer increments										
			Delay timer		sec								- [
			Range Shift State	_ Range S									1
			1	= Compl	ete								1
			Absolute Attained Gear Slip		rpm								
			Attained Gear	<= Sixth									
			Attained Gear	>= First									
			Throttle Position										
			Output Speed										-
			If the above conditions are met										-
			Increment Fail Timer							>=	20	Seconds	
			Fail Case 6	Illegal	/hit	A Open Circuit De	finition (flag			1			┨
			Current range	= state 000		set false if the							
			Current range	1000 or (			is are met):						-
				1000 01 0	1001)	CONTUNIO	is are illety.	Transition					
								Transition					
			and			Cur	rent Range	≠ 11 (bit					-
							ĭ	state 0100)					

System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
		·			Last positive state	Neutral (bit ≠ state 0101)		
					or Previous transition state	Transition ≠ 8 (bit state 0111)		
			If the above Condtions are met		Fail case 5 delay timer	= 0 sec		
			then, Increment Fail timer				>= 6.25 Seconds	
			Fail Case 7 Current PRNDL State	= PRNDL circuit Range ABCP = 1101				
			Previous PRNDL state	= PRNDL circuit ABCP =1111 Range				
			Input Speed	>= 150 RPM				
			Reverse Trans Ratio Reverse Trans Ratio	<= 2.97595 ratio >= 3.42395 ratio				
			If the above Condtions are met then, Increment Fail timer				>= 6.25 Seconds	
			P182E will report test fail when any of the above 7 fail cases are met					
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= 8.59961 Volts <= 31.99902 Volts >= 400 RPM		
					Engine Speed Hi Engine Speed is within the allowable limits for	<= 7500 RPM >= 5 Sec		
					Engine Torque Signal Valid	= TRUE Boolean		
				Disabl Conditions		TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Tap Up Tap Down Switch	P1876	Tap Up and Down Enable Switch	Current range	Park or = Reverse or Range State				Special No MIL
(TUTD)		Circuit	TUTD Enable Switch is Active	Neutral			>= 3 Fail Time (Sec)	
					Ignition Voltage Lo Ignition Voltage Hi	>= 8.59961 Volts <= 31.99902 Volts	>= 5 Fail Counts	
					Vehicle Speed Lo Engine Speed Lo Engine Speed Hi	<= 511 KPH >= 400 RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold alue	Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
Gystein	Code	Description	Gracia.		•	uc	Engine Speed is within the allowable limits for P1876 Status is	>=	5 Test Failed This Key On or Fault Active	Sec		Regu	neu	
						Disable Conditions:								
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	PRNDL State is The following events must occur		Park or Neutral	Enumeration								One Trip
			Sequentially Initial Engine speed	<=	50	RPM					>=	0.25	Enable Time (Sec)	
			Then Engine Speed Between Following Cals Engine Speed Lo Hist	>=	50	RPM								
			Engine Speed Hi Hist		480	RPM					>=	0.06875	Enable Time (Sec)	
			Then Final Engine Speed Final Transmission Input Speed		525 100	RPM RPM					>=	1.25	Fail Time (Sec)	
							DTC has Ran this Key Cycle?	=	FALSE	Boolean				
							Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage Hyst High (enables above this value)	>= <= >=	6 31.99902 5	V V				
							Ignition Voltage Hyst Low (disabled below this value) Transmission Output Speed	<= <=	2 90 Test Failed	V rpm				
							P1915 Status is	≠	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)	= F	FALSE	Boolean								One Trip
			Ignition Voltage High Hyst (run crank goes true when above this value)		5	Volts					>=	280	Fail Counts (25ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Valu		Secondary Malfunction		Enable Conditions			Tim Requi	ired	Mil Illum
			Ignition Voltage Low Hyst (run crank goes false when below this value)		2	Volts					Out of	280	Sample Counts (25ms loop)	
			,				ECM run/crank active status available	=	TRUE	Boolean				
							ECM run/crank active status	=	TRUE	Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
ransmission Control Module		Ignition Switch Run/Start Position	TCM Run crank active (based on					ECIVI. INOTIE						One T
TCM)	P2535	Circuit High	voltage thresholds below) Ignition Voltage High Hyst (run crank goes true when above this			Boolean Volts					>=	280	Fail Counts	0.10
			value)		J	VOILS					-	200	(25ms loop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)		2	Volts					Out of	280	Sample Counts (25ms loop)	
							ECM run/crank active status available	=	TRUE	Boolean				
							ECM run/crank active status	=	FALSE	Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
								ECM: None						
ariable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D Stuck Off [CB26]	Fail Case 1 Case: Steady State 2nd Gear								F	Please See		One '
			Gear slip	>= 4	100	RPM					_ 1	Table 5 For leutral Time Cal		
			Intrusive test: commanded 3rd gear	Tablo	Based							Cai		
			If attained Gear = 3rd for Time	Time >= see Ta	Please able 2 in porting	Enable Time (Sec)								
			If Above Conditions have been met		uments									
			Increment 2nd gear fail count								>=	3	2nd Gear Fail Count or	
			and CB26 Fail Count								>=	14	CB26 Fail Count	
			Fail Case 2 Case: Steady State 6th Gear Gear slip	>= 4	100	RPM					1	Please See Table 5 For Jeutral Time		
			Intrusive test: commanded 5th gear									Cal		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
- Oyacan	Code	Description	If attained Gear = 5th For Time	Table Based		Containons	roquiou	
			If Above Conditions have been met, Increment 5th gear fail counter				>= 3 5th Gear Fail Count	
			and CB26 Fail Count				>= 14 or CB26 Fail Count	
					PRNDL State defaulted inhibit RVT IMS fault pending indicating the TPS validity flag Hydraulic System Pressurized Minimum output speed for RVT	= FALSE Boolean = TRUE Boolean = TRUE Boolean		
					A OR B  (A) Output speed enable  (B) Accelerator Pedal enable  Common Enable Criteria  Ignition Voltage Lo  Ignition Voltage H  Engine Speed Lo	>= 67 RPM >= 0.5005 Pct >= 8.59961 Volts <= 31.99902 Volts		
					Engine Speed H Engine Speed is within the allowable limits for Throttle Position Signal valid HSD Enablec Transmission Fluic	<= 7500 RPM >= 5 Sec = TRUE Boolean = TRUE Boolean		
					Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	= FALSE Boolean		
				Disab Condition		TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS	) P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status	= TRUE Boolean				One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold lue	Secondary Malfunction		Enable Inditions		Tim Requi		III
-,			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command								
			Range Shift Status	¥	Initial Clutch Control								
			Attained Gear Slip	<=	40	RPM							
			If above coditons are true, increment appropriate Fail 1 Timers Below: fail timer 1										
			(2-1 shifting with throttle)	>=	0.2998	Fail Time (Sec)							
			fail timer 1 (2-1 shifting without throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (2-3 shifting with throttle) fail timer 1	>=	0.2998	Fail Time (Sec)							
			(2-3 shifting without throttle) fail timer 1	>=	0.5	Fail Time (Sec)							
			(2-4 shifting with throttle)	>=	0.2998	Fail Time (Sec)							
			fail timer 1 (2-4 shifting without throttle) fail timer 1	>=	0.5	Fail Time (Sec)							
			(6-4 shifting with throttle) fail timer 1	>=	0.2998	Fail Time (Sec)							
			(6-4 shifting without throttle)	>=	0.5	Fail Time (Sec)							
			fail timer 1 (6-5 shifting with throttle)	>=	0.2998	Fail Time (Sec)							
			fail timer 1 (6-5 shifting without throttle)	>=	0.5	Fail Time (Sec)							
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers								Total Fail Time = (Fail 1 + Fail 2) See Enable = Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2		
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter										
			2nd gear fail counter								>= 3	Fail Counter From 2nd Gear OR	
			6th gear fail counter								>= 3	Fail Counter From 6th Gear OR	
			total fail counter								>= 5	Total Fail Counter	
							TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault	=	-6.6563 FALSE FALSE	°C Boolean Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Gode	Description	Unteria	Value Disable Conditions:	Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled  MIL not Illuminated for DTC's:	# 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean	Kequirea	mun.
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st  Attained Gear slip	>= 400 RPM		1 0300, 1 0307, 1 0300, 1 0401, 1 0422		One Trip
			If the Above is True for Time	Table Based Time Please Refer to Table Enable Time >= 4 in (Sec) supporting documents				
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true					
							>= 1.1 Fail Timer >= 5 Fail Cou	nt in
							or Total F Count	ail
			Fail Case 2 Case: Steady State 3rd Gear	Table Based value Please				
			Max Delta Output Speed Hysteresis	Refer to 3D				
			Min Delta Output Speed Hysteresis	value Please Refer to 3D				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	II
-,	1			Table Based					1
				Time Please					
			If the Above is True for Time	>= Refer to Table Sec					
			ii the Above is True for Time	17 111					
				supporting					
			Intervalve to at	documents					
			Intrusive test: (C35R clutch exhausted)						
			Gear Ratio	<= 2.48218					
			Gear Ratio						
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec)	3
							>= 3	Fail Count in 3rd Gear	
								or or	
							_	Total Fail	
							>= 5	Counts	ı
			Fail Case 3 Case: Steady State 4rd Gear						
				Table Based					
			Max Delta Output Speed	value Please Refer to 3D					
			Max Delta Output Speed Hysteresis	>= Table 1 in rpm/sec					П
			Trysteresis	supporting					ı
				documents					П
				Table Based					Т
				value Please					
			Min Delta Output Speed	>= Refer to 3D rpm/sec					
			Hysteresis	Table 2 III					
				supporting documents					
				Table Based					
				Time Please					
			If the Above to Topic for Time	Pofor to Table					
			If the Above is True for Time	>= 17 in Sec					
				supporting					
				documents					ı
			Intrusive test: (C1234 clutch exhausted)						
			(C1234 Cluich exhausteu) Gear Ratio	<= 0.70032					
			Gear Ratio						
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec)	٠)
							[ - 1.1		
							>= 3	Fail Count in 4th Gear	1
								4th Gear or	
							_	Total Fail	
							>= 5	Counts	
			Fail Case 4 Case: Steady State 5th Gear						1
				Table Based					
				value Please					1
			Max Delta Output Speed	>= Refer to 3D rpm/sec					1
			Hysteresis	>= Table 1 in supporting					1

	Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	Table 2 in supporting documents Table Based Time Please Refer to Table 17 in supporting documents  <= 0.70032							
			PRNDL State defaulted			Boolean	>= >= >=	1.1 3 5	Fail Timer (Sec) Fail Count in 5th Gear or Total Fail Counts
			inhibit RVT IMS fault pending indication output speed TPS validity flag HSD Enabled	= F = F >= = 1	ALSE E ALSE E 0 RUE E	Boolean Boolean Boolean RPM Boolean Boolean			
			Hydraulic_System_Pressurize d A OR B			Boolean			
			(A) Output speed enable (B) Accelerator Pedal enable Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= 0 >= 8. <= 31 >=	67 .5005 59961 .99902 400 7500	Nm Nm Volts Volts RPM RPM			
			Engine Speed is within the allowable limits for if Attained Gear=1st FW Accelerator Pedal enable	>= >= 5	5.0003	Sec Pct			
			if Attained Gear=1st FW Engine Torque Enable if Attained Gear=1st FW	>=	5	Nm			
			Engine Torque Enable Transmission Fluid Temperature		191.88 5.6563	Nm °C			
			Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	= F		Boolean Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction	Enable Conditions				me uired	Mil Illum.
- System	Couc	Description	0.10.10		Disable Conditions:	MIL not Illuminated for	TCM: P0716, P0717, P072 P182E	2, P0723,		oq		
							ECM: P0101, P0102, P010 P0107, P0108, P0171, P01 P0175, P0201, P0202, P02 P0205, P0206, P0207, P02 P0301, P0302, P0303, P03 P0306, P0307, P0308, P04	72, P0174, 03, P0204, 08, P0300, 04, P0305,				
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				>= out	0.3	Fail Time (Sec)	One Tri
						P2770 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	Test Failed This Key On or Fault Active >= 8.59961 <= 31.99902 >= 400 <= 7500 >= 5	Volts Volts RPM RPM Sec	of	0.375	Salipie Tille (Sec)	-
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None					
Variable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean				>= out of	0.3	Fail Time (Sec) Sample Time (Sec)	One Tri
					Disable Conditions:	P2721 Status is not  Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for  MIL not Illuminated for DTC's:	<= 31.99902 >= 400 <= 7500 >= 5	Volts Volts RPM RPM Sec			·	
Variable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1 Case: Steady State 1st Gear									One Tri

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	111
System.	0000	2 des ripatori	Gear slip				Please See Table 5 For Neutral Timer Neutral Time (Sec) Cal	
			Intrusive test: commanded 2nd gear	Please refer			- Cui	
			If attained Gear ≠ 2nd for Time	to Table 2 in				
			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	1
			Fail Case 2 Case: Steady State 2nd Gear	>= 400 RPM			Please See Table 5 For Neutral Timer	
			Gear slip Intrusive test:	>= 400 RPM			>= Neutral Time (Sec)	
			commanded 3rd gear	Please refer to Table 3 in				
			If attained Gear ≠ 3rd for Time  If Above Conditions have been	>= to Table 3 in Supporting Documents Shift Time (Sec)				
			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 Timer Neutral Time (Sec)	
			Intrusive test: commanded 4th gear				Cal	
			If attained Gear ≠ 4th for time	Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			If Above Conditions have been met, Increment 3rd gear fail counter	Documents			>= 3 3rd Gear Fail Count	
			and C1234 fail counter				or C1234 Clutch Fail Count	1
			Fail Case 4 Case: Steady State 4th Gear				Please See	
			Gear slip Intrusive test:	>= 400 RPM			>= Neutral Time (Sec)	
			commanded 5th gear					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
System	Code	Description	If attained Gear = 5th For Time	Please refer to Table 3 in	Shift Time (Sec)	mananeuvii		Soliditions			Nequ	an ou	mann.
			If Above Conditions have been	Supporting Documents	, ,							4th Gear Fail	
			met, Increment 4th gear fail counter							>=	3	Count	
			and C1234 fail counter							>=	14	C1234 Clutch Fail Count	
						PRNDL State defaulted inhibit RVT IMS fault pending indication	= = =	FALSE FALSE FALSE	Boolean Boolean Boolean				
						TPS validity flag Hydraulic System Pressurized Minimum output speed for	= =	TRUE TRUE	Boolean Boolean				
						RVT A OR B	>=	0	RPM				
						(A) Output speed enable     (B) Accelerator Pedal enable     Common Enable Criteria	>= >=	67 0.5005	RPM Pct				
						Ignition Voltage Lo Ignition Voltage Hi	>= <=	8.59961 31.99902	Volts Volts				
						Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= <= >=	400 7500 5	RPM RPM Sec				
						allowable limits for Throttle Position Signal valid HSD Enabled	= =	TRUE TRUE	Boolean Boolean				
						Transmission Fluid Temperature	>=	-6.6563	°C				
						Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not	= =	FALSE FALSE TRUE	Boolean Boolean				
						present	=	TRUE					
					Disable	MIL not Illuminated for	T ∩ M · P0716	P0717 P072	) P0723				
					Conditions:	DTC's:		10717,10722	2,1 0720,				
							P0107, P010	, P0102, P0103 8, P0171, P01	72, P0174,				
							P0205, P020	1, P0202, P020 6, P0207, P020 2, P0303, P030	08, P0300,				
			D					7, P0308, P04					O T.
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for	= TRUE	Boolean								One Trip
			Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized									

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tim Requ		П
•			Primary Offgoing Clutch Pressure Command Status		Clutch exhaust command									
			Range Shift Status	<b>≠</b>	Initial Clutcl Control	1								
			Attained Gear Slip If the above conditions are true increment appropriate Fail 1	<=	40	RPM								
			Timers Below: fail timer 1 (2-6 shifting with throttle)	>=	0.2998	sec								
			fail timer 1 (2-6 shifting without throttle)	>=	0.5	sec								
			fail timer 1 (3-5 shifting with throttle)	>=	0.2998	sec								
			fail timer 1 (3-5 shifting without throttle)	>=	0.5	sec								
			fail timer 1 (4-5 shifting with throttle)	>=	0.2998	sec								
			fail timer 1 (4-5 shifting without throttle)	>=	0.5	sec								
			fail timer 1 (4-6 shifting with throttle)	>=	0.2998	sec								
			fail timer 1 (4-6 shifting without throttle)	>=	0.5	sec								
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers								Tin +   >= Tin Fin Fin S	Total Fail ne = (Fail 1 Fail 2) See Enable ners for Fai mer 1, and Reference supporting able 15 for ail Timer 2	1 500	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter											
			2nd gear fail counter								>=	3	Fail Counter From 2nd Gear	
			3rd gear fail counter								>=	3	Fail Counter From 3rd Gear	
			4th gear fail counter								>=	3	Fail Counter From 4th Gear	
			total fail counter								>=	5	Total Fail Counter	
							TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON	>= = = = ≠ =	-6.6563 FALSE FALSE 1st TRUE	°C Boolean Boolean Boolean Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tin Requ		Mil Illum.
					input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= 150 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			
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E	Fail Case 1 Case: 5th Gear					O	ne Tri
valiable bieed Soleitoid (VBS)	P2124	Stuck On (Steady State)	Max Delta Output Speed Hysteresis  Min Delta Output Speed Hysteresis  If the Above is True for Time  Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio Gear Ratio	Table 1 in supporting documents Table Based value Please Refer to 3D Table 2 in supporting documents Table Based Table Based Time Please Refer to Table Time Please Refer to Table Sec Time Sec Time Please Refer to Table Time Please Time Please Refer to Table Time Please Time Please Time Please Time Please Refer to Table Time Please Time Plea					
							>= 1.1	Fail Timer (Sec)	
							>= 3	Fail Count in 5th Gear OR	
							>= 3	Total Fail Counts	
			Fail Case 2 Case: 6th Gear  Max Delta Output Speed Hysteresis						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime quired	111
•		•		Table Based								T
			M. D. II. O	value Please								
			Min Delta Output Speed		1							
			Hysteresis	Table 2 III	1							
				supporting	1							
				documents	1							
				Table Based	1							1
				Time Please	1							
			If the Above is True for Time	>= Refer to Table 17 in Sec	1							
				supporting	1							
				documents	1							
			Intrusive test:	abbamonib	1							
			(CB26 clutch exhausted)		1							
			Gear Ratio	<= 1.20959	1							
			Gear Ratio		1							
			If the above parameters are true									
			·							1.1	Eail Timor (Caa)	١.
									>=	1.1	Fail Timer (Sec)	1
									>=	3	Fail Count in	1
									ĺ <sup>-</sup>	J	6th Gear	
					1						OR	
					1				>=	3	Total Fail	
					PRNDL State defaulted		FALSE	Boolean	-	-	Counts	4
					inhibit RVT	=	FALSE					
					IMS fault pending indication	=	FALSE	Boolean Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurize							
					d	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	67	Nm				П
					(B) Accelerator Pedal enable	>=	0.5005	Nm				
					Ignition Voltage Lo	>=	8.59961	Volts				
					Ignition Voltage Hi	<=	31.99902	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the	>=	5	Sec				
					allowable limits for							ı
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003	Pct				
					if Attained Gear=1st FW							ı
					Engine Torque Enable	>=	5	Nm				I
					if Attained Gear=1st FW							ı
					Engine Torque Enable	<=	8191.88	Nm				1
					Transmission Fluid							1
					Temperature	>=	-6.6563	°C				ı
					Input Speed Sensor fault	=	FALSE	Boolean				ı
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not							
					present	=	TRUE					1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction	Enable Conditions				me uired	Mil Illum.
- Cystom	0040	2008			Disable Conditions:	MIL not Illuminated for	TCM: P0716, P0717, P0722, P P182E	0723,				
							ECM: P0101, P0102, P0103, P P0107, P0108, P0171, P0172, P0175, P0201, P0202, P0203, P0205, P0206, P0207, P0208, P0301, P0302, P0303, P0304, P0306, P0307, P0308, P0401,	P0174, P0204, P0300, P0305,				
Variable Bleed Solenoid (VBS)	P2729	Pressure Control (PC) Solenoid E Control Circuit Low (C1234 VBS)	The HWIO reports a low voltage (ground short) error flag		Boolean				>= out	0.3 0.375	Fail Time (Sec)	One Trip
						P2729 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	<= 31.99902	Volt Volt RPM RPM Sec	of	0.375	(Sec)	-
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None					
Variable Bleed Solenoid (VBS)	P2730	Pressure Control (PC) Solenoid E Control Circuit High (C1234 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean				>= out of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Tri
						P2730 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= 31.99902 >= 400 <= 7500	Volt Volt RPM RPM Sec			(200)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum
Variable Bleed Solenoid (VBS)	P2763	Torque Converter Clutch Pressure High	The HWIO reports a low pressure/high voltage (open or power short) error flag	= TRUE	Boolean					>= out	4.4 5	Fail Time (Sec)	Two Trips
					Disable Conditions:	P2763 Status is not  Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled  MIL not Illuminated for DTC's:	= >= <= >= <= >= = TCM: P0658, I	Test Failed This Key On or Fault Active 8.59961 31.99902 400 7500 5 TRUE	Volt Volt RPM RPM Sec Boolean	of		(Sec)	-
Variable Bleed Solenoid (VBS)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	The HWIO reports a high pressure/low voltage (ground short) error flag	= TRUE	Boolean					>= out	4.4	Fail Time (Sec)	One Tr
						P2764 Status is not  Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	>=	Test Failed This Key On or Fault Active 8.59961 31.99902 400 7500 5 TRUE	Volt Volt RPM RPM Sec Boolean	of		(Sec)	-
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, F ECM: None	P0659					
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error Delay timer	= TRUE = 0.1125	Boolean	Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 8.59961 31.99902 Run	sec Volt Volt	>= Out of	62 70	Fail counts (≈ 10 seconds) Sample Counts (≈ 11 seconds)	

	Fault Code	Monitor Strategy Description	Malfunction Criteria	eshold 'alue	Secondary Malfunction		Enable Conditions			Time Requir		Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Communication		Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	Boolean  Disable Conditions:	Stabilization delay Ignition Voltage Ignition Voltage Power Mode MIL not Illuminated for DTC's:	>= <= =	3 8.59961 31.99902 Run	sec Volt Volt	>=	12	sec	One Trip

## 16 OBDG03 Diagnostic 2D Tables TCM T43 (6 Speed Common)

### Table 1

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

### Table 2

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

### Table 3

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

#### Table 4

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

### Table 5

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

### Table 6

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

### Table 7

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	409.00	3.40	1.40	1.30	1.20	Sec

### Table 8

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

## 16 OBDG03 Diagnostic 2D Tables TCM T43 (6 Speed Common)

### Table 9

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

#### Table 10

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	3.03	1.86	1.00	0.75	0.58	Sec

### Table 11

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	1.72	1.11	0.60	0.36	0.22	Sec

#### Table 12

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

### Table 13

Axis	-40.00	-20.00	0.00	30.00	110.00 °0	С
Curve	2.51	0.95	0.50	0.29	0.13 S	ec

### <u>Table 14</u>

Axis	-40.00	-20.00	0.00	30.00	110.00 °C	;
Curve	2.97	0.82	0.47	0.20	0.13 Se	эс

### **Table 15**

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

### Table 16

Axis	-6.67	-6.66	40.00	٥С
Curve	409.59	2.50	2.50	Sec

## 16 OBDG03 Diagnostic 2D Tables TCM T43 (6 Speed Common)

### **Table 17**

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

### <u>Table 18</u>

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

### <u>Table 19</u>

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10	٥С
Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00	٥С

### Table 20

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

### **Table 21**

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

## 16 OBDG03 Diagnostic 3D Tables TCM T43 (6 Speed Common)

#### 3D\_Table 1

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

_	0.00	2.00	5.00	25.00	100.00
-6.	8191.75	8191.75	8191.75	8191.75	8191.75
-6.	8191.75	8191.75	8191.75	8191.75	8191.75
40.	8191.75	8191.75	8191.75	8191.75	8191.75

### 3D\_Table 2

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

		0.00	2.00	5.00	25.00	100.00
ſ	-6.67	8191.75	8191.75	8191.75	8191.75	8191.75
Γ	-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 Critoria	Threshole	d	Secondary Malfunction		Enable			Tir		Mil Illum.
System	Code	Description	Criteria	Value CeLATR_e_V		wairunction		Conditions			Requ	irea	Special
Transmission Control Module (TCM)	C124F	The lateral accleration sensor signal failed at a low voltge	hardware configuration	= oltageDirectPr		transient delay timer	>=	30	Sec	>=	75	Sec	No MIL
			Lateral accleration sensor raw signal	<= -3.849999905 g's						out of	120	Sec	
			hardware configuration										
			Lateral accleration magnitude	op >= -3.849999905 g's									
						Lateral acceleration low voltage diagnostic enable calibration	=	1					
						Battery Voltage Battery Voltage	<= >=	31.999023 9	Volts Volts				
						Battery voltage is within the allowable limits for	>=	0.1	Sec				
						Ignition Voltage	<=	31.999023	Volts				
						Ignition Voltage Service Fast Learn (SFL)	>=	9 FALSE	Volts Boolean				
						Mode VBS Failsafe Ignition voltage and SFL	>-	0.1	Sec				
						conditions met for		0.1	000				
					Disable	MIL not Illuminated for	TCM: U0073						
					Conditions:	DTC's:	ECM: None						
Transmission Control Module (TCM)	C1250	The lateral accleration sensor signal failed at a high voltge	hardware configuration	CeLATR_e_V = oltageDirectPr		transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
(TOW)		rancu at a riigh voitge	Lateral accleration sensor raw	op >= 3.849999905 g's						out	120	Sec	
			signal	CeLATR_e_V						of	120	360	
			hardware configuration	<ul><li>oltageDirectPr</li><li>op</li></ul>									
			Lateral accleration magnitude	<= 3.849999905 g's		Lateral acceleration high							-
						voltage diagnostic enable calibration	=	1					
						Battery Voltage Battery Voltage	<= >=	31.999023 9	Volts Volts				
						Battery voltage is within the allowable limits for	>=	0.1	Sec				
						Ignition Voltage Ignition Voltage	<= >=	31.999023 9	Volts Volts				
						Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
						Ignition voltage and SFL conditions met for	>=	0.1	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073						
							ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshol Value	d	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	absolute value (lateral accleration)	>= 0.529999971 g's		absolute value (lateral accleration) for stablity	>=	0.53	g's	>=	75	Sec	Special No MIL
			absolute value (lateral accleration)	- 3.84000000E ale		absolute value (lateral	<=	3.8499999	g's				
			absolute value (lateral accieration)	<- 3.047777703 ys		accleration) for stablity							
						stability time Diagnostic shifting override	>=	30	Sec				_
						command	=	FALSE	Boolean				
								1st					
						Attained Gear State	=	through					
						Attained Gear Slip	<=	8th 100	RPM				
						Attained Gear Slip	<=	Clutch to	Krivi				
						Transmission Type		Clutch					
						Transmission Type	=	Transmissi					
								on					
						High Side Drivers enabled Vehicle Speed	= >=	TRUE 15	Boolean kph				
						Lateral acceleration stuck in	>=	15	крп				
						range diagnostic enable	=	1					
						calibration							
						Battery Voltage	<=	31.999023	Volts				
						Battery Voltage	>=	9	Volts				
						Battery voltage is within the allowable limits for	>=	0.1	Sec				
						Ignition Voltage	<=	31.999023	Volts				
						Ignition Voltage	>=	9	Volts				
						Service Fast Learn (SFL)	=	FALSE	Boolean				
						Mode VBS Failsafe		TALOL	Doolcan				
						Ignition voltage and SFL conditions met for	>=	0.1	Sec				
						conditions metror							
					Disable	MIL not Illuminated for							
					Conditions:	DICS:	P0723, P078 P077D, P215	F, P07C0, P07	/B, P0//C,				
							1 0770,1213	0,00073					
							ECM: None						
Transmission Control Module	01050	The longitudinal accleration sensor	handuure configuration	CeLATR_e_V		translant dalau timar		20	Coo		75	Coo	Special
(TCM)	C1252	signal failed at a low voltge	hardware configuration	<ul> <li>oltageDirectPr</li> <li>op</li> </ul>		transient delay timer	>=	30	Sec	>=	75	Sec	No MIL
			longitudinal accleration sensor raw	· ·						out	100		
			signal	<= -3.849999905 g's						of	120	Sec	
				CeLATR_e_V									
			hardware configuration	= oltageDirectPr									
			longitudinal accleration sensor raw	ор									
			signal	>= -3.849999905 g's									
			Signal			longitudinal acceleration low				l			1
						voltage diagnostic enable	=	1					
						calibration		21 000022	\/e!-				
						Battery Voltage Battery Voltage	<= >=	31.999023 9	Volts Volts				
						Battery voltage is within the							
						allowable limits for	>=	0.1	Sec				
						Ignition Voltage	<=	31.999023	Volts				
	I	1				Ignition Voltage	>=	9	Volts				

Component/	Fault	Monitor Strategy	Malfunction	Threshole	t	Secondary		Enable			Time		Mil
System	Code	Description	Criteria	Value		Malfunction		Conditions			Requir	ea	Illum.
						Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
						Ignition voltage and SFL							
						conditions met for	>=	0.1	Sec				
						oonalions mot for							
					Disable	MIL not Illuminated for	TCM: U0073						
					Conditions:	DTC's:							
							ECM: None						
				CeLATR_e_V									Special
Transmission Control Module	C1253	The longitudinal accleration sensor	hardware configuration			transient delay timer	>=	30	Sec	>=	75	Sec	No MIL
(TCM)	0.200	signal failed at a high voltge	naranare comigaration	op		transient delay timer		00	000		, 0	000	110 11112
			longitudinal accleration sensor raw	·						out	400	0	
			signal	>= 3.849999905 g's						of	120	Sec	
				CeLATR_e_V									
			hardware configuration										
				op									
			longitudinal accleration sensor raw	<= 3.849999905 g's									
			signal			longitudinal acceleration high				1			-
						voltage diagnostic enable	=	1					
						calibration	_	'					
						Battery Voltage	<=	31.999023	Volts				
						Battery Voltage	>=	9	Volts				
						Battery voltage is within the		0.1	Coo				
						allowable limits for	>=	0.1	Sec				
						Ignition Voltage	<=	31.999023	Volts				
						Ignition Voltage	>=	9	Volts				
						Service Fast Learn (SFL)	=	FALSE	Boolean				
						Mode VBS Failsafe							
						Ignition voltage and SFL conditions met for	>=	0.1	Sec				
						Conditions met for							
					Disable	MIL not Illuminated for	TCM: U0073						
					Conditions:	DTC's:							
							ECM: None						
Transmission Control Module	C1254	The longitudinal accleration signal is	absolute value (longitudinal	>= 0.529999971 g's		absolute value (longitudinal	>=	0.53	g's	>=	75	Sec	Special
(TCM)		stuck at a high magnitude in range	accleration)	ŭ		accleration) for stablity			Ü	out			No MIL
			absolute value (longitudinal accleration)	<= 3.849999905 g's		absolute value (longitudinal accleration) for stablity	<=	3.8499999	g's	out of	120	Sec	
			acciciation)			stability time	>=	30	Sec	OI			
						Diagnostic shifting override							1
						command	=	FALSE	Boolean				
								1st					
						Attained Gear State	=	through					
								8th					
						Attained Gear Slip	<=	100	RPM				
								Clutch to					
						Transmission Type	=	Clutch					
						91		Transmissi on					
						High Side Drivers enabled	=	TRUE	Boolean				
						transmssion output speed			meter/second				
						acceleration	>=	0.53	/second				
ļ.				ļ	ı	2000101411011			.0000.10				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold alue	Secondary Malfunction		Enable Conditions			Tii Requ	me uired	Mil Illum.
Эухтет	Code	Безстраоп	GREER	Va	Disable Conditions:	Vehicle Speed longitudinal acceleration stuck in range diagnostic enable calibration Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL conditions met for	P0723, P07B P077D, P215	15 1 31.999023 9 0.1 31.999023 9 FALSE 0.1			redi	an eu	null.
Transmission Control Module (TCM)	P0561	Battery to ignition voltage performance error at the TCM for an extended period of time.	delta = ABS(TCM battery voltage - TCM ignition voltage)	>= 3	Volts		ECM: None			= Out of	40 50	Fail counts (100ms loop) Sample Counts (100ms loop)	One Trip
						battery to ignition voltage performance diagnostic enable calibration TCM has battery voltage circuit Service mode \$04 active and end of trip pocessing active Ignition Voltage Hyst Hi (enabled above this value) Ignition Voltage Hyst Lo disabled below this value)	= = > > <=	1 1 FALSE 5 2	Boolean Boolean Volts Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	= TRUE	Boolean	NVM write error diagnotic	=	1	Boolean	>=	5	Fail Counts (background task continuous)	One Trip
					Disable Conditions:	enable  MIL not Illuminated for  DTC's:		· 	Sociali				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold 'alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Transmission Control Module (TCM)	P0603	Transmission Electro-Hydraulic Control Module Long-Term Memory Reset	Non-volatile memory (static or dynamic) checksum failure at controller initialization	= TRUE	Boolean					(	Runs Continously	ı	One Trip
						not programmed diagnotic enable	=	1	Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0603 ECM: None						
Transmission Control Module (TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access Memory	secondary micro processor RAM error	= TRUE	Boolean							1000 ms cont.	One Trip
			OR dual store RAM write time out error	= TRUE	Boolean					>	175	seconds (interrupt driven based on calling functions)	
			OR system RAM fault	= TRUE	Boolean					>=	3	counts (controller initialization and background task continuous)	
			OR cashe RAM fault	= TRUE	Boolean					>=	3	counts (controller initialization and background task continuous)	
			OR secondary micro processor micro code error	= TRUE	Boolean					>=	3	counts (controller initialization and background task continuous)	
			OR write attempt occurred during RAM lock	= TRUE	Boolean	Service mode \$04 active or end of trip processing active	=	FALSE	Boolean	>	65534	counts (background task continuous)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal TCM Processor Integrity Fault	P0606	Transmission Electro-Hydraulic Control Module Processor Integrity	main processor RAM circuit hardware failure	= TRUE	Boolean	RAM diagnotic test enable	=	1	Boolean	>=	5	counts (controller initialization)	One Trip

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold /alue	Secondary Malfunction		Enable Conditions			Time Requir		III
			normalize 0-5 volt (absolute value (analog to digital test voltage commanded - actual analog to digital voltage feedback))	> 3.2989501	95 percent	analog to digital voltage test enabled	=	1	Boolean	>=	3	counts (50 msec continuous)	
						ignition voltage	>=	7	Volts	>=	8	counts (50 msec continuous)	
						analog to digital voltage channel enabled	=	see Table 46 in supporting documents	Boolean				
						analog to digital test voltage command	=	see Table 47 in supporting documents	Volts	>=	0.2	seconds	
			OR			Service mode \$04 active and end of trip processing active	=	FALSE	Boolean				
			arithmatic logic unit 1 test pass	= FALSE	Boolean	arithmatic logic unit test enable	=	1	Boolean	ini	controller tialization, en 12.5 ms cont.		
						arithmatic logic unit 1 test pass previous loop	=	FALSE	Boolean				
						Service mode \$04 active and end of trip processing active A and B and C must occur	=	FALSE	Boolean				
						A: starter motor engaged B: ignition voltage	= <=	TRUE 11	Boolean Volts				
						C: starter motor engaged time	<	0.025	sec				
						A and B must occur A: ignition voltage B: ignition low voltage time	<= >=	6.4091797 2.50E-02	Volts sec	at	controller		
			arithmatic logic unit 2 test pass	= FALSE	Boolean	arithmatic logic unit test enable	=	1	Boolean		tialization, en 12.5 ms		
						arithmatic logic unit 1 test pass previous loop	=	FALSE	Boolean		cont.		
						Service mode \$04 active and end of trip processing active	=	FALSE	Boolean				
						A and B and C must occur A: starter motor engaged B: ignition voltage	= <=	TRUE 11	Boolean Volts				
						C: starter motor engaged time	<	0.025	sec				
			OR secondary processor arithmatic logic unit fault OR	= TRUE	Boolean								
			clock test fail current loop	= TRUE	Boolean	clock test enable	=	1	Boolean	ini	controller tialization, en 12.5 ms		

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

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

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		<u> </u>	Tir Requ		M IIIu
					Battery voltage is within the	>=	0.1	Sec				
					allowable limits for Ignition Voltage	<=	31.999023	Volts				
					Ignition Voltage	>=	9	Volts				
					Service Fast Learn (SFL)	=	FALSE	Boolean				
					Mode VBS Failsafe	=	FALSE	Doolean				
					Ignition voltage and SFL	>=	0.1	Sec				
					conditions met for transmission fluid temperature							
					warm up test calibration	=	1	Boolean				
					enable							
					driver accelerator pedal	=	TRUE	Boolean				
					position valid			Booloan	l			
					driver accelerator pedal position	>=	5	%	l			
					engine torque valid	=	TRUE	Boolean				
					· ·							
					engine torque steady state raw	>=	50	N*m				
					engine speed valid	=	TRUE	Boolean				
					engine speed	>=	500	RPM	l			
					P0722, P0723, P077C, P077D	≠	Fault Active		l			
					Vehicle Speed	>=	10	KPH	l			
							Test Failed		l			
					P2809 TCC stuck on fault fault		This Key		l			
					status	<b>≠</b>	On or		l			
							Fault Active		l			
					transmission fluid temperature	>=	-40	°C				
					transmission fluid temperature	<=	150	°C	l			
					· ·	\	130	C				
					engine coolant temperature	=	TRUE	Boolean	l			
					valid engine coolant temperature	>=	-40	°C				
					engine coolant temperature	<=	150	°C				
			Fail Case 2 transmission fluid temperature									1
			intermittent delta temperature test								seconds (100	
			transmission fluid temperature	>= 10 °C					>=	8	ms cont.)	
			delta (100 ms loop to loop)									
											seconds (100	
									>=	12	ms cont.)	
					transmission fluid temperature							
					sensor performance diagnsotic	=	1	Boolean	l			
					enable calibration		•		l			
							Fault		1			1
					P0712 and P0713	<b>≠</b>	Active		1			1
					Battery Voltage	<=	31.999023	Volts	1			
					Battery Voltage	>=	9	Volts	1			1
					Battery voltage is within the	>=	0.1	Sec	1			1
					allowable limits for				1			1
					Ignition Voltage	<=	31.999023 9	Volts Volts	1			1
					Ignition Voltage Service Fast Learn (SFL)	>=			1			1
						=	FALSE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
		·			Ignition voltage and SFL conditions met for	>=	0.1	Sec				
					transmission fluid temperature intermittent delta temperature test calibration enable	=	1	Boolean				
					propulsion system active	=	TRUE	Boolean				
			Fail Case 3 transmission fluid temperature stuck in range test transmission fluid temperature delta (100 ms loop to loop)	<= 0 °C					>=	300	seconds (100 ms cont.)	
					transmission fluid temperature sensor performance diagnsotic enable calibration	=	1	Boolean				
					P0712 and P0713	<b>≠</b>	Fault Active					
					Battery Voltage Battery Voltage	<= >=	31.999023 9	Volts Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					Ignition Voltage Ignition Voltage	<= >=	31.999023 9	Volts Volts				
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
					Ignition voltage and SFL conditions met for	>=	0.1	Sec				
					transmission fluid temperature stuck in range test calibration	=	1	Boolean				
					enable propulsion system active	=	TRUE	Boolean				
					transmission fluid temperature	<=	150	°C				
					transmission fluid temperature	>=	-40	°C				
				Disable Conditions:	MIL not Illuminated for DTC's:		, P0712, P071 3, P077C, P07					
						P0107, P0108 P0175, P020	, P0102, P010 B, P0171, P01 1, P0202, P020 6, P0207, P020	72, P0174, 03, P0204,				
							2, P0303, P030 7, P0308, P040					
Fransmission Fluid Femperature Sensor (TFT)	P0712	Transmission fluid temperature sensor failed at a low voltage	If Transmission Fluid Temperature Sensor Raw Resistance	<= 47.45000076 Ohms					>=	10	Fail Time (Sec)	Two Trips
									out of	12	Sample Time (Sec)	
					trans fluid temp sensor low voltage diagnostic enable	=	1	Boolean				
					Battery Voltage Battery Voltage	<= >=	31.999023 9	Volts Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
- Oysteni	Code	Description	or norm			Battery voltage is within the allowable limits for	>=	0.1	Sec		requ	arr well	
						Ignition Voltage	<=	31.999023	Volts				
						Ignition Voltage Service Fast Learn (SFL)	>=	9	Volts				
						Mode VBS Failsafe	=	FALSE	Boolean				
						Ignition voltage and SFL	>=	0.1	Sec				
						conditions met for							
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:	ECM: None						
Transmission Fluid	P0713	Transmission fluid temperature	If Transmission Fluid Temperature	>= 105445	Ohms					>=	10	Fail Time (Sec)	Two Trips
Temperature Sensor (TFT)		sensor failed at a high voltage	Sensor Raw Resistance										
										out of	12	Sample Time (Sec)	
						trans fluid temp sensor high voltage diagnostic enable	=	1	Boolean				
						Battery Voltage	<=	31.999023	Volts				
						Battery Voltage Battery voltage is within the	>=	9	Volts				
						allowable limits for	>=	0.1	Sec				
						Ignition Voltage	<=	31.999023	Volts				
						Ignition Voltage Service Fast Learn (SFL)	>=	9	Volts				
						Mode VBS Failsafe	=	FALSE	Boolean				
						Ignition voltage and SFL conditions met for	>=	0.1	Sec				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:	ECM: None						
			Abolute Value Of Transmission										One Tri
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Input Speed Sensor Delta (loop to	>= 850	RPM								
, ,			loop)							>= >=	1.5 5	seconds fail events	
						speed sensor processing	=	time based					1
						Service mode \$04 active and end of trip pocessing active	=	FALSE	Boolean				
						transmission input speed sensor performance diagnostic	=	1	Boolean				
						enable Ignition Voltage Hyst Hi (enabled above this value)	>	5	Volts				
						Ignition Voltage Hyst Lo	<=	2	Volts				
						disabled below this value) Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
						Ignition Voltage Max (disabled	<=	31.999023	Volts				
	I	I	I			above this value)				I			I

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditions			Tir Requ	me uired	Mil Illun
								Ignition Voltage Min (enabled above this value)	>=	9	Volts				
								above this value)		Test Failed					
								P0717 Status is not	=	This Key					
										On					
								P07BF Status is not	=	Test Failed					
								PU/DF Status is flut	=	This Key On					
										Test Failed					
								P07C0 Status is not	=	This Key					
								land well of the control of the land		On					
								last valid transmission input speed	>	148	RPM				
								OR							
								transmission input speed raw	>=	148	RPM				
								transmssion input speed last	>=	2	Seconds				
								valid or raw timer		-	Coconac				
								transmission input speed							
								sensor performance test	=	FALSE	Boolean				
								complete (initialized to FALSE set to TRUE when P0716 fails)							
								•							
								transmission hydraulic system	=	TRUE	Boolean				
								pressurized driver accelerator pedal							
								position available	=	TRUE	Boolean				
								engine torque inaccurate	=	FALSE	Boolean				
								Transmission Output Speed	>=	230	RPM				
								Sensor Raw Speed							
								driver accelerator pedal position	>=	5.0003052	Pct				
								engine actual torque steady		0404.075					
								state raw	<=	8191.875	N*m				
								engine actual torque steady	>=	30	N*m				
								state raw		Test Failed					
										This Key					
								P0716 Status is not	=	On or					
										Fault					
										Active					
							Disable	MIL not Illuminated for	TCM: P071	6. P0717. P07BF	P07C0				
							Conditions:	DTC's:		-,	,				
										1, P0102, P0103	, P0121,				
									P0122, P01	23					
nsmission Input Speed	DC=	Input Speed Sensor Circuit Low	Fail Case 1			400	DDM							FIF (0.1	One
nsor (TISS)	P0717	Voltage		Transmission Input Speed is	<	100	RPM					>=	4	Fail Time (Sec)	1
				OR								<u> </u>			1
			Fail Case 2	P0722 DTC Status is Test Failed											
				This Key On and and controller uses single power feed	<	175	RPM								1
				Transmission Input Speed is											
								Controller uses a single power	=	0	Boolean				1
	1							supply for the speed sensors	=	U	DUUIEBII				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum
					speed sensor processing	=	time based			
					Service mode \$04 active and	=	FALSE	Boolean		
					end of trip pocessing active	=	FALSE	DUUleall		
					transmission input speed sensor low diagnostic enable	=	1	Boolean		
					transmission hydraulic system		TRUE	Boolean		
					pressurized	=	IKUE	DUUIEAII		
					Ignition Voltage Hyst Hi (enabled above this value)	>	5	Volts		
					Ignition Voltage Hyst Lo	<=	2	Volts		
					disabled below this value)	<=	2	VUIIS		
					speed sensor connected to controller	=	1	Boolean		
					P0722 Status is not	=	fault active			
					PU/22 Status is flut	=	iauli active			
					P0723 Status is not	=	fault active			
					P077C Status is not	=	fault active			
					P077D Status is not	=	fault active			
					brake pedal position is not	>=	69.999695	Pct		
					engine torque inaccurate	=	FALSE	Boolean		
					D074 / OL 1		Test Failed			
					P0716 Status is not	=	This Key On			
							Test Failed			
					P07BF Status is not	=	This Key			
							On Test Failed			
					P07C0 Status is not	=	This Key			
							On			
					driver accelerator pedal position	>=	5	Pct		
					engine actual torque steady					
					state raw	<=	8191.875	N*m		
					engine actual torque steady	>=	30	N*m		
					state raw		CeCGSR_			
					attained gear low	<	e_CR_Sixt			
					Transmission Output Cood		h			
					Transmission Output Speed Sensor Raw Speed when	>=	72	RPM		
					attained gear low					
							CeCGSR_			
					attained gear high	>=	e_CR_Sixt h			
					Transmission Output Speed					
					Sensor Raw Speed when	>=	230	RPM		
					attained gear high		Test Failed			
							This Key			
					P0717 Status is not	=	On or			
							Fault Active			
							Active			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions				me uired	Mil Illum.
				Disab Condition		TCM: P0716, P0722, P0723 P077D, P07BF, P07C0 ECM: P0101, P0102, P0103					
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed		attained gear high	CeCGSR_	ENUM	>=	5	Fail Time (Sec)	One Trip
					attained gear low	CeCGSR_	ENUM	>=	3.5	Fail Time (Sec)	
					P0722 Status is not	Test Failed This Key					
					Service mode \$04 active and end of trip pocessing active	Active	Boolean				
					transmission output speed sensor low diagnostic enable	= 1	Boolean				
					power flow not active (garage shift not complete, PRNDL = P or PRNDL = N, transmission range control in progress)	= IRUE	Boolean				
					engine actual torque steady state raw power flow not active		N*m				
					driver accelerator position		Pct				
					power flow not active (garage shift not complete, PRNDL = P or PRNDL = N, transmission range control in progress)	= FALSE	Boolean				
					attained gear high	CeCGSR_ > e_CR_Fou rth	ENUM				
					high gear engine actual torque steady state raw power flow active hysteresis high	>= 50	N*m				
					high gear engine actual torque steady state raw power flow active hysteresis low not	<= 30	N*m				
					high gear accelerator pedal position power flow active hysteresis high	>= 4.9987793	Pct				
					high gear accelerator pedal position power flow active hysteresis low not	<= 2.9998779	Pct				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	III
-,	1						CeCGSR_		× 4× × ×	
					attained gear low	<=	e_CR_Fou rth	ENUM		
					low gear engine actual torque		1111			
					steady state raw power flow	>=	80	N*m		
					active hysteresis high		00			
					low gear engine actual torque					
					steady state raw power flow	<=	50	N*m		
					active hysteresis low not					
					low gear accelerator pedal					
					position power flow active	>=	7.9986572	Pct		
					hysteresis high					
					low gear accelerator pedal					
					position power flow active	<=	4.9987793	Pct		
					hysteresis low not	,	,,,,,,			
					use transmission input speed					
					sensor	=	TRUE	Boolean		
					speed sensors have single					
					power feed	=	0	Boolean		
					transmission input speed					
					sensor signal raw	<=	8191.875	RPM		
					transmission input speed					
					sensor signal raw	>=	175	RPM		
					Selisui Sigilai raw					
					use transmission input speed					
					use transmission input speed	=	FALSE	Boolean		
					sensor					
					speed sensors have single	=	0	Boolean		
					power feed		0404.075			
					engine speed sensor signal	<=	8191.875	RPM		
					engine speed sensor signal	>=	3500	RPM		
					P0716 Status is not	=	Fault			
							Active			
					P0717 Status is not	=	Fault			
							Active			
					P07BF Status is not	=	Fault			
					1 0751 010105 101101		Active			
					P07C0 Status is not	=	Fault			
							Active			
					PTO disable	=	1	Boolean		
					PTO engaged	=	FALSE	Boolean		
					driver accelerator pedal	=	TRUE	Boolean		
					position available					
					engine torque inaccurate	=	FALSE	Boolean		
					transmission hydraulic system	=	TRUE	Boolean		
					pressurized	_	INOL	Sooican		
					Ignition Voltage Hyst Hi	>	5	Volts		
					(enabled above this value)		J	VUILO		
					Ignition Voltage Hyst Lo	<=	2	Volts		
					disabled below this value)	<=	۷	VOILS		
					Service Fast Learn (SFL)		EVICE	Pooleen		
					Mode VBS Failsafe	=	FALSE	Boolean		
					Ignition Voltage Max (disabled		21 000000	1/04-		
					above this value)	<=	31.999023	Volts		
	1			i						
					Ignition Voltage Min (enabled	>=	9	Volts		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	·		Tin Requ		Mil Illum.
					transmssion fluid temperature	>= -40	°C				
					sensor	Test Failed					
					P0723 Status is not	= This Key					
					1 0723 3(4(43) 13 110)	On					
						Test Failed	t				
					P077C Status is not	= This Key					
						On Test Failed	4				
					P077D Status is not	= This Key					
						On					
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P072	23				
				Conditions:	DTC's:						
						ECM: P0101, P0102, P010	03, P0121,				
						P0122, P0123					
Transmission Output Speed		Output Spood Songer Circuit		see "set fail							One Tri
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	transmission output speed delta					>=	1.5	Fail Time (Sec)	
				threshold"							
								>=	5	fail events	
					transmission output speed	>= 36	RPM				
					OR						
					transmission output speed last	>= 36	RPM				
					valid output speed before drop	>= 30	KFIVI				
					for TOSS output speed raw,						
					TOSS last valid output speed,	>= 2	seconds				
					time set fail RPM threshold						
					4WD low state valid	= TRUE	Boolean				
					4WD low state	= TRUE	Boolean				
					2WD delta transmission output	= 500	RPM				
					speed fail threshold 4WD gear ratio	= 2.71					
					final delta transmission output		DDM				
					speed fail threshold	= 1355	RPM				
					OR 4WD low state valid	= TRUE	Dooloon				
					4WD low state valid	= TRUE = FALSE	Boolean Boolean				
					OR	- TAESE	Doolcan				
					4WD low state valid	= FALSE	Boolean				
					2WD delta transmission output speed fail threshold	= 500	RPM				
					final delta transmission output						
					speed fail threshold	= 500	RPM				
					D	E** 05	C - D-I				
					Range_Disable OR	= FALSE	See Below				
					Neutral_Range_Enable	= TRUE	See Below				
					And	TOUT	0 - 5 1				
					Neutral_Speed_Enable are TRUE concurrently	= TRUE	See Below				
					are TRUE concurrently			l			l

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable		Time	M Illu
System	Code	Description	Criteria	Value			Conditions	Coo Dolor:	Required	illu
					Transmission_Range_Enable	=	TRUE	See Below		- 1
					Transmission_Input_Speed_E	=	TRUE	See Below		1
					nable					
					transmission output speed					
					sensor performance diagnostic	=	1	Boolean		
					enable					
					Service mode \$04 active and		FALSE	Boolean		
					end of trip pocessing active	=	FALSE	DUUIEAII		
					No Change in Transfer Case		_			
					Range (High <-> Low) for	>=	5	Seconds		
					g. (g		Test Failed			
							This Key			
					D0722 Status is not	=	On or			
					P0723 Status is not	=	Fault			
							Active			
					Disable this DTC if the PTO is	=	1	Boolean		
					active	_		Doorcan		
					Ignition Voltage Hyst Hi	>	5	Volts		
					(enabled above this value)	,	J	VUILS		
					Ignition Voltage Hyst Lo		•	\/o!+-		
					disabled below this value)	<=	2	Volts		
					Service Fast Learn (SFL)					
					Mode VBS Failsafe	=	FALSE	Boolean		
					Ignition Voltage Max (disabled					
					above this value)	<=	31.999023	Volts		
					above tris value)					
					Ignition Voltage Min (enabled	>=	9	Volts		
					above this value)					
							Test Failed			
					P077C Status is not	=	This Key			
							On			
							Test Failed			
					P077D Status is not	=	This Key			
							On			
					Enable_Flags Defined Below		0			
					Enable_1 lags befined below					
					Transmission_Input_Speed_E					
					nable is TRUE when either TIS					
					Condition 1 or TIS Condition 2					
					is TRUE:					
					TIS Condition 1 is TRUE when			Enable Time		
					both of the following conditions	>=	2	(Sec)		
					are satsified for			(366)		
					Input Speed Delta	<=	4095.875	RPM		
					Raw Input Speed	>=	148	RPM		
					, , , , ,					
					TIS Condition 2 is TRUE when					
					ALL of the next two conditions					
					are satisfied			DDM		
					Input Speed	=	0	RPM		
					A Single Power Supply is used	=	TRUE	Boolean		
					for all speed sensors	_	INOL	Doolcail		
					Neutral_Range_Enable is					
					TRUE when any of the next 3					
					conditions are TRUE					
	1 1				Transmission Range is		Neutral	ENUM		
						=				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					Transmission Range is	=	Reverse/N eutral Transitonal	ENUM		
					Transmission Dance is		Neutral/Dri ve	ENLINA		
					Transmission Range is	=	Transitiona I	ENUM		
					KeTOSI_n_OutSpdInNeutNois eMaxLim	<	50	RPM		
					and when Loop to Loop Drop of Transmission Output Speed is	>	500	RPM		
					Range_Disable is TRUE when any of the next three conditions are TRUE					_
					Transmission Range is	=	Park Park/Reve	ENUM		
					Transmission Range is	=	rse Transitonal	ENUM		
					Input Clutch is not	=	ON (Fully Applied)	ENUM		
					Neutral_Speed_Enable is TRUE when All of the next					1
					three conditions are satsified	>	2	Seconds		
					Transmission Output Speed	>=	50	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	>	-140	RPM		
					Transmission_Range_Enable					-
					is TRUE when one of the next six conditions is TRUE					
					Transmission Range is	=	Neutral Reverse/N	ENUM		
					Transmission Range is	=	eutral Transitiona I	ENUM		
					Transmission Range is	=	Neutral/Dri ve Transitiona I	ENUM		
					Time since a driven range (R,D) has been selected	>=	see Table 21 in supporting documents	Sec		
					Transmission Output Speed Sensor Raw Speed	>=	250	RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tin Requ		M IIIu
					Output Speed when a fault	>=	250	RPM				
					was detected	/-	230	IXI IVI				
				Disabl Conditions		TCM: P077C	, P077D					
				Conditions	DIC 3.	ECM: P2771	, P279A, P279	B, P279C				
riable Force Solenoid (VFS)	P0746	Pressure Control Solenoid A Stuck Off (clutch1/CB1278R)	absolute value (attained gear slip)	>= 400 RPM					>=	3	seconds	One
		OII (CIUICITI/CB12/0K)									when fail time	
											reaches fail	
											limit increment	
									>=	3	fail event count event counts	
					clutch solenoid stuck on					-	Over counts	1
					performance diagnostic	=	TRUE	boolean				
					monitor test deceleration limit not							1
					clutch solenoid stuck on							
					performance diagnostic	=	TRUE	boolean				ı
					monitor test return to previous	_	INOL	boolcan				ı
					range not PRNDL State not	=	park	enumeration				
					PRNDL State not	=	neutral	enumeration				
					while conditinos A and B and							
					C are met, time down delay							
					from clibration to 0.0 seconds delay time calibration	=	0.5	seconds				
					A) neutral condition fault							
					pending	=	FALSE	boolean				l
					B) intrusive shift active	=	FALSE	boolean				ı
					C) range shift state	=	shift complete	enumeration				
					intrusive shift allowed	=	TRUE	boolean				ı
					intrusive shift active	=	FALSE	boolean				l
					steady state pressure adapt in	=	FALSE	boolean				
					progress transmission output speed	>=	100	RPM				l
					accelerator pedal position	>=	0.5004883	%				
					accelerator pedal position valid	=	TRUE	Boolean				
							TRUE	Boolean				ı
					engine speed valid D or E	=	IKUE	Boolean				
					D) select battery voltage to	=	0	Dooloop				ı
					enable diagnsotic monitor		0	Boolean				l
					E) battery voltage	<=	31.999023	volts				
					E) battery voltage E) battery voltage time	>= >=	9 0.1	volts sec				
					F or G	-	0.1	300				۱
					F) select ignition voltage to	=	0	Boolean				l
					enable diagnsotic monitor							
					G) Ignition Voltage G) Ignition Voltage	<= >=	31.999023 9	Volts Volts				
					Service Fast Learn (SFL)							
					Mode VBS Failsafe	=	FALSE	Boolean				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	N IIIu
					Ignition voltage and SFL conditions met for Hydraulic System Pressurized high side driver 1 enabled high side driver 2 enabled	>= 0.1 Sec = TRUE Boolean = TRUE Boolean = TRUE Boolean		
				Disable Conditions:	DTC's:	TCM: P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P1824, P182A, P182B, P182C, P182D, P184P, P1885, P1885, P1886, P1885, P1886, P1886, P1886, P188B, P188B, P188B, P18BB, P18BB, P18BB, P18BB, P18BB, P18BB, P18BB, P18C1, P18C2, P18C3, P1915, P2534		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
riable Force Solenoid (VFS)	P0747	Pressure Control Solenoid A Stuck On (clutch1/CB1278R)	automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count deceleration limited automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count no	see Table 32 in supporting fail event counts documents  see Table 33 >= in supporting fail event counts				One
			deceleration A) absolute value (attained gear slip), fail during post torque phase of transmission automatic shift, before engine speed change, pull up or pull down occurs increment fail time when slip	documents <= 40 RPM			see Table 29	
			criteria met, fail time for power down shift increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited increment fail time when slip				documents see Table 30	econds
			criteria met, fail time for up shift or closed throttle down shift no deceleration				>= in supporting se documents wher rear limit i	econds  n fail time ches fail increment vent count
			B) absolute value (command gear slip), fail during inertia phase of transmission automatic shift, engine speed change begins, pull up or pull down	>= 70 RPM				above

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Requir		Mil Illum.
5,555			increment fail time when slip criteria met, fail time during shift deceleration limited increment fail time when slip criteria met, fail time during shift no deceleration						see Table 35 >= in supporting documents see Table 36 >= in supporting documents	seconds seconds when fail time reaches fail limit increment fail event count above	
					inertia phase test measured gear ratio inertia phase test measured gear ratio inertia phase test measured gear ratio time	>= <= <= >=	0.558 4.7150002 0.15	seconds		above	
					clutch test enabled	=	see Table 10 in supporting documents	boolean			
					post torque phase test engine torque hysteresis high enable for upshift or power on down shift	>=	see Table 11 in supporting documents	N*m			
					post torque phase test engine torque hysteresis low disable for upshift or power on down shift	>	see Table 12 in supporting documents	N*m			
					post torque phase test engine torque hysteresis high enable for closed throttle down shift	>=	see Table 13 in supporting documents	N*m			
					post torque phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 14 in supporting documents	N*m			
					inertia phase test engine torque hysteresis high enable for upshift or power on down shift	>=	see Table 15 in supporting documents	N*m			
					inertia phase test engine torque hysteresis low disable for upshift or power on down shift	>	see Table 16 in supporting documents	N*m			
					inertia phase test engine torque hysteresis high enable for closed throttle down shift	>=	see Table 17 in supporting documents	N*m			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mi Illur
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 18 in supporting documents	N*m		
					off going clutch pressure	<=	see Table 37 in supporting documents	kPa		
					off going clutch pressure closed throttle down shift delay time	>=	see Table 2 in supporting documents	seconds		
					off going clutch pressure closed power down shift delay time	>=	see Table 38 in supporting documents	seconds		
					off going clutch pressure up shift delay time	>=	see Table 59 in supporting documents	seconds		
					on coming clutch pressure for up shift	>=	see Table 8 in supporting documents	kPa		
					on coming clutch pressure for down shift	>=	see Table 7 in supporting documents	kPa		
					brake pedal position hysteresis high disable	>=	27.000427	%		
					brake pedal position hysteresis low enable	<=	25	%		
					absolute value (attained gear slip)	<=	40	RPM		
					shift type enable	=	see Table 45 in supporting documents	boolean		
					clucth solenoid stuck off intrusive shift request not	=	TRUE	boolean		
					traction control event test suspend not	=	TRUE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid D or E	=	TRUE	Boolean		
					<ul> <li>D) select battery voltage to enable diagnsotic monitor</li> </ul>	=	0	Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
					E) battery voltage	<=	31.999023	volts				
					E) battery voltage	>=	9	volts				
					E) battery voltage time	>=	0.1	sec				
					F or G							
					<ul> <li>F) select ignition voltage to enable diagnsotic monitor</li> </ul>	=	0	Boolean				
					G) Ignition Voltage	<=	31.999023	Volts				
					G) Ignition Voltage	>=	9	Volts				
					Service Fast Learn (SFL)							
					Mode VBS Failsafe	=	FALSE	Boolean				
					Ignition voltage and SFL	>=	0.1	Sec				
					conditions met for	/-						
					Hydraulic System Pressurized	=	TRUE	Boolean				
					high side driver 1 enabled	=	TRUE	Boolean				
					high side driver 2 enabled	=	TRUE	Boolean				
				Disable	MIL not Illuminated for	TCM: P0716,	P0717, P072	2, P0723,				
				Conditions:	DTC's:	P077C, P077	D, P07BF, P0	7C0, P1824,				
							B, P182C, P1					
						P182F, P183						
						P18B5, P18B						
						P18BA, P18B						
						P18BF, P18C		8C2, P18C3,				
						P1915, P253	+					
						ECM: P0101,	P0102. P010	3. P0106.				
						P0107, P0108						
						P0175, P020						
						P0205, P0206						
						P0301, P0302	2, P0303, P03	04, P0305,				
	1	0 1 10 1 11001 1				P0306, P030	7, P0308, P04	01, P042E				O T
ariable Force Solenoid (VFS)	) P0776	Pressure Control Solenoid B Stuck Off (clutch2/CB12345R)	absolute value (attained gear slip)	>= 400 RPM					>=	3	seconds	One Tri
		OII (CIGICIIZ/CB12545IV)									when fail time	
											reaches fail	
											limit increment	
											fail event count	
									>=	3	event counts	
					clutch solenoid stuck on							
					performance diagnostic	=	TRUE	boolean				
					monitor test deceleration limit							
					not clutch solenoid stuck on							
					performance diagnostic							
	1				monitor test return to previous	=	TRUE	boolean				1
	1				range not							1
	1				PRNDL State not	=	park	enumeration				1
					PRNDL State not	=	neutral	enumeration				
					while conditinos A and B and							
					C are met, time down delay							
	1				from clibration to 0.0 seconds							1
	1				delay time calibration	=	0.5	seconds				1
	1				A) neutral condition fault	=	FALSE	boolean				1
					pending							
	1	I			<ul> <li>B) intrusive shift active</li> </ul>	=	FALSE	boolean				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					C) range shift state intrusive shift allowed	=	shift complete TRUE	enumeration boolean		
					intrusive shift active steady state pressure adapt in	=	FALSE	boolean		
					progress transmission output speed	= >=	FALSE 100	boolean RPM		
					accelerator pedal position accelerator pedal position valid	>=	0.5004883 TRUE	% Boolean		
					engine speed valid	=	TRUE	Boolean		
					D or E  D) select battery voltage to enable diagnsotic monitor	=	0	Boolean		
					E) battery voltage	<=	31.999023	volts		
					E) battery voltage E) battery voltage time F or G	>= >=	9 0.1	volts sec		
					F) select ignition voltage to enable diagnsotic monitor	=	0	Boolean		
					G) Ignition Voltage G) Ignition Voltage	<= >=	31.999023 9	Volts Volts		
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean		
					Ignition voltage and SFL conditions met for	>=	0.1	Sec		
					Hydraulic System Pressurized high side driver 1 enabled	= =	TRUE TRUE	Boolean Boolean		
					high side driver 2 enabled	=	TRUE	Boolean		
				Disable Conditions:		P077C, P07	7D, P07BF, P0	7C0, P1824,		
							2B, P182C, P18 38, P1839, P18			
						P18BA, P18	B6, P18B7, P18 BB, P18BC, P1 C0, P18C1, P1 34	8BD, P18BE,		
						ECM: P010	1, P0102, P010 08, P0171, P01			
						P0175, P02 P0205, P02	01, P0202, P02 06, P0207, P02 02, P0303, P03	03, P0204, 08, P0300,		
			automatic transmission shift				07, P0308, P04			One Trip
Variable Force Solenoid (VFS)	P0777	Pressure Control Solenoid B Stuck On (clutch2/CB12345R)	torque phase test (A) or inertia phase test (B) fail event count deceleration limited	see Table 32 >= in supporting fail event counts documents						
			automatic transmission shift torque phase test (A) or inertia	see Table 33 >= in supporting fail event counts						
			phase test (B) fail event count no deceleration	documents						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
System	Code	Description	A) absolute value (attained gear slip), fail during post torque phase of transmission automatic shift, before engine speed change, pull up or pull down occurs increment fail time when slip criteria met, fail time for power down shift increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited increment fail time when slip criteria met, fail time for up shift or closed throttle down shift no deceleration	<= 40 RPM	Maitunction	Conditions		see Table 29 >= in supporting documents see Table 30 >= in supporting documents see Table 31 >= in supporting documents when fail time reaches fail limit increment fail event coulabove  see Table 35 >= in supporting seconds	÷
			increment fail time when slip criteria met, fail time during shift no deceleration					documents see Table 36 >= in supporting seconds documents when fail tim reaches fail limit incremer fail event cou above	ıt
					inertia phase test measured gear ratio inertia phase test measured gear ratio	>= 0.558			
					inertia phase test measured gear ratio time	>= 0.15	seconds		
					clutch test enabled	see Table 10 in supporting documents	boolean		
					post torque phase test engine torque hysteresis high enable for upshift or power on down shift	see Table 11 in supporting documents	N*m		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					post torque phase test engine torque hysteresis low disable for upshift or power on down shift	see Table 12 in supporting documents		
					post torque phase test engine torque hysteresis high enable for closed throttle down shift	>= see Table 13 in supporting documents  N*m		
					post torque phase test engine torque hysteresis low disable for closed throttle down shift	see Table 14 in supporting documents		
					inertia phase test engine torque hysteresis high enable for upshift or power on down shift	see Table 15 in supporting documents  N*m		
					inertia phase test engine torque hysteresis low disable for upshift or power on down shift	see Table 16 in supporting documents		
					inertia phase test engine torque hysteresis high enable for closed throttle down shift	see Table 17 in supporting documents		
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	see Table 18 in supporting documents		
					off going clutch pressure	see Table 37 in supporting documents		
					off going clutch pressure closed throttle down shift delay time	see Table 3 in supporting documents	S	
					off going clutch pressure closed power down shift delay time	see Table 39 in supporting documents	S	
					off going clutch pressure up shift delay time	>= see Table 60 in supporting documents	is	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	M Illu
					on coming clutch pressure for up shift	>=	see Table 8 in supporting documents	kPa		
					on coming clutch pressure for down shift	>=	see Table 7 in supporting documents	kPa		
					brake pedal position hysteresis high disable	>=	27.000427	%		
					brake pedal position hysteresis low enable absolute value (attained gear	<=	25	%		
					slip)	<=	40	RPM		
					shift type enable	=	see Table 45 in supporting documents	boolean		
					clucth solenoid stuck off intrusive shift request not	=	TRUE	boolean		
					traction control event test suspend not	=	TRUE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid D or E	=	TRUE	Boolean		
					D) select battery voltage to enable diagnsotic monitor	=	0	Boolean		
					E) battery voltage E) battery voltage	<=	31.999023 9	volts		
					<ul><li>E) battery voltage time</li></ul>	>= >=	0.1	volts sec		
					F or G F) select ignition voltage to enable diagnsotic monitor	=	0	Boolean		
					G) Ignition Voltage	<=	31.999023	Volts		
					G) Ignition Voltage Service Fast Learn (SFL)	>=	9 FALSE	Volts Boolean		
					Mode VBS Failsafe Ignition voltage and SFL			Sec		
					conditions met for	>=	0.1			
					Hydraulic System Pressurized high side driver 1 enabled	= =	TRUE TRUE	Boolean Boolean		
					high side driver 2 enabled	=	TRUE	Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		able ditions	Time Requir		Mil Illum.
учен	- Code	Безоприон		Va	Disable Conditions:	MIL not Illuminated for	TCM: P0716, P071: P077C, P077D, P07 P182A, P182B, P18 P182F, P1838, P18 P18B5, P18B6, P18 P18BA, P18BB, P18 P18BF, P18C0, P18 P1915, P2534 ECM: P0101, P0101	7, P0722, P0723, (PF, P07C0, P1824, 2C, P182D, P182E, 39, P1840, P1841, B7, P18B8, P18B9, BBC, P18BD, P18BE, 3C1, P18C2, P18C3,	Keduli		and the
							P0107, P0108, P01 P0175, P0201, P02 P0205, P0206, P02 P0301, P0302, P03 P0306, P0307, P03	02, P0203, P0204, 07, P0208, P0300, 03, P0304, P0305,			
Transmission Output Speed Sensor (TOSS)	P077C	Output Speed Sensor Circuit Low	TOSS Analog Signal Voltage  P077C Status is not  If the above conditons have been met, increment the P077C Fail Counter  DTC P077C Sets when the Fail Counter	Test Failed		P077C Enable Calibration Service mode \$04 active and end of trip pocessing active Ignition Voltage Hyst Hi (enabled above this value) Ignition Voltage Hyst Lo disabled below this value) Service Fast Learn (SFL) Mode VBS Failsafe Battery Voltage Max (disabled above this value) Battery Voltage Min (disabled below this value) Ignition Voltage Min (disabled below this value) for voltage stablity time  MIL not Illuminated for DTC's:	= F <sub>1</sub> >  <=  = F <sub>2</sub> <= 31.4 <=  >=  >=  >=  >=  >=	1 ALSE Boolean 5 Volts 2 Volts ALSE Boolean 999023 Volts 10 Volts 10 Volts 5 seconds	>= 5.00E-02	sec	One Tri
Transmission Output Speed Sensor (TOSS)	P077D	Output Speed Sensor Circuit High	TOSS Analog Signal Voltage P077D Status is not	Test Failed	Volts				>= 5.00E-02	sec	One Tri

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold lue	Secondary Malfunction		Enable Conditions			Tii Requ	me uired	Mil Illum
9,50011	5546	2000 Ipuvii	If the above conditons have been met, increment the P077D Fail Counter										×-	
			DTC P077D Sets when the Fail Counter	>=	16	Counts (12.5 msec								
						continuous)	P077D Enable Calibration	=	1					
							Service mode \$04 active and end of trip pocessing active	=	FALSE	Boolean				
							Ignition Voltage Hyst Hi (enabled above this value)	>	5	Volts				
							Ignition Voltage Hyst Lo disabled below this value)	<=	2	Volts				
							Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
							Battery Voltage Max (disabled above this value)	<=	31.999023	Volts				
							Battery Voltage Min (disabled below this value)	<=	10	Volts				
							Ignition Voltage Min (disabled below this value)	>=	10	Volts				
							for voltage stablity time	>=	5	seconds				
						Diaghla	MIL was Illuminated for	TOM D0770						
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0//C						
ariable Force Solenoid (VFS)	P0796	Pressure Control Solenoid C Stuck Off (clutch3/C13567)	absolute value (attained gear slip)	>= 4	400	RPM					>=	3	seconds	One
													when fail time reaches fail	
													limit increment fail event count	
							clutch solenoid stuck on				>=	3	event counts	
							performance diagnostic	=	TRUE	boolean				
							monitor test deceleration limit not							
							clutch solenoid stuck on performance diagnostic	=	TRUE	boolean				
							monitor test return to previous range not	=	TRUE	boolean				
							PRNDL State not PRNDL State not	=	park neutral	enumeration enumeration				
							while conditinos A and B and	_	ricultai	enumeration				
							C are met, time down delay from clibration to 0.0 seconds							
							delay time calibration A) neutral condition fault	=	0.5 FALSE	seconds				
							pending B) intrusive shift active	=	FALSE	boolean boolean				
							C) range shift state	=	shift complete	enumeration				
							intrusive shift allowed	=	TRUE	boolean				
	I	1	l l				intrusive shift active	=	FALSE	boolean				l

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					steady state pressure adapt in	=	FALSE	boolean		
					progress transmission output speed	>=	100	RPM		
					accelerator pedal position	>=	0.5004883	%		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid D or E	=	TRUE	Boolean		
					<ul> <li>D) select battery voltage to enable diagnsotic monitor</li> </ul>	=	0	Boolean		
					E) battery voltage	<=	31.999023	volts		
					E) battery voltage	>=	9	volts		
					E) battery voltage time	>=	0.1	sec		
					F or G					
					<ul> <li>F) select ignition voltage to enable diagnsotic monitor</li> </ul>	=	0	Boolean		
					G) Ignition Voltage	<=	31.999023	Volts		
					G) Ignition Voltage	>=	9	Volts		
					Service Fast Learn (SFL)	=	FALSE	Boolean		
					Mode VBS Failsafe		TALSE	Doolcan		
					Ignition voltage and SFL conditions met for	>=	0.1	Sec		
					Hydraulic System Pressurized	=	TRUE	Boolean		
					high side driver 1 enabled	=	TRUE	Boolean		
					high side driver 2 enabled	=	TRUE	Boolean		
				Disable	MIL mat III. main ato d for	TCM: D071/	D0717 D0700	D0722		
				Disable Conditions:	MIL not Illuminated for		, P0717, P0722 7D, P07BF, P07			
				Conditions.	DIC 3.		B, P182C, P18			
							8, P1839, P184			
							36, P18B7, P18			
							3B, P18BC, P18			
							CO, P18C1, P18	3C2, P18C3,		
						P1915, P253	4			
						FCM: P0101	, P0102, P0103	B. P0106.		
							8, P0171, P017			
							1, P0202, P020			
							6, P0207, P020			
							2, P0303, P030 7, P0308, P040			
	<del>                                     </del>		automatic transmission shift			1 0300, F030	1, 1 0300, FU4L	71, I U4ZE		One Trip
Vadable Franco de Line (20)	D070-	Pressure Control Solenoid C Stuck	torque phase test (A) or inertia	see Table 32						Sile inp
Variable Force Solenoid (VFS)	P0/9/	On (clutch3/C13567)	phase test (B) fail event count	>= in supporting fail event counts documents						
			deceleration limited	uocuments						
			automatic transmission shift	see Table 33						
			torque phase test (A) or inertia phase test (B) fail event count no	>= in cupporting fail event counts						
			phase test (B) fall event count no deceleration	documents						
			A) absolute value (attained gear							
			slip), fail during post torque phase							
			of transmission automatic shift,							
			before engine speed change, pull							
I	l	l	up or pull down occurs	I					I	I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	d Illui
			increment fail time when slip criteria met, fail time for power down shift increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited increment fail time when slip criteria met, fail time for up shift or closed throttle down shift no deceleration	r t c r t t d				seconds seconds seconds when fail time reaches fail
			B) absolute value (command gear slip), fail during inertia phase of transmission automatic shift, engine speed change begins, pull up or pull down increment fail time when slip criteria met, fail time during shift deceleration limited increment fail time when slip criteria met, fail time during shift no deceleration	f , >= 70 RPM			see Table 35 >= in supporting documents see Table 36 >= in supporting documents	mit increment ail event count above  seconds  seconds when fail time reaches fail
					inertia phase test measured			mit increment ail event count above
					gear ratio inertia phase test measured	>= 0.558		
					gear ratio inertia phase test measured gear ratio time		conds	
					clutch test enabled	see Table 10 in supporting documents	olean	
					post torque phase test engine torque hysteresis high enable for upshift or power on down shift	see Table 11 in supporting documents	I*m	
					post torque phase test engine torque hysteresis low disable for upshift or power on down shift	see Table 12 in supporting documents	I*m	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					post torque phase test engine torque hysteresis high enable for closed throttle down shift	>= see Table 13 in supporting documents	N*m		
					post torque phase test engine torque hysteresis low disable for closed throttle down shift	see Table 14 in supporting documents	N*m		
					inertia phase test engine torque hysteresis high enable for upshift or power on down shift	see Table 15 in supporting documents	N*m		
					inertia phase test engine torque hysteresis low disable for upshift or power on down shift	see Table 16 in supporting documents	N*m		
					inertia phase test engine torque hysteresis high enable for closed throttle down shift	see Table 17 in supporting documents	N*m		
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	see Table 18 in supporting documents	N*m		
					off going clutch pressure	see Table 37 in supporting documents	kPa		
					off going clutch pressure closed throttle down shift delay time	>= see Table 4 in supporting documents	seconds		
					off going clutch pressure closed power down shift delay time	>= See Table 40 in supporting documents	seconds		
					off going clutch pressure up shift delay time	see Table 61 in supporting documents	seconds		
					on coming clutch pressure for up shift	see Table 8 in supporting documents	kPa		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Illu
					on coming clutch pressure for	>=	see Table 7 in	kPa		
					down shift brake pedal position hysteresis		supporting documents			
					high disable brake pedal position hysteresis	>=	27.000427	%		
					low enable absolute value (attained gear	<=	25 40	% RPM		
					slip)	<=	see Table	KPW		
					shift type enable	=	45 in supporting documents	boolean		
					clucth solenoid stuck off intrusive shift request not traction control event test	=	TRUE	boolean		
					suspend not transmission output speed	= >=	TRUE 100	boolean RPM		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid D or E	=	TRUE	Boolean		
					<ul> <li>D) select battery voltage to enable diagnsotic monitor</li> </ul>	=	0	Boolean		
					E) battery voltage	<=	31.999023	volts		
					E) battery voltage E) battery voltage time F or G	>= >=	9 0.1	volts sec		
					F) select ignition voltage to enable diagnsotic monitor	=	0	Boolean		
					G) Ignition Voltage G) Ignition Voltage	<= >=	31.999023 9	Volts Volts		
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean		
					Ignition voltage and SFL conditions met for	>=	0.1	Sec		
					Hydraulic System Pressurized	=	TRUE	Boolean		
					high side driver 1 enabled	=	TRUE	Boolean		
					high side driver 2 enabled	=	TRUE	Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresh Valu		Secondary Malfunction	Enable Conditions		Time Require		Mil Illum.
oyatem	Source		V. 1.67.16	valu	Disable Conditions:	MIL not Illuminated for DTC's:	COM: P0716, P0717, P072: P077C, P077D, P078F, P0 P182A, P182B, P182C, P18 P182F, P1838, P1839, P18 P1885, P1886, P1887, P16 P188A, P188B, P188C, P1 P18BF, P18C0, P18C1, P1: P1915, P2534  ECM: P0101, P0102, P0107, P0107, P0107, P0108, P0171, P01 P0177, P0202, P020, P0207, P0207, P0207, P0207, P0207, P0307, P03	7CO, P1824, 12D, P182E, 40, P1841, B8, P18B9, BBD, P18BE, 3C2, P18C3, 3, P0106, 72, P0174, 13, P0204, 108, P0300, 104, P0305,	requit		
Transmission Input Speed Sensor (TISS)	P07BF	Input/Turbine Speed Sensor A Circuit Low	TISS Analog Signal Voltage P07BF Status is not  If the above conditons have been met, increment the P07BF Fail Counter	Test Failed = This Key On or Fault Active	Volts  Counts (12.5				>= 5.00E-02	sec	One Trip
			DTC P07BF Sets when the Fail Counter	>= 16	msec continuous)	speed sensor processing P07BF Enable Calibration Service mode \$04 active and end of trip pocessing active Ignition Voltage Hyst Hi (enabled above this value) Ignition Voltage Hyst Lo disabled below this value) Service Fast Learn (SFL) Mode VBS Failsafe Battery Voltage Max (disabled above this value) Battery Voltage Min (disabled below this value) Ignition Voltage Min (disabled below this value) for voltage stablity time	= time based = 1 = FALSE > 5 <= 2 = FALSE <= 31.999023 <= 10 >= 10 >= 5	Boolean Volts Volts Boolean Volts Volts Volts seconds			
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P07C0				
Transmission Input Speed Sensor (TISS)	P07C0	Input/Turbine Speed Sensor A Circuit High	TISS Analog Signal Voltage P07C0 Status is not	Test Failed	Volts				>= 5.00E-02	sec	One Trip

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Time Required	Mil Illun
•				If the above conditons have been met, increment the P07C0 Fail Counter  DTC P07C0 Sets when the Fail		16	Counts (12.5 msec							
				Counter	>=	10	continuous)							
								speed sensor processing	=	time based				
								P07C0 Enable Calibration Service mode \$04 active and	=	1 FALSE	Boolean			
								end of trip pocessing active Ignition Voltage Hyst Hi	>	5	Volts			
								(enabled above this value) Ignition Voltage Hyst Lo	<=	2	Volts			
								disabled below this value) Service Fast Learn (SFL)	=	FALSE	Boolean			
								Mode VBS Failsafe Battery Voltage Max (disabled	<=	31.999023	Volts			
								above this value) Battery Voltage Min (disabled	<=	10	Volts			
								below this value) Ignition Voltage Min (disabled	>=	10	Volts			
								below this value) for voltage stablity time	>=	5	seconds			
							Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P07BF					
p Up Tap Down Switch JTD)	P0815	Upshift Switch Circuit	Fail Case 1	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	=	1	Boolean							Sp No
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 7 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 8 Enabled	=	1	Boolean							
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	=	0	Boolean							
				Tap Up Switch Stuck in the Up Position in Park Enabled	=	0	Boolean							
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean							
				Tap Up Switch ON	= T	RUE	Boolean					>=	1 Fail Time (Sec)	J
			Fail Case 2	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	=	1	Boolean							

Description	Tap Up Switch Stuck in the Up Position in Range 2 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean							
										1
	Position in Range 3 Enabled	= 1	Boolean							
	Tap Up Switch Stuck in the Up	4	Deeleen							
	Position in Range 4 Enabled	= 1	Boolean							
	Tap Up Switch Stuck in the Up	= 1	Boolean							
	Position in Range 5 Enabled									
	Tap Up Switch Stuck in the Up Position in Range 6 Enabled	= 1	Boolean							
	Tap Up Switch Stuck in the Up	4	Deeleen							
	Position in Range 7 Enabled	= 1	Boolean							
		= 1	Boolean							
		•	Booloan							
		= 0	Boolean							
	Position in Park Enabled	= 0	Rooleau							
	Tap Up Switch Stuck in the Up	= 0	Boolean							
		= IRUE	Boolean							
								>= 120	Fail Time (Sec)	1
										1
				unshift switch diagnostic						1
				monitor enable calibration	=	1				
				Service mode \$04 active and	_	ENISE	Rooloan			
					-	TALSE	Doolean			
					>	5	Volts			1
										1
				disabled below this value)	<=	2	Volts			
				Service Fast Learn (SFL)	_	EVICE	Rooloan			
				Mode VBS Failsafe	=	FALSE	DUUleal1			1
					<=	31.999023	Volts			1
										1
					>=	9	Volts			
						1	Enable Time			
				Change		·	(Sec)			
										1
				D001E 01-1	_					
				P0815 Status is	≠					
										1
										1
		Position in Range 7 Enabled Tap Up Switch Stuck in the Up Position in Range 8 Enabled Tap Up Switch Stuck in the Up Position in Neutral Enabled Tap Up Switch Stuck in the Up Position in Park Enabled	Position in Range 7 Enabled  Tap Up Switch Stuck in the Up Position in Range 8 Enabled  Tap Up Switch Stuck in the Up Position in Neutral Enabled  Tap Up Switch Stuck in the Up Position in Park Enabled  Tap Up Switch Stuck in the Up Position in Park Enabled  Tap Up Switch Stuck in the Up Position in Reverse Enabled  Tap Up Switch ON Tap Up Switch ON NOTE: Both Failcase1 and	Position in Range 7 Enabled Tap Up Switch Stuck in the Up Position in Neutral Enabled Tap Up Switch Stuck in the Up Position in Neutral Enabled Tap Up Switch Stuck in the Up Position in Park Enabled Tap Up Switch Stuck in the Up Position in Park Enabled Tap Up Switch Stuck in the Up Position in Reverse Enabled Tap Up Switch ON NOTE: Both Failcase1 and	Position in Range 7 Enabled Tap Up Switch Stuck in the Up Position in Neutral Enabled Tap Up Switch Stuck in the Up Position in Park Enabled Tap Up Switch Stuck in the Up Position in Park Enabled Tap Up Switch Stuck in the Up Position in Park Enabled Tap Up Switch Stuck in the Up Position in Park Enabled Tap Up Switch ON NOTE: Both Falicase 1 and Falicase 2 Must Be Met  Upshift switch diagnostic monitor enable calibration Service mode S04 active and end of trip pocessing active Ignition Voltage Hyst Hil (enabled above this value) Ignition Voltage Hyst Hil (stabled below this value) Service Fast Leam (SFL) Mode VBS Fallsafe Ignition Voltage Min (enabled above this value) Ignition Voltage Min (enabled	Position in Range 7 Enabled Tap Up Switch Stuck in the Up Position in Neutral Enabled Tap Up Switch Stuck in the Up Position in Park Enabled Tap Up Switch Stuck in the Up Position in Park Enabled Tap Up Switch Stuck in the Up Position in Reverse Enabled Tap Up Switch Stuck in the Up Position in Reverse Enabled Tap Up Switch ON NOTE: Both Falicase1 and Falicase 2 Must Be Met  Upshift switch diagnostic monitor enable calibration Service mode \$04 - active and end of trip pocessing active (gnition Voltage Hyst Lo disabled below hits value) Service Fast Learn (SFL) Mode VBS Palisate Ugnition Voltage Max (disabled above this value) Time Since Last Range Change  Time Since Last Range Change	Position in Range 7 Enabled Tap Up Switch Sluck in the Up Position in Position	Position in Range Enabled Tap Up Switch Stuck in the Up Position in Neutral Enabled Tap Up Switch Stuck in the Up Position in Neutral Enabled Tap Up Switch Stuck in the Up Position in Revise Enabled Tap Up Switch ON NOTE Eoth Failcase 1 and Failcase 2 Must be Mel  Tap Up Switch ON NOTE Eoth Failcase 1 and Failcase 1 de Company of the	Position in Range 7 Enabled Tap Up Switch Stack in the Up Position in Nature 1	Position in Ranger 5 Frankeri Tay Up Switch Stuck in the Up Position in Ranger 6 Frankeri Tay Up Switch Stuck in the Up Position in Neutral Frankeri Tay Up Switch Stuck in the Up Position in Review 5 Enabled Tay Up Switch Nate Tailcase 2 Muss Be Mel  TRUE Boolean  T

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction	Enable Conditions		Time Require		Mil Illum.
Gystem	Gode	Безсприон	- Criteria			Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0826, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P1885, P1886, P1887, P1888, P1889, P188A, P188B, P18BC, P18BC, P18BC, P18BE, P18C2, P18C3, P18C3, P1761		Requir		
Tap Up Tap Down Switch	D001/	David M. Carllah Classifi	Fail Case 1 Tap Down Switch Stuck in the			Dealess		ECM: None				Special
(TUTD)	P0816	Downshift Switch Circuit	Down Position in Range 1 Enabled	=	1	Boolean						No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled		1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled		1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled		1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 7 Enabled		1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 8 Enabled		1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	=	0	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	=	0	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Reverse		0	Boolean						
			Enabled Tap Down Switch ON		TRUE	Boolean			>=	1	sec	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled		1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	1	Boolean						
ı			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled		1	Boolean						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 7 Enabled		1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 8 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Neutral Enabled Tap Down Switch Stuck in the	=	0	Boolean								
			Down Position in Park Enabled Tap Down Switch Stuck in the		0	Boolean								
			Down Position in Reverse Enabled Tap Down Switch ON NOTE: Both Failcase1 and		TRUE	Boolean Boolean					>=	120	sec	
			Failcase 2 Must Be Met									120	300	-
							downshift switch diagnostic monitor enable calibration Service mode \$04 active and	=	1					
							end of trip pocessing active Ignition Voltage Hyst Hi (enabled above this value)	>	FALSE 5	Boolean Volts				
							Ignition Voltage Hyst Lo disabled below this value) Service Fast Learn (SFL)	<=	2	Volts				
							Mode VBS Failsafe Ignition Voltage Max (disabled above this value)	= <=	FALSE 31.999023	Boolean Volts				
							Ignition Voltage Min (enabled above this value)	>=	9	Volts				
							Time Since Last Range Change	>=	1 Test Failed	Enable Time (Sec)				
							P0816 Status is	<b>≠</b>	This Key On or Fault Active					
									Active					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
Gystem	Code	Description	S.N.O. AL			Disable Conditions:	MIL not Illuminated for	P182C, P182 P1839, P184 P18B7, P18 P18BB, P18	, P1824, P182 <i>I</i> , 2D, P182E, P18 10, P1841, P181 188, P18B9, P 18BC, P18BD, F CO, P18C1, P18	82F, P1838, B5, P18B6, 18BA, P18BE,		Koc	uncu	
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	=	TRUE	Boolean		ECM: None			>=	60	Fail Time (Sec)	Special No MIL
(1010)			volage				Service mode \$04 active and end of trip pocessing active upshift downshift switch circuit diagnostic monitor enable calibration	=	FALSE	Boolean				INO WILL
							Ignition Voltage Hyst Hi (enabled above this value) Ignition Voltage Hyst Lo	>	5	Volts				
							disabled below this value) Service Fast Learn (SFL)	<=	2 FALSE	Volts Boolean				
							Mode VBS Failsafe Ignition Voltage Max (disabled above this value)	<=	31.999023	Volts				
							Ignition Voltage Min (enabled above this value)	>=	9	Volts				
							P0826 Status is	≠	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:							
Variable Force Solenoid (VFS)	P0960	Pressure Control Solenoid A Control Circuit Open (clutch1/CB1278R VFS)	The HWIO reports open crcuit error flag	=	TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Tri
		(CIUICITI/CB12/0R VFS)									out of	0.5	Sample Time (Sec)	
							diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean				
							high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
							high side driver VFS source enabled controller power mode state is	=	TRUE	Boolean				
							ignition or accessory battery voltage in range for stability time	=	TRUE	Boolean				
							battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P0962	Pressure Control Solenoid A Control Circuit Low (clutch1/CB1278R VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>= out	0.3	Fail Time (Sec) Sample Time	One Trip
						diagnostic monitor enable calibration	=	TRUE	Boolean	of	0.5	(Sec)	
						VFS source must be high side driver 1 or 2 or 3 high side driver VFS source is	=	CeTSCR_	enumeration				
						high side driver VFS source enabled	=	e_HSD2 TRUE	Boolean				
						controller power mode state is ignition or accessory battery voltage in range for stability time	=	TRUE	Boolean				
						battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P0963	Pressure Control Solenoid A Control Circuit High (clutch1/CB1278R VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Tri
						diagnostic monitor enable				out of	0.5	Sample Time (Sec)	
						calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean				
						high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
						high side driver VFS source enabled controller power mode state is	=	TRUE TRUE	Boolean Boolean				
						ignition or accessory battery voltage in range for stability time		INOL	Doolcail				
						battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
						battery voltage	<=	32	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Т	hreshold Value	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P0964	Pressure Control Solenoid B Control Circuit Open (clutch2/CB12345R VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
						diagnostic monitor enable	=	TRUE	Dooloon	out of	0.5	Sample Time (Sec)	-
						calibration VFS source must be high side driver 1 or 2 or 3	=		Boolean				
						high side driver VFS source is high side driver VFS source	=	CeTSCR_ e_HSD2	enumeration				
						enabled controller power mode state is	=	TRUE TRUE	Boolean Boolean				
						ignition or accessory battery voltage in range for stability time	=	TRUE	Doolean				
						battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P0966	Pressure Control Solenoid B Control Circuit Low (clutch2/CB12345R VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
										out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean				
						high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
						high side driver VFS source enabled controller power mode state is	=	TRUE TRUE	Boolean Boolean				
						ignition or accessory battery voltage in range for stability time							
						battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Variable Force Solenoid (VFS)		Pressure Control Solenoid B Control Circuit High (clutch2/CB12345R VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean	manufoloff		Conditions		>=	0.3	Fail Time (Sec)	One Trip
		(clutch270B123431( V1 3)								out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side	=	TRUE	Boolean			, ,	
						driver 1 or 2 or 3 high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
						high side driver VFS source enabled controller power mode state is	=	TRUE	Boolean				
						ignition or accessory battery voltage in range for stability time	=	TRUE	Boolean				
						battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
W	D00/0	Pressure Control Solenoid C Control	The HWIO reports open crcuit	TOUE	D 1							5 H.T. (O.)	One Tri
Variable Force Solenoid (VFS)	P0968	Circuit Open (clutch3/C13567 VFS)	error flag	= TRUE	Boolean					>= out	0.3	Fail Time (Sec) Sample Time	
						diagnostic monitor enable calibration VFS source must be high side	=	TRUE	Boolean	of	0.5	(Sec)	-
						driver 1 or 2 or 3 high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
						high side driver VFS source enabled controller power mode state is	=	TRUE	Boolean				
						ignition or accessory battery voltage in range for stability time	=	TRUE	Boolean				
						battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
					Disable	MIL not Illuminated for		32	VUIIS				
					Conditions:	DTC's:	ECM: None						
Variable Force Solenoid (VFS)	P0970	Pressure Control Solenoid C Control Circuit Low (clutch3/C13567 VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Tri
		(Claticitis C 13307 VI 3)								out of	0.5	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	1	hreshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum
,						diagnostic monitor enable calibration VFS source must be high side	=	TRUE	Boolean				
						driver 1 or 2 or 3 high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is ignition or accessory battery voltage in range for	=	TRUE	Boolean				
						stability time battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:							
					oonaniono.	2.00.	ECM: None						
Variable Force Solenoid (VFS)	P0971	Pressure Control Solenoid C Control Circuit High (clutch3/C13567 VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Tr
										out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean				
						high side driver VFS source is	=	CeTSCR_ e HSD2	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is ignition or accessory battery voltage in range for	=	TRUE	Boolean				
						stability time battery voltage stability time battery voltage	>= >=	1 8	seconds volts				
						battery voltage	<=	32	Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:							
							ECM: None						
Fransmission Control Module TCM)	P16E9	Transmission Control Module	secondary micro processor hardware serial peripheral device fault active secondary micro processor										One Tr
			hardware serial peripheral device fault active previous loop	= TRUE	Boolean								
						Service mode \$04 active and end of trip pocessing active	=	FALSE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	1	hreshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P16F0	Transmission Control Module	secondary micro processor serial peripheral device message valid detected by primary micro processor since controller initialization	= FALS	E Boolean					>=	5	counts (12.5 ms) cont	One Trip
			OR							>=	8	counts (12.5 ms) cont	
			secondary micro processor serial peripheral device message valid detected by primary micro processor after controller initialization	= FALS	E Boolean					>=	5	counts (12.5 ms) cont	
			OR							>=	8	counts (12.5 ms) cont	
			secondary micro processor serial peripheral device message valid detected by primary micro processor after controller initialization	= FALS	E Boolean					>=	5	counts (12.5 ms) NON continuous	
			iniuanzauori							>=	8	counts (12.5 ms) NON continuous	
						NOT in low voltage engine crank condition defined by A or B below during, for low voltage							
						mode time low voltage mode time A) low voltage mode hysteresis time B) ignition voltage, set low voltage mode	>= <= <=	2.50E-02 0.1 6.4091797	seconds seconds volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P16F3	Transmission Control Module	diagnostic monitor fails when any of the following conditions occur A or B or C										One Tri
			A) command pressure and its dual store do not equal	= TRU	Boolean	redundent memory command pressure disable calibration not OR	=	TRUE	Boolean				
			OR			redundent memory command pressure enable calibration	=	TRUE	Boolean				
			B) command shift and its dual store do not equal	= TRUE	Boolean	redundent memory command shift disable calibration not	=	FALSE	Boolean				

Component/	Fault	Monitor Strategy	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tir		Mil Illum.
System	Code	Description	Criteria		V	aiue	OR		Conditions	Boolean		Requ	uirea	illum.
							redundent memory command	=	TRUE	Boolean				
			OR				shift enable calibration		TROE	Doolcan				
			C) rate limited vehicle speed and its dual store do not equal		TRUE	Boolean	rate limited vehicle speed dual store enable calibration	=	TRUE	Boolean	>=	10	counts (25 msec continuous) counts (25	
											>=	20	msec continuous)	
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module			redundent path calculation of										counts (25	One Trip
(TCM)	P16F4	Transmission Control Module	driver selected transmission range error	=	TRUE	Boolean					>=	6	msec continuous) counts (25	
											>=	8	msec continuous)	
							secureed controller or emission critical ignition voltage	>=	11	volts				
							P16F4 status is not	=	test pass this key on	Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
			transmission output speed raw (25											One Trip
Transmission Control Module (TCM)	P16FB	Transmission Control Module	ms loop value) - transmission output speed raw (6.25 ms loop value)	>=	60	RPM					>=	8	seconds	
			value)								>=	10	seconds	
							Service Fast Learn (SFL) Mode VBS Failsafe Battery Voltage Max (disabled	=	FALSE	Boolean				
							above this value)  Battery Voltage Min (disabled	<=	31.999023	Volts				
							below this value) Ignition Voltage Min (disabled	<=	10 10	Volts				
							below this value) for voltage stablity time	>=	5	seconds				
							transmission output speed raw (6.25 ms loop value)	>=	150	RPM				
							transmission output speed raw (25 ms loop value)	>=	150	RPM				
							Service mode \$04 active and end of trip pocessing active	=	FALSE	Boolean				
							diagnostic monitor enable calibration	=	1	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				ime quired	Mil Illum.
System	Code	Description	Onteria		V	arue	manuffction		CONGRES		<del>                                     </del>	197	quireu	mum.
						Disable	MIL not Illuminated for	TCM: None						
						Conditions:	DTC's:							
								ECM: None						
	-		P175F will fail when A: message								<u> </u>			Special
Lateral acceleration signal	P175F	Lateral acceleration signal circuit	alive rolling count erroror or B:											No MIL
		(rolling count or checksum)	message checksum error											
l			A: Rolling count value received										Fail Counter (50	
			from EBCM and expected TCM	=	TRUE	Boolean					>=	9	msec	
			calculated value not										continuous)	
											>	54	Fail Timer (Sec)	
							Lateral acceleration message							
1							health (message receive	=	TRUE	Boolean				
							occur)							
							Lateral acceleration signal							
							circuit rolling count diagnostic	=	1	Boolean				
							monitor enable calibration		21 000022	ualta				
							battery voltage battery voltage	<= >=	31.999023 9	volts volts				
							battery voltage time	>=	0.1	sec				
							Ignition Voltage	<=	31.999023	Volts				
1							Ignition Voltage	>=	9	Volts				
							Service Fast Learn (SFL)	=	FALSE	Boolean				
							Mode VBS Failsafe		TALSE	Doolcan				
							Ignition voltage and SFL conditions met for	>=	0.1	Sec				
			B: checksum of lateral				CONDITIONS THEE TO							ł
			acceleration message value error	=	TRUE	Boolean					>=	54	Fail Timer (Sec)	
							Lateral acceleration message							
							health (message receive	=	TRUE	Boolean				
							occur)							
							Lateral acceleration signal circuit checksum diagnostic	=	1	Boolean				
							monitor enable calibration	-	'	Doolean				
							battery voltage	<=	31.999023	volts				
							battery voltage	>=	9	volts				
							battery voltage time	>=	0.1	sec				
							Ignition Voltage	<=	31.999023	Volts				
							Ignition Voltage Service Fast Learn (SFL)	>=	9	Volts				
							Mode VBS Failsafe	=	FALSE	Boolean				
							Ignition voltage and SFL							
							conditions met for	>=	0.1	Sec				
							normal serial data	_	TRUE	Boolean				
							communication enabled	_	INOL	Doolcan				
						Disable	MIL not Illuminated for	TCM: LIDD73						
						Conditions:	DTC's:	1 SIVI. 000/3						
								ECM: None						
Tap Up Tap Down Switch	D17/1	Tap Up and Down switch signal	Rolling count value received from		TDUE	Dooloon						2	Fail Counter	Special
(TUTD)	P1761	circuit (rolling count)	BCM and expected TCM calculated value not		TRUE	Boolean					>=	3	(100 msec continuous)	No MIL
	1	ı	Calculated value flot				ı	ı			1		continuous)	ı

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Time Required	Mil Illum.
											> 10	) Fail Timer (Sec	.)
							Tap up/down message health (message receive occur)	=	TRUE	Boolean			1
							Tap up/downswitch signal circuit (rolling count) diagnostic monitor enable calibration	=	1	Boolean			
							Ignition Voltage Ignition Voltage	<= >=	31.999023 9	Volts Volts			
							Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean			
							Ignition voltage and SFL conditions met for	>=	0.1	Sec			
							Service mode \$04 active and end of trip pocessing active	=	FALSE	Boolean			
						Disable Conditions:							
Tap Up Tap Down Switch (TUTD)	P1765	Upshift Switch Circuit #2	Fail Case 1	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 1	Boolean							Special No MIL
(1010)				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 1	Boolean							INO IVIIL
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	= 1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	= 1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	= 1	Boolean							
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 0	Boolean							
				Tap Up Switch Stuck in the Up Position in Park Enabled	= 0	Boolean							
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0	Boolean					>= 1	Fail Time (See	
			Fail Case 2	Tap Up Switch ON  Tap Up Switch Stuck in the Up	= TRUE	Boolean					>= 1	Fail Time (Sec	-
			Fall Case 2	Position in Range 1 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean							
				Position in Range 2 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean							
				Position in Range 3 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean							
				Position in Range 4 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean							
				Position in Range 5 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean							
				Position in Range 6 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean							
				Position in Neutral Enabled	= 0	Boolean							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction	Enable Conditions		ime Juired	Mil Illum
			Tap Up Switch Stuck in the Up Position in Park Enabled Tap Up Switch Stuck in the Up Position in Reverse Enabled Tap Up Switch ON NOTE: Both Failcase1 and	= 0 = 0 = TRUE	Boolean Boolean Boolean			>= 120	Fail Time (Sec)	
			Failcase 2 Must Be Met			Time Since Last Range Change Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 1		. ( ,	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1767, P1761, P182E, P1915 ECM: None			
ap Up Tap Down Switch 'UTD)	P1766	Downshift Switch Circuit #2	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1	Boolean					Spec No N
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	= 0	Boolean					
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	= 0	Boolean					
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	= 0	Boolean					
			Tap Down Switch ON	= TRUE	Boolean			>= 1	sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Cysto	0000	2000	Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Neutral Enabled Tap Down Switch Stuck in the	=	0	Boolean								
			Down Position in Park Enabled	=	0	Boolean								
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	=	0	Boolean								
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	=	TRUE	Boolean					>=	120	sec	
							Time Since Last Range Change	>=	1	Sec				
							Ignition Voltage Lo	>=	9	Volts				
							Ignition Voltage Hi Engine Speed Lo	<= >=	18 250	Volts RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5 Test Failed	Sec				
									This Key					
							P1766 Status is	≠	On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1767	7, P1761, P182E	, P1915				
Tap Up Tap Down Switch	1		TUTD Circuit Reads Invalid								_			Specia
(TUTD)	P1767	Up and Down Shift Switch Circuit #2	Voltage	=	TRUE	Boolean					>=	60	Fail Time (Sec)	No MIL
							Ignition Voltage Lo Ignition Voltage Hi	>= <=	9 31.999023	Volts Volts				
							Engine Speed Lo	>=	250	RPM				
							Engine Speed Hi	<=	7500	RPM				
	1						Engine Speed is within the allowable limits for	>=	5	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold lue		Secondary Malfunction		Enable Conditions			Time Requir		Mil Illum.
5,2								P1767 Status is	≠	Test Failed This Key On or Fault Active					
						Dis Conditi		MIL not Illuminated for DTC's:	TCM: P1761 ECM: None						
Transmission Intermediate Speed Sensor	P176B	Transmission Intermediate Speed Sensor Performance	attained gear is Reverse or 1st or 2nd transmssion intermediate speed attained gear is 3rd or 4th or 5th or 6th or 7th or 8th calculated intermediate gear slip = absolute value (transmission input speed - (transmission intermediate speed * command gear intermediate ratio)	>	60	PRM PRM		fail time	>=	4	seconds	>=	4	counts (25 msec continuous)	Two Trips
			intermediate ratio))			Dis Conditi	able	calculated gear slip = absolute value (transmission input speed - (transmission output speed - (transmission output speed * command gear ratio)) calculated gear slip stablity time when all of the conditions below are met diagnostic monitor enable calibration transmission output speed transmission input speed neutral idle mode requesting holding clutch disable range shift state is Hydraulic System Pressurized battery voltage battery voltage battery voltage lgnition Voltage Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL conditions met for		60  1  1  190 395  FALSE shift complete TRUE 31.999023 9 0.1 31.999023 9 FALSE 0.1					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Requir		Mil Illum.
Transmission Intermediate Speed Sensor	P176C	Intermediate Speed Sensor Circuit Low	speed sensor1 voltage	see Table 51 <= in supporting volts documents	speed sensor1 fail time	>=	see Table 53 in supporting documents	seconds	see Table 52 >= in supporting documents	counts (12.5 msec continuous)	Two Trips
					speed sensor1 circuit low diagnostic monitor enable calibration	=	see Table 54 in supporting documents	Boolean			
					Service mode \$04 active and end of trip pocessing active	=	FALSE	Boolean			
				Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
					Battery Voltage Max (disabled above this value)	<=	31.999023	Volts			
					Battery Voltage Min (disabled below this value)	<=	10	Volts			
					Ignition Voltage Min (disabled	>=	10	Volts			
					below this value) for voltage stablity time	>=	5	seconds			
Transmission Intermediate Speed Sensor P17					P176C Status is not	=	Test Failed This Key On or Fault				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P176D					
	P176D	Intermediate Speed Sensor Circuit High	speed sensor1 voltage	see Table 55 >= in supporting volts documents	speed sensor1 fail time	>=	see Table 57 in supporting documents	seconds	see Table 56 >= in supporting documents	counts (12.5 msec continuous)	Two Trips
					speed sensor1 circuit high diagnostic monitor enable calibration	=	see Table 58 in supporting documents	Boolean			
					Service mode \$04 active and end of trip pocessing active	=	FALSE	Boolean			
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean			
					Battery Voltage Max (disabled above this value)	<=	31.999023	Volts			
					Battery Voltage Min (disabled below this value)	<=	10	Volts			
					Ignition Voltage Min (disabled below this value)	>=	10	Volts			
					for voltage stablity time	>=	5	seconds			

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P182B	Internal Mode Switch B Circuit Low Voltage	IMS switch B voltage	< 0.69999988 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration lgnition Voltage Lo Ignition Voltage Hi If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage within the above low / high thresholds for	= >= <= >= <	1 9 31.999023 7 9 7.50E-02	Volts Volts Volts Volts volts seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P182C	Internal Mode Switch B Circuit High Voltage	IMS switch B voltage	> 2.380000114 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage His ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event	<=	1 9 31.999023	Boolean Volts Volts				
				Disable Conditions:	Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage within the above low / high thresholds for  MIL not Illuminated for DTC's:	<=	7 9 7.50E-02	Volts Volts seconds				
Internal Mode Switch (IMS)	P182D	Internal Mode Switch P Circuit Low Voltage	IMS switch P voltage	< 0.699999988 volts	, pics.	ECM: None			>=	70	Fail Counts (25ms loop)	Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold /alue	Secondary Malfunction		Enable Conditions				ime juired	Mil Illum.
										out of	80	Sample Counts (25ms loop)	
						Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi	= >= <=	1 9 31.999023	Boolean Volts Volts	OI .		(251115 1606)	
						If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
						lgnition Voltage Lo Ignition Voltage Hi	>= <	7 9	Volts Volts				
						Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P182E	Internal Mode Switch Illegal Range	Range	SABCP=	enumeration					>=	108	Fail Counts (25ms loop)	Two Trips
				10000)						out of	125	Sample Counts (25ms loop)	
						Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi	= >= <=	1 9 31.999023	Boolean Volts Volts				
						If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
						Ignition Voltage Lo Ignition Voltage Hi	>= <	7 9	Volts Volts				
						Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P182F	Internal Mode Switch C Circuit High Voltage	IMS switch C voltage	> 2.38000011	4 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo Ignition Voltage Hi	>= <	7 9	Volts Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P1840	Internal Mode Switch S Circuit Low Voltage	IMS switch S voltage	< 0.69999988 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi	= >= <=	1 9 31.999023	Boolean Volts Volts	Oi		(231113 10019)	
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo Ignition Voltage Hi	>= <	7 9	Volts Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P1841	Internal Mode Switch S Circuit High Voltage	IMS switch S voltage	> 2.380000114 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi	= >= <=	1 9 31.999023	Boolean Volts Volts			(	
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo	>=	7	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
System	Code	Description	Orneria	value	Ignition Voltage Hi	< 9	Volts		Nequired	munn.
					Ignition Voltage within the above low / high thresholds for	<= 7.50E-02	seconds			
				Disable Conditions	MIL not Illuminated for DTC's:	TCM: None ECM: None				
Tap Up Tap Down Switch (TUTD)	P1876	Tap Up and Down Enable Switch Circuit	Current range TUTD Enable Switch is Active	Neutral				>=	3 Fail Time (Se	Special No MIL
					Ignition Voltage Lo Ignition Voltage Hi Vehicle Speed Lo Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 9 <= 31.999023 <= 511.99219 >= 250 <= 7500 >= 5  Test Failed This Key	Volts Volts KPH RPM RPM Sec		5 Fail Counts	
				Disable Conditions		TCM: P0815, P0816, P0826 P1825, P1877, P1915, U01 ECM: None				
Internal Mode Switch (IMS)	P18B5	Internal Mode Switch A Circuit Shorted	IMS switch A voltage	< 1.679999948 volts > 0.966000021 volts				out	70 Fail Counts (25ms loop) 80 Sample Count (25ms loop)	Two Trips
					Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event Ignition Voltage Lo Ignition Voltage Hi	= 1 >= 9 <= 31.999023 >= 7 < 9	Boolean Volts Volts			
					Ignition Voltage within the above low / high thresholds for	<= 7.50E-02	seconds			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime uired	Mil Illum.
- Cyclesiii	0000	2005.,p.101.		Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P18B6	Internal Mode Switch B Circuit Shorted	IMS switch B voltage						>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration lgnition Voltage Lo Ignition Voltage Hi  If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once	= >= <=	1 9 31.999023	Boolean Volts Volts				
					per auto start event lgnition Voltage Lo lgnition Voltage Hi lgnition Voltage within the above low / high thresholds for	>= < <=	7 9 7.50E-02	Volts Volts seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P18B7	Internal Mode Switch C Circuit Shorted	IMS switch C voltage						>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi If ignition voltage was	= >= <=	1 9 31.999023	Boolean Volts Volts				
					previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage within the above low / high thresholds for	>= < <=	7 9 7.50E-02	Volts Volts seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Internal Mode Switch (IMS)	P18B8	Internal Mode Switch P Circuit Shorted	IMS switch P voltage	< 1.67999948 volts > 0.966000021 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi If ignition voltage was	= >= <=	1 9 31.999023	Boolean Volts Volts				
					previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage within the	>= <	7 9	Volts Volts				
					above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P18B9	Internal Mode Switch S Circuit Shorted	IMS switch S voltage	< 1.679999948 volts					>=	70	Fail Counts (25ms loop)	Two Trips
			IMS switch S voltage	> 0.966000021 volts					out of	80	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi	= >= <=	1 9 31.999023	Boolean Volts Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo Ignition Voltage Hi	>= <	7 9	Volts Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P18BA	Internal Mode Switch A Stuck Off	Range	Transition 30 = (SABCP= enumeration 00001)					>=	108	Fail Counts (25ms loop)	Two Trips
			Switch A	True (this key					out of	125	Sample Counts (25ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi	= >= <=	1 9 31.999023	Boolean Volts Volts				-
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo Ignition Voltage Hi	>= <	7 9	Volts Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disab Condition								
				Transition 29		ECM: None						Two
Internal Mode Switch (IMS)	P18BB	Internal Mode Switch B Stuck Off	Range						>=	108	Fail Counts (25ms loop)	Trips
			Prev Range	Transition 14					out of	125	Sample Counts (25ms loop)	
					Diagnostic monitor enable calibration	=	1	Boolean				
					Ignition Voltage Lo Ignition Voltage Hi	>= <=	9 31.999023	Volts Volts				
					If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
					Ignition Voltage Lo Ignition Voltage Hi	>= <	7 9	Volts Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disab Condition		TCM: None ECM: None						
Internal Mode Switch (IMS)	P18BC	Internal Mode Switch C Stuck Off	Range	Transition 27 = (SABCP= enumeration 00100)					>=	108	Fail Counts (25ms loop)	Two Trips
				,					out of	125	Sample Counts (25ms loop)	

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Va	shold lue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
			Switch S	¥	True (this key	boolean								
					5,000		Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi	= >= <=	1 9 31.999023	Boolean Volts Volts				
							If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
							Ignition Voltage Lo Ignition Voltage Hi	>= <	7 9	Volts Volts				
							Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P18C0	Internal Mode Switch B Stuck On	Range	=	Drive 8	enumeration					>=	108	Fail Counts (25ms loop)	Two Trips
			Prev Range = Park for	>=	80	counts (25ms loop)					out of	125	Sample Counts (25ms loop)	
			Switch B	≠	False (this key cycle)	boolean							(	
							Diagnostic monitor enable calibration	=	1	Boolean				
							Ignition Voltage Lo Ignition Voltage Hi	>= <=	9 31.999023	Volts Volts				
							If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event		31.777623	VOILS				
							Ignition Voltage Lo Ignition Voltage Hi	>= <	7 9	Volts Volts				
							Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P18C1	Internal Mode Switch C Stuck On	Range		Transition 20 (SABCP= 01011)	enumeration					>=	108	Fail Counts (25ms loop)	Two Trips
			Switch C	¥	False (this key cycle)	boolean					out of	125	Sample Counts (25ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold Ilue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
,						Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi	= >= <=	1 9 31.999023	Boolean Volts Volts				
						If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
						Ignition Voltage Lo Ignition Voltage Hi	>= <	7 9	Volts Volts				
						Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P18C2	Internal Mode Switch P Stuck On	Range	Transition 24 = (SABCP= 00111)	enumeration					>=	108	Fail Counts (25ms loop)	Two Trips
				3511.1,						out of	125	Sample Counts (25ms loop)	
						Diagnostic monitor enable calibration	=	1	Boolean				
						Ignition Voltage Lo Ignition Voltage Hi	>= <=	9 31.999023	Volts Volts				
						If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event							
						Ignition Voltage Lo Ignition Voltage Hi	>= <	7 9	Volts Volts				
						Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P18C3	Internal Mode Switch S Stuck On	Range	= Drive 7	enumeration					>=	108	Fail Counts (25ms loop)	Two Trips
			Prev Range = Park for		counts (25ms loop)					out of	125	Sample Counts (25ms loop)	
			Switch S	≠ False (this key cycle)	boolean	Di ili iii iii iii							
						Diagnostic monitor enable calibration Ignition Voltage Lo	= >=	1 9	Boolean Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tii Requ	me uired	Mil Illum
5,25000					Ignition Voltage Hi If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event	<=	31.999023	Volts				
					Ignition Voltage Lo Ignition Voltage Hi	>= <	7 9	Volts Volts				
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions		TCM: None ECM: None						
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	The following events must occur Sequentially Initial Engine speed Then Engine Speed Between Following Cats Engine Speed Lo Hist Engine Speed Hi Hist Then Final Engine Speed Final Transmission Input Speed	Transition 17 (SABCP= 01110) Transition 18 (SABCP= 01101) Transition 21 (SABCP= 01010)  <= 50 RPM  >= 50 RPM  >= 480 RPM  >= 550 RPM					>=	0.475	Enable Time (Sec)  Enable Time (Sec)	Two
			i inai rransmission iliput speed	2- 100 (11 (1)	DTC has Ran this Key Cycle Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage Hyst High (enables above this value)	<=	FALSE 6 31.900391 5	Boolean V V V	>=	1,20	Fail Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
		·				Ignition Voltage Hyst Low (disabled below this value) Transmission Output Speed P1915 Status is	<= <= ≠	2 90 Test Failed This Key On or Fault	V rpm		•		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, ECM: None	Active					
Transmission Control Module (TCM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below)	= FALSE	Boolean								One Tri
,			Ignition Voltage High Hyst (run crank goes true when above this value)	> 5	Volts					>=	280	one fail count per 25 ms loop	
			Ignition Voltage Low Hyst (run crank goes false when below this value)	< 2	Volts					Out of	280	one sample count per 25 ms loop	
						Ignition Switch Run/Start Position Circuit Low diagnaotic enable calibration	=	1	Boolean			,	
						ECM run/crank active status available from serial data	=	TRUE	Boolean				
						ECM run/crank active status Service mode \$04 active and end of trip pocessing active	=	TRUE FALSE	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)	= TRUE	Boolean								One Tri
			Ignition Voltage High Hyst (run crank goes true when above this value)	> 5	Volts					>=	280	one fail count per 25 ms loop	
			Ignition Voltage Low Hyst (run crank goes false when below this value)	< 2	Volts					Out of	280	one sample count per 25 ms loop	
						Ignition Switch Run/Start Position Circuit High diagnaotic enable calibration	=	1	Boolean				
						ECM run/crank active status available from serial data ECM run/crank active status	=	TRUE FALSE	Boolean Boolean				
						Service mode \$04 active and end of trip pocessing active	=	FALSE	Boolean				

Component/	Fault Code	Monitor Strategy	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditions				ime uired	Mil Illum.
System	Code	Description	Gilleria		vai	Disable	MIL not Illuminated for	TCM: None	CONTUNIONS			Neu	uncu	muni.
						Conditions:	DTC's:							
								ECM: None						
													Fail Counts	One Trip
High Side Driver 2	P2670	Actuator Supply Voltage B Circuit Low	The HWIO reports a low voltage (ground short) error flag	= 7	TRUE	Boolean					>=	6	(6.25 msec	
		Low	(ground short) end hag										continuous)	
											out	2395	Sample Counts (6.25 msec	
											of	2373	continuous)	
							actuator supply voltage circuit	=	1				•	
							low enable calibration Service mode \$04 active and							
							end of trip pocessing active	=	FALSE	Boolean				
							ond or any poocessing delive		Test Failed					
									This Key					
							P2670 Status is not	=	On or Fault					
									Active					
									Test Failed					
									This Key					
							P2670 Status is not	=	On or Fault					
									Active					
							Service Fast Learn (SFL)		FALSE	Dooloon				
							Mode VBS Failsafe	=		Boolean				
							High Side Driver 2 On	=	True	Boolean				
						Disable	MIL not Illuminated for	TCM: None						
						Conditions:	DTC's:	ECM: None						
								ECIVI. INOTIE						
Variable Force Solenoid (VFS)	P2714	Pressure Control Solenoid D Stuck	absolute value (attained gear slip)	\	400	RPM					>=	3	seconds	One Trip
Variable Force Solenoia (VFS)	1 2/14	Off (clutch4/C23468)	absolute value (attained gear slip)	/-	400	IXI IVI						J		
													when fail time reaches fail	
													limit increment	
													fail event count	
							clutch solenoid stuck on				>=	3	event counts	-
							performance diagnostic							
							monitor test deceleration limit	=	TRUE	boolean				
							not							
							clutch solenoid stuck on performance diagnostic							
							monitor test return to previous	=	TRUE	boolean				
							range not							
							PRNDL State not	=	park	enumeration				
							PRNDL State not while conditinos A and B and	=	neutral	enumeration				
							C are met, time down delay							
							from clibration to 0.0 seconds							
							delay time calibration	=	0.5	seconds				
							A) neutral condition fault pending	=	FALSE	boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					C) range shift state	=	shift	enumeration		
					intrusive shift allowed	=	complete TRUE	boolean		
					intrusive shift active	=	FALSE	boolean		
					steady state pressure adapt in	=	FALSE	boolean		
					progress			RPM		
					transmission output speed accelerator pedal position	>= >=	100 0.5004883	KPIVI %		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid D or E	=	TRUE	Boolean		
					D) select battery voltage to	=	0	Dooloon		
					enable diagnsotic monitor			Boolean		
					E) battery voltage	<=	31.999023	volts		
1					E) battery voltage E) battery voltage time	>= >=	9 0.1	volts sec		
					F or G		0.1	300		
					F) select ignition voltage to	=	0	Boolean		
					enable diagnsotic monitor					
					G) Ignition Voltage G) Ignition Voltage	<= >=	31.999023 9	Volts Volts		
					Service Fast Learn (SFL)					
					Mode VBS Failsafe	=	FALSE	Boolean		
					Ignition voltage and SFL	>=	0.1	Sec		
					conditions met for Hydraulic System Pressurized					
					high side driver 1 enabled	=	TRUE TRUE	Boolean Boolean		
					high side driver 2 enabled	=	TRUE	Boolean		
				Disable	MIL not Illuminated for	TCM: D0714	D0717 D072	D0722		
				Conditions:			7D, P07BF, P0			
							2B, P182C, P18			
							38, P1839, P18			
							B6, P18B7, P18			
							BB, P18BC, P1 C0, P18C1, P1			
						P1915, P253		502,1 1003,		
							I, P0102, P0103			
							08, P0171, P01 <sup>.</sup> 01, P0202, P02			
							06, P0207, P020			
							02, P0303, P03			
						P0306, P030	07, P0308, P04	01, P042E		
		Pressure Control Solenoid D Stuck	automatic transmission shift torque phase test (A) or inertia	see Table 32						One Trip
Variable Force Solenoid (VFS)	P2715	On (clutch4/C23468)	phase test (B) fail event count	>= In supporting fail event counts						
		5 (5.8.61111 OZ 0 100)	deceleration limited	documents						
			automatic transmission shift	coo Tablo 22						
			torque phase test (A) or inertia	in comparting fall count counts						
			phase test (B) fail event count no	documents						
	I	I	deceleration	I	l				I	I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Requir		Mil Illum.
System	Code	Description	A) absolute value (attained gear slip), fail during post torque phase of transmission automatic shift, before engine speed change, pull up or pull down occurs increment fail time when slip criteria met, fail time for power down shift increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited increment fail time when slip criteria met, fail time for up shift or closed throttle down shift no deceleration	Value  40 RPM  70 RPM	Malfunction		Conditions		see Table 29 >= in supporting documents see Table 30 >= in supporting documents see Table 31 >= in supporting documents	seconds seconds when fail time reaches fail limit increment fail event count above	Illum.
			engine speed change begins, pull up or pull down increment fail time when slip criteria met, fail time during shift deceleration limited increment fail time when slip criteria met, fail time during shift no deceleration						see Table 35 >= in supporting documents see Table 36 >= in supporting documents	seconds seconds when fail time reaches fail limit increment fail event count above	
					inertia phase test measured gear ratio inertia phase test measured gear ratio	>= <=	0.558 4.7150002				
					inertia phase test measured gear ratio time	>=	0.15	seconds			
					clutch test enabled	=	see Table 10 in supporting documents	boolean			
					post torque phase test engine torque hysteresis high enable for upshift or power on down shift	>=	see Table 11 in supporting documents	N*m			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					post torque phase test engine torque hysteresis low disable for upshift or power on down shift	see Table 12 in supporting documents		
					post torque phase test engine torque hysteresis high enable for closed throttle down shift	see Table 13 in supporting documents  See Table N*m		
					post torque phase test engine torque hysteresis low disable for closed throttle down shift	see Table  14 in supporting documents		
					inertia phase test engine torque hysteresis high enable for upshift or power on down shift	see Table 15 in supporting documents  N*m		
					inertia phase test engine torque hysteresis low disable for upshift or power on down shift	see Table 16 in supporting documents  N*m		
					inertia phase test engine torque hysteresis high enable for closed throttle down shift	see Table 17 in supporting documents		
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	see Table 18 in supporting documents		
					off going clutch pressure	see Table 37 in supporting documents		
					off going clutch pressure closed throttle down shift delay time	see Table 5 in supporting documents	S	
					off going clutch pressure closed power down shift delay time	see Table 41 in supporting documents	S	
					off going clutch pressure up shift delay time	>= see Table 62 in supporting documents	S	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	M Illu
					on coming clutch pressure for up shift	>=	see Table 8 in supporting documents	kPa		
					on coming clutch pressure for down shift	>=	see Table 7 in supporting documents	kPa		
					brake pedal position hysteresis high disable	>=	27.000427	%		
					brake pedal position hysteresis low enable absolute value (attained gear	<=	25	%		
					slip)	<=	40	RPM		
					shift type enable	=	see Table 45 in supporting documents	boolean		
					clucth solenoid stuck off intrusive shift request not	=	TRUE	boolean		
					traction control event test suspend not	=	TRUE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid D or E	=	TRUE	Boolean		
					D) select battery voltage to enable diagnsotic monitor	=	0	Boolean		
					E) battery voltage	<=	31.999023 9	volts		
					E) battery voltage E) battery voltage time F or G	>= >=	0.1	volts sec		
					F) select ignition voltage to enable diagnsotic monitor	=	0	Boolean		
					G) Ignition Voltage	<=	31.999023	Volts		
					G) Ignition Voltage Service Fast Learn (SFL)	>=	9	Volts		
					Mode VBS Failsafe Ignition voltage and SFL	=	FALSE	Boolean		
					conditions met for	>=	0.1	Sec		
					Hydraulic System Pressurized	=	TRUE	Boolean		
					high side driver 1 enabled high side driver 2 enabled	= =	TRUE TRUE	Boolean Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum
-,					Disable Conditions:	MIL not Illuminated for	TCM: P0716, P077C, P077 P182A, P182I P182F, P1836 P18B5, P18B P18BA, P18B P18BF, P18C P1915, P2534	P0717, P072 D, P07BF, P0 3, P182C, P1: 3, P1839, P18 6, P18B7, P18 B, P18BC, P1 0, P18C1, P1	2, P0723, 17C0, P1824, 82D, P182E, 840, P1841, 8B8, P18B9, 18BD, P18BE,				
							ECM: P0101, P0107, P0108 P0175, P0201 P0205, P0206 P0301, P0302 P0306, P0307	3, P0171, P01 1, P0202, P02 5, P0207, P02 2, P0303, P03	72, P0174, 203, P0204, 208, P0300, 304, P0305,				
Variable Force Solenoid (VFS)	P2718	Pressure Control Solenoid D Control Circuit Open (clutch4/C23468 VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec	One Tr
										out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean				
						high side driver VFS source is	=	CeTSCR_ e_HSD1	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is ignition or accessory battery voltage in range for stability time	=	TRUE	Boolean				
						battery voltage stability time	>=	1 8	seconds volts				
						battery voltage battery voltage	>= <=	32	Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P2720	Pressure Control Solenoid D Control Circuit Low (clutch4/C23468 VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec	One T
		(								out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean				
						high side driver VFS source is	=	CeTSCR_ e_HSD1	enumeration				
						high side driver VFS source	=	e_HSD1 TRUE	Boolean				
						enabled controller power mode state is ignition or accessory	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold alue	Secondary Malfunction		Enable Conditions				ime quired	Mil Illum.
System	Code	Description	Citeria		•	ilue	battery voltage in range for stability time battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts		Nec	quireu	mum.
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P2721	Pressure Control Solenoid D Control Circuit High (clutch4/C23468 VFS)	The HWIO reports open crcuit error flag	=	TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
											out of	0.5	Sample Time (Sec)	
							diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean				
							high side driver VFS source is	=	CeTSCR_ e_HSD1	enumeration				
							high side driver VFS source enabled controller power mode state is	=	TRUE	Boolean				
							ignition or accessory battery voltage in range for	=	TRUE	Boolean				
							stability time battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P2723	Pressure Control Solenoid E Stuck Off (clutch5/C45678R)	absolute value (attained gear slip)	>=	400	RPM					>=	3	seconds	One Tri
											>=	3	when fail time reaches fail limit increment fail event count event counts	
							clutch solenoid stuck on performance diagnostic monitor test deceleration limit not	=	TRUE	boolean	>=	3	eveni counts	
							clutch solenoid stuck on performance diagnostic monitor test return to previous range not	=	TRUE	boolean				
							PRNDL State not PRNDL State not PRNDL State not while conditinos A and B and C are met, time down delay from clibration to 0.0 seconds	=	park neutral	enumeration enumeration				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
		1			delay time calibration	=	0.5	seconds		
					A) neutral condition fault	=	FALSE	boolean		
					pending	_				
					B) intrusive shift active	=	FALSE	boolean		
					C) range shift state	=	shift complete	enumeration		
					intrusive shift allowed	=	TRUE	boolean		
					intrusive shift active	=	FALSE	boolean		
					steady state pressure adapt in					
					progress	=	FALSE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position	>=	0.5004883	%		
					accelerator pedal position valid	=	TRUE	Boolean		
						_				
					engine speed valid	=	TRUE	Boolean		
					D or E					
					<ul> <li>D) select battery voltage to enable diagnostic monitor</li> </ul>	=	0	Boolean		
					E) battery voltage	<=	31.999023	volts		
					E) battery voltage	>=	9	volts		
					E) battery voltage time	>=	0.1	sec		
					F or G					
					F) select ignition voltage to		0	Deeleen		
					enable diagnsotic monitor	=	0	Boolean		
					G) Ignition Voltage	<=	31.999023	Volts		
					G) Ignition Voltage	>=	9	Volts		
					Service Fast Learn (SFL)	=	FALSE	Boolean		
					Mode VBS Failsafe		171202	Doolouii		
					Ignition voltage and SFL	>=	0.1	Sec		
					conditions met for Hydraulic System Pressurized		TRUE	Boolean		
					high side driver 1 enabled	=	TRUE	Boolean		
					high side driver 2 enabled	_	TRUE	Boolean		
					riigir side diver 2 eridbied			Dooroun		
				Disable	MIL not Illuminated for	TCM: P071	6, P0717, P0722	2, P0723,		
				Conditions:	DTC's:	P077C, P07	7D, P07BF, P07	7C0, P1824,		
							2B, P182C, P18			
							38, P1839, P18			
							B6, P18B7, P18			
							BB, P18BC, P1			
						P188F, P18	CO, P18C1, P18	8C2, P18C3,		
1						171J, FZ3	JT			
						FCM: P010	1, P0102, P0103	3. P0106.		
							08, P0171, P017			
							01, P0202, P020			
							06, P0207, P020			
							02, P0303, P030			
						P0306, P03	07, P0308, P040	01, P042E		
			automatic transmission shift	see Table 32						One Trip
Variable Force Solenoid (VFS)	P2724	Pressure Control Solenoid E Stuck	torque phase test (A) or inertia	>= in supporting fail event counts						
	1	On (clutch5/C45678R)	phase test (B) fail event count	documents						
I	I	I	deceleration limited	I		l			1	I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Criteria automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count no deceleration A) absolute value (attained gear slip), fail during post torque phase of transmission automatic shift, before engine speed change, pull up or pull down occurs increment fail time when slip criteria met, fail time for power down shift increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited	see Table 33 >= in supporting fail event counts documents <= 40 RPM	Secondary Malfunction			Mil Illum.
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift no deceleration				see Table 31 >= in supporting seconds documents  when fail time reaches fail limit increment fail event count	
			B) absolute value (command gear slip), fail during inertia phase of transmission automatic shift, engine speed change begins, pull up or pull down increment fail time when slip criteria met, fail time during shift deceleration limited increment fail time when slip criteria met, fail time during shift no deceleration limited increment fail time during shift no deceleration	>= 70 RPM			see Table 35 >= in supporting seconds documents see Table 36 >= in supporting seconds documents when fail time reaches fail limit increment fail event count above	
					inertia phase test measured gear ratio inertia phase test measured gear ratio inertia phase test measured gear ratio time	>= 0.558 <= 4.7150002 >= 0.15 seconds	above	
					clutch test enabled	see Table 10 in boolean supporting documents		
					post torque phase test engine torque hysteresis high enable for upshift or power on down shift	>= See Table 11 in supporting documents		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditio		Time Required	Mil Illum.
					post torque phase test engine torque hysteresis low disable for upshift or power on down shift	see Tal 12 in supporti docume	ng N*m		
					post torque phase test engine torque hysteresis high enable for closed throttle down shift	see Tal 13 in supporti docume	ng N*m		
					post torque phase test engine torque hysteresis low disable for closed throttle down shift	see Tal 14 in supporti docume	ng N*m		
					inertia phase test engine torque hysteresis high enable for upshift or power on down shift	see Tal 15 in supporti docume	ng N*m		
					inertia phase test engine torque hysteresis low disable for upshift or power on down shift	see Tal 16 in supporti docume	ng N*m		
					inertia phase test engine torque hysteresis high enable for closed throttle down shift	see Tal 17 in supporti docume	ng N*m		
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	see Tal 18 in support docume	ng N*m		
					off going clutch pressure	see Tal 37 in supporti docume	ng kPa		
					off going clutch pressure closed throttle down shift delay time	see Tal 6 in supporti docume	ng seconds		
					off going clutch pressure closed power down shift delay time	see Tal 42 in supporti docume	ng seconds		
					off going clutch pressure up shift delay time	>= see Tal 63 in supporti	ng seconds		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	M Illu
					on coming clutch pressure for up shift	>=	see Table 8 in supporting documents	kPa		
					on coming clutch pressure for down shift	>=	see Table 7 in supporting documents	kPa		
					brake pedal position hysteresis high disable	>=	27.000427	%		
					brake pedal position hysteresis low enable absolute value (attained gear	<=	25	%		
					slip)	<=	40	RPM		
					shift type enable	=	see Table 45 in supporting documents	boolean		
					clucth solenoid stuck off intrusive shift request not	=	TRUE	boolean		
					traction control event test suspend not	=	TRUE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid D or E	=	TRUE	Boolean		
					D) select battery voltage to enable diagnsotic monitor	=	0	Boolean		
					E) battery voltage	<=	31.999023 9	volts		
					E) battery voltage E) battery voltage time F or G	>= >=	0.1	volts sec		
					F) select ignition voltage to enable diagnsotic monitor	=	0	Boolean		
					G) Ignition Voltage	<=	31.999023	Volts		
					G) Ignition Voltage Service Fast Learn (SFL)	>=	9	Volts		
					Mode VBS Failsafe Ignition voltage and SFL	=	FALSE	Boolean		
					conditions met for	>=	0.1	Sec		
					Hydraulic System Pressurized	=	TRUE	Boolean		
					high side driver 1 enabled high side driver 2 enabled	= =	TRUE TRUE	Boolean Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum
5,250					Disable Conditions:	MIL not Illuminated for	TCM: P0716, P077C, P077 P182A, P182I P182F, P1838 P18B5, P18B P18BA, P18B P18BF, P18C P1915, P2534	P0717, P072 D, P07BF, P0 3, P182C, P1: 3, P1839, P18 6, P18B7, P18 B, P18BC, P1 0, P18C1, P1	2, P0723, 17C0, P1824, 82D, P182E, 840, P1841, 8B8, P18B9, 18BD, P18BE,				
							ECM: P0101, P0107, P0108 P0175, P0201 P0205, P0206 P0301, P0302 P0306, P0307	3, P0171, P01 1, P0202, P02 5, P0207, P02 2, P0303, P03	72, P0174, 203, P0204, 208, P0300, 304, P0305,				
Variable Force Solenoid (VFS)	P2727	Pressure Control Solenoid E Control Circuit Open (clutch5/C45678 VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec	
										out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean				
						high side driver VFS source is	=	CeTSCR_ e_HSD1	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is ignition or accessory battery voltage in range for stability time	=	TRUE	Boolean				
						battery voltage stability time	>= >=	1 8	seconds volts				
						battery voltage battery voltage	>= <=	32	Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P2729	Pressure Control Solenoid E Control Circuit Low (clutch5/C45678 VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec	One T
		,								out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean			, ,	
						high side driver VFS source is	=	CeTSCR_ e_HSD1	enumeration				
						high side driver VFS source	=	e_HSD1 TRUE	Boolean				
						enabled controller power mode state is ignition or accessory	=	TRUE	Boolean				

Fault					Secondary Malfunction			_				Mil Illum.
Code	Description	orderia		vande	battery voltage in range for stability time battery voltage stability time battery voltage	>= >= <=	1 8	seconds volts		req	un eu	mun.
				Disable Conditions:			32	VUILS				
P2730		The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Tri
	(								out of	0.5	Sample Time (Sec)	
					diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean				
					high side driver VFS source is	=	CeTSCR_ e_HSD1	enumeration				
					high side driver VFS source enabled	=	TRUE	Boolean				
					ignition or accessory battery voltage in range for	=	TRUE	Boolean				
					stability time battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
	Pressure Control Solenoid F Control	The HWIO reports open crouit										One Tr
P2736	Circuit Open (line pressure VFS)		= TRUE	Boolean					>= out			
					diagnostic monitor enable calibration VFS source must be high side	=	TRUE	Boolean	of	0.5	(Sec)	_
					driver 1 or 2 or 3	=	CeTSCR_	enumeration				
					high side driver VFS source	=	e_HSD2					
					controller power mode state is ignition or accessory battery voltage in range for	=	TRUE	Boolean				
					stability time battery voltage stability time battery voltage	>= >=	1	seconds				
	P2730	Pressure Control Solenoid E Control Circuit High (clutch5/C45678 VFS)  Pressure Control Solenoid F Control Circuit Control Cir	Perssure Control Solenoid E Control Circuit High (clutch5/C45678 VFS)  Pressure Control Solenoid F Control Circuit High (clutch5/C45678 VFS)  The HWIO reports open crcuit error flag  Pressure Control Solenoid F Control Circuit Open  The HWIO reports open crcuit	Pressure Control Solenoid E Control Circuit High (clutch5/C45678 VFS)  Pressure Control Solenoid F Control The HWIO reports open crcuit error flag  TRUE	Code     Description     Criteria     Value       Disable Conditions:       P2730     Pressure Control Solenoid E Control Clircuit High (clutch5/C45678 VFS)     The HWIO reports open crcuit error flag     = TRUE     Boolean       Disable Conditions:       P2730     The HWIO reports open crcuit clutchs/C45678 VFS)     = TRUE     Boolean	Personne Control Solenad E Control   Personne Control Solenad E Control   The HWIO reports open crout   Page   TRUE   Boolean   Page   Pressure Control Solenad E Control   Pressure Control Solenad E Control	Part   Part	Possure Control Sciencial E Control   Control Sciencial E Control E Control Sciencial E Control E Contro	Personal Control Science   C	Code   Description   Criteria   Value   Bollean   Editory orange in range for socially sime beliefly voltage scaling your orange in alter you orange i	Paragraphic   Pressure Commission   Pressu	Posser Cornel Selected E Corted   The 19900 region could current for years (Cornel Selected E Corted

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
		·			Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None				
VFS characterization	P27A7	VFS characterization	clutch1/CB1278R pressure control solenoid characterization not	= TRU	E Boolean		EGW. NOTE				One Trip
			programmed			manufacture enable counter memory type updated	=	0 non- volatile memory	counts		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None				
VFS characterization	P27A8	VFS characterization	clutch2/CB12345R pressure control solenoid characterization not programmed	= TRU	E Boolean						One Trip
						manufacture enable counter memory type updated	=	0 non- volatile memory	counts		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None				
VFS characterization	P27A9	VFS characterization	clutch3/C13567 pressure control solenoid characterization not programmed	= TRU	E Boolean						One Trip
						manufacture enable counter memory type updated	=	0 non- volatile memory	counts		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None				
VFS characterization	P27AA	VFS characterization	clutch4/C23468 pressure control solenoid characterization not programmed	= TRU	E Boolean						One Trip
						manufacture enable counter memory type updated	=	0 non- volatile memory	counts		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None				

Component/	Fault	Monitor Strategy	Malfunction Criteria	Т	hreshold Value	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
System	Code	Description	clutch5/C45678R pressure control		value	Manunction		Conditions			Rec	quirea	One Tri
VFS characterization	P27AB	VFS characterization	solenoid characterization not	= TRUE	Boolean								One II
			programmed										
						manufacture enable counter	=	0	counts				
						memory type updated	=	non- volatile					
						memory type apaatea	_	memory					
					Disable	MIL mak Illuminated for	TOM None						
					Conditions	MIL not Illuminated for DTC's:	TCM: None						
					o o nameno	]	ECM: None						
VFS characterization	P27AC	VFS characterization	line pressure control solenoid characterization not programmed	= TRUE	Boolean								One Tri
			Characterization not programmed			manufacture enable counter	=	0	counts				1
								non-					
						memory type updated	=	volatile					
								memory					
					Disable	MIL not Illuminated for	TCM: None						
					Conditions	DTC's:	ECM: None						
							ECIVI. INOTIE						
VFS characterization	P27AD	VFS characterization	TCC pressure control solenoid	= TRUE	Boolean								One Tri
TT O GRANDONIZATION	1.277.5	VI O GITAL GOTOLICATION	characterization not programmed		Boolean	manufacture enable counter	=	0	counts				-
						manulacture enable counter	=	non-	Courits				
						memory type updated	=	volatile					
								memory					
					Disable	MIL not Illuminated for	TCM: None						
					Conditions	DTC's:							
							ECM: None						
Torque Converter Clutch	D2000	TOO Contain Charle OFF	T00 Process	750	V						2	Enable Time	Two
(TCC)	P2808	TCC System Stuck OFF	TCC Pressure	>= 750	Кра					>=	2	(Sec)	Trips
			TCC capacity	>= 0	%					>=	0	Enable Time (Sec)	
			Either Condition (A) or (B) Must be									(Sec)	
			Met										
			(A) TCC Slip Error @ TCC On	see Tabl								5 " T' (O )	
			Mode	>= in Suppor						>=	4	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode		RPM					>=	4	Fail Time (Sec)	
			If Above Conditions Have been									TCC Stuck Off	
			Met, and Fail Timer Expired,							>=	3	Fail Counter	
			Increment Fail Counter										
						TCC Mode	=	On or Lock					
						TCC system stuck off	=	1					
						diagnostic monitor enable c		high					
		•				default valve state							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold ilue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
		•					absolute value of attained gear	>=	25	RPM				
							slip	>=		KPIVI				
							-#-!		CeCGSR_					
							attained gear	>=	e_CR_Fou rth					
									shift					
							range shift state	=	complete					
							Hydraulic System Pressurized	=	TRUE	Boolean				
							battery voltage	<=	31.999023	volts				
							battery voltage	>=	9	volts				
							battery voltage time Ignition Voltage	>= <=	0.1 31.999023	sec Volts				
							Ignition Voltage	>=	9	Volts				
							Service Fast Learn (SFL)							
							Mode VBS Failsafe	=	FALSE	Boolean				
							Ignition voltage and SFL	>=	0.1	Sec				
							conditions met for	/-						
							Engine Torque	>=	50	N*m				
							Engine Torque Throttle Position	<= >=	8191.75 8.0001831	N*m Pct				
							Throttle Position	>= <=	99.998474	Pct				
							Transmission Fluid							
							Temperature	>=	-6.65625	°C				
							Transmission Fluid		130	°C				
							Temperature	<=						
							PTO Not Active	=	TRUE	Boolean				
							Engine Torque Signal Valid	=	TRUE	Boolean				
							Accelerator Pedal Position Signal Valid	=	TRUE	Boolean				
							Signal Vallu		Test Failed					
							P2808 Status is	<b>≠</b>	This Key					
									On					
						Disable	MIL not Illuminated for							
						Conditions:	DIC'S:	P0722, P07 P2812, P28	23, P077C, P07	7D, P2808,				
								F2012, F20	14, F2015					
								ECM: P010	01, P0102, P010	3, P0106,				
									08, P0171, P017					
								P0175, P02	01, P0202, P020	03, P0204,				
									06, P0207, P020					
									02, P0303, P030					
								1 U3U0, PU3	07, P0308, P040	71, FU4ZE				
Torque Converter Clutch	D3800	TCC System Stuck ON	TCC Slip Speed	\	-50	RPM								One Trip
(TCC)	1 2009	100 System Stuck ON												
			TCC Slip Speed	<=	30	RPM						1.5	E-IIII (O.)	
			If Above Conditions Have been								>=	1.5	Fail Time (Sec)	
			Met, and Fail Timer Expired,								>=	6	Fail Counter	
			Increment Fail Counter									Ü	i dii Oddiilei	
			Tan oddina				TCC Mode	=	Off					1
							default valve state	=	high					
							uciauit vaive State	=	(active)					
							default valve state previous	=	low to high					
	I		I	l					3		I			I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum
-,		ipsen					see Table			1
							24 in			
					set default valve state timer	=	Supporting	seconds		
					Set delidan valve state time.		Document	50001145		
							S			
					default valve state timer times					
					down to zero (0.0) when	=	high			
					default valve state not		(active)			
					default valve state timer times					
					down to zero (0.0) when					
					default valve state previous	=	low to high			
					not					
					Hot					
					either A or B ro C must be met					
					A) default valve state	=	low to high			
					B) default valve state timer	>	0	seconds		
					C) low TCC slip fail timer	>	0	seconds		
					clutch solenoid stuck off		-			
					performance (neutral) test	=	FALSE	Boolean		
					active					
					clutch solenoid stuck on					
					performance (tie-up) test	=	FALSE	Boolean		
					active		TALSE	Doolcan		
					TCC Slip Speed	<=	300	RPM		
					Too Slip Speed	\-	see Table	IXI IVI		
							25 in			
					derivative TCC slip speed	<=	Supporting	RPM/sec		
					derivative TCC slip speed	<=	Document	KEIVI/SEC		
							S			
					TCC system stuck on		3			
					TCC system stuck on	=	1			
					diagnostic monitor enable c		FFOO	DDM		
					Engine Speed	<=	5500	RPM		
					Engine Speed	>=	400	RPM		
					Vehicle Speed HI	<=	45	KPH		
					Engine Torque	<=	800	Nm		
					Engine Torque	>=	55	Nm		
					Current Range	<b>≠</b>	Neutral	Range		
					Current Range	≠	Reverse	Range		
					Transmission Fluid	<=	130	°C		
					Temperature					
					Transmission Fluid	>=	-6.65625	°C		
					Temperature					
					Throttle Position Hyst High	>=	3.9993286	Pct		
					AND					
					Max Vehicle Speed to Meet	<=	8	KPH		
					Throttle Enable	•	Ü			
					Once Hyst High has been met,					
					the enable will remain while	>=	0.9994507	Pct		
					Throttle Position					
					Disable for Throttle Position	>=	94.999695	Pct		
					Disable if PTO active and		1			
					value true	=	1			
					enable if tap up/down mode is					
					false or tap up/down TCC	=	0	Boolean		
			i e	1	calibration value is false					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions				me uired	Mil Illum
- Oystelli	Jour	Description	Sinora	value	enable if manual up/down mode is false or manual up/down TCC calibration value	= 0	Boolean		пец	unvd	
					is false enable if misfire disengage TCC is false or value TCC misfire calibration value is	= 0	Boolean				
					false 4 Wheel Drive Low Active battery voltage	= FALSE <= 31.999023	Boolean volts				
					battery voltage battery voltage time	>= 9 >= 0.1	volts sec				
					Ignition Voltage Ignition Voltage Service Fast Learn (SFL)	<= 31.999023 >= 9	Volts Volts				
					Mode VBS Failsafe Ignition voltage and SFL conditions met for	= FALSE >= 0.1	Boolean Sec				
					Engine Torque Signal Valid Throttle Position Signal Valid		Boolean Boolean				
					P0742 Status is	Test Failed ≠ This Key On					
				Disa		TCM: P0716, P0717, P07B					
				Conditio	ns: DTC's:	P0722, P0723, P077C, P0 P2812, P2814, P2815	177D, P2809,				
						ECM: P0101, P0102, P010 P0107, P0108, P0171, P01 P0175, P0201, P0202, P02 P0205, P0206, P0207, P02 P0301, P0302, P0303, P03	72, P0174, 203, P0204, 208, P0300,				
						P0306, P0307, P0308, P04					
Variable Force Solenoid (VFS)	P2812	Pressure Control Solenoid G Control Circuit Open (TCC pressure VFS)	The HWIO reports open crcuit error flag	= TRUE Boolean				>=	0.3	Fail Time (Sec)	One Tr
					diagnostic monitor enable			out of	0.5	Sample Time (Sec)	
					calibration VFS source must be high side driver 1 or 2 or 3	= TRUE	Boolean				
					high side driver VFS source is	= CeTSCR_ e_HSD2	enumeration				
					enabled controller power mode state is iquition or accessory	= TRUE = TRUE	Boolean Boolean				
					battery voltage in range for stability time	_					
					battery voltage stability time battery voltage battery voltage	>= 1 >= 8 <= 32	seconds volts Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold Ilue	Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mil Illum.
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P2814	Pressure Control Solenoid G Control Circuit Low (TCC pressure VFS)	The HWIO reports open crcuit error flag	=	TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
											out of	0.5	Sample Time (Sec)	
							diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean				
							high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
							high side driver VFS source enabled	=	TRUE	Boolean				
							controller power mode state is ignition or accessory battery voltage in range for	=	TRUE	Boolean				
							stability time battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P2815	Pressure Control Solenoid G Control Circuit High (TCC pressure VFS)	The HWIO reports open crcuit error flag	=	TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
		(Too proceed to e)									out of	0.5	Sample Time (Sec)	
							diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean			, ,	
							high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
							high side driver VFS source enabled	=	TRUE	Boolean				
							controller power mode state is ignition or accessory battery voltage in range for	=	TRUE	Boolean				
							stability time battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						

Component/	Fault	Monitor Strategy	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
System	Code	Description Hydraulic on/off Control Solenoid H			val	ue			Conditions			Kequi	red	One Tr
default valve on/off valve solenoid	P2817	Stuck Off (default valve on/off	absolute value (attained gear slip) 4th gear commanded	>=	400	RPM	6th gear intrusive shift command when fail time				>=	3	seconds	One Ir
Solonoid		solenoid)	4iii geai commanded				reaches fail limit							
							attained gear when intrusive	=	3rd					
							6th gear command			DDM				
							attained gear slip 3rd gear 3rd gear attained time	<= >=	75 0.5	RPM seconds				1
							intrusive 6th gear commanded							
							event count	>=	2	counts				1
							shash of the con-				>=	2	counts	-
							clutch solenoid stuck on							
							performance diagnostic monitor test deceleration limit	=	TRUE	boolean				
							not							
							clutch solenoid stuck on							
							performance diagnostic	_	TRUE	boolean				
							monitor test return to previous	=	IKUE	DOOLGALI				
							range not							1
							PRNDL State not	=	park	enumeration				1
							PRNDL State not while conditinos A and B and	=	neutral	enumeration				
							C are met, time down delay							1
							from clibration to 0.0 seconds							
							delay time calibration	=	0.5	seconds				1
							A) neutral condition fault	=	FALSE	boolean				1
							pending							
							B) intrusive shift active	=	FALSE	boolean				1
							C) range shift state	=	shift complete	enumeration				1
							intrusive shift allowed	=	TRUE	boolean				
							intrusive shift active	=	FALSE	boolean				
							steady state pressure adapt in	=	FALSE	boolean				
							progress							
							transmission output speed	>=	100	RPM				
							accelerator pedal position	>=	0.5004883	%				1
							accelerator pedal position valid	=	TRUE	Boolean				1
							engine speed valid	=	TRUE	Boolean				
							D or E							
							D) select battery voltage to	=	0	Boolean				
							enable diagnsotic monitor							1
							E) battery voltage	<=	31.999023 9	volts volts				
							E) battery voltage E) battery voltage time	>= >=	0.1	sec				
							F or G	/-	0.1	300				
							F) select ignition voltage to		0	Dooloon				
							enable diagnsotic monitor	=	0	Boolean				
							G) Ignition Voltage	<=	31.999023	Volts				1
							G) Ignition Voltage	>=	9	Volts				1
							Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
							Ignition voltage and SFL							1
							conditions met for	>=	0.1	Sec				1
							Hydraulic System Pressurized	=	TRUE	Boolean				1
							high side driver 1 enabled	=	TRUE	Boolean				1
	1						high side driver 2 enabled	=	TRUE	Boolean				1

	Fault	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria	value	WaltuffCtiOff	Conditions	requirea	mun.
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BB, P18BC, P18BD, P18BE, P18C1, P18C2, P18C3, P1915, P2534		
		Hydraulic on/off Control Solenoid H				ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		Two
default valve on/off valve solenoid	P2818	Stuck On (default valve on/off solenoid)	TCC slip speed	<= 6 RPM			>= 0.5 seconds	
							>= 3 counts >= 5 counts	
					delay time after TCC intrusive command pressure reaches intrusive value	see Table 28 in seconds supporting documents		
					TCC intrusive command pressure test delay timer calibration test delay timer times down from calibration to zero (0.0) when all of the following	>= 600 kPa = 0.5 seconds		
					conditions are met engine speed engine speed transmission temperature transmission temperature PRNDL state	>= 400 RPM <= 900 RPM >= 0 °C <= 40 °C = park enumeration		
					Hydraulic System Pressurized battery voltage battery voltage battery voltage time Ignition Voltage	= TRUE Boolean <= 31.999023 volts >= 9 volts >= 0.1 sec <= 31.999023 Volts		
					Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL conditions met for	>= 9 Volts = FALSE Boolean >= 0.1 Sec		
				Disable Conditions:		TCM: P0716, P0717, P07BF, P07C0, P2812, P2814, P2815		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
default valve on/off solenoid		Pressure Control Solenoid H Control Circuit Low (default valve on/off solenoid)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
										out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side	=	TRUE	Boolean				
						driver 1 or 2 or 3 high side driver VFS source is	=	CeTSCR_ e_HSD1	enumeration				
						high side driver VFS source enabled controller power mode state is	=	TRUE	Boolean				
						ignition or accessory battery voltage in range for stability time	=	TRUE	Boolean				
						battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
default valve on/off solenoid	P281E	Pressure Control Solenoid H Control Circuit High (default valve on/off solenoid)	The HWIO reports open crcuit error flag	= TRUE	Boolean		LCIVI. NOTIC			>=	0.3	Fail Time (Sec)	One Trip
		(detailt valve on/on solenold)								out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean	0.		(000)	
						high side driver VFS source is	=	CeTSCR_ e_HSD1	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is ignition or accessory battery voltage in range for stability time	=	TRUE	Boolean				
						battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
							ECM: None						
clutch2/CB12345R boost valve on/off solenoid	P2824	Pressure Control Solenoid J Control Circuit High (clutch2/CB12345R boost valve on/off solenoid)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions			Tir Requ	ne ıired	Mil Illum.
										out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side	=	TRUE	Boolean	UI		(351)	
						driver 1 or 2 or 3 high side driver VFS source is	=	CeTSCR_ e_HSD1	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is ignition or accessory	=	TRUE	Boolean				
						battery voltage in range for stability time battery voltage stability time		1	seconds				
						battery voltage battery voltage battery voltage	>= >= <=	8 32	volts Volts				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:	ECM: None						
4-1-2/0012245D h		Pressure Control Solenoid J Control	The LIMMO consists of the constant										One
utch2/CB12345R boost valve n/off solenoid	P2826	Circuit Low (clutch2/CB12345R boost valve on/off solenoid)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	
		·								out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration	=	TRUE	Boolean				
						VFS source must be high side driver 1 or 2 or 3		CaTCOD					
						high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
						high side driver VFS source enabled controller power mode state is	=	TRUE	Boolean				
						ignition or accessory battery voltage in range for	=	TRUE	Boolean				
						stability time battery voltage stability time battery voltage	>=	1 8	seconds volts				
						battery voltage	>= <=	32	Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
					Conditions:		ECM: None						
utch2/CB12345R boost valve n/off solenoid	P2827	Pressure Control Solenoid J Control Circuit High (clutch2/CB12345R boost valve	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One <sup>-</sup>
		on/off solenoid)								out of	0.5	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Time Requi		Mil Illum.
							diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean				
							high side driver VFS source is	=	CeTSCR_ e HSD2	enumeration				
							high side driver VFS source enabled	=	TRUE	Boolean				
							controller power mode state is ignition or accessory battery voltage in range for stability time	=	TRUE	Boolean				
							battery voltage stability time	>=	1	seconds				
							battery voltage	>=	8	volts				
							battery voltage	<=	32	Volts				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
						oonanions.	<b>D</b> 10 3.	ECM: None						
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Bus Voltage Error (CAN bus off)	=	TRUE	Boolean					>=	62	counts	One Tri
			Bus off delay time	>=	0.1125	sec					>=	70	counts	
							all conditions A and B and C below must occur for stabilization time Bus Stabilization time	>=	3	seconds				
							A) Service mode \$04 active and end of trip pocessing	=	FALSE	Boolean				
							active A) normal serial data communication enabled	=	TRUE	Boolean				
							A) P0073 status not	=	fault active					
							B) secured controller or emission critical then use	=	CeCANR_ e_OBDII_	Boolean				
							ignition voltage B) secureed controller or		Dsbl					
							emission critical Ignition Voltage	>=	11	volts				
							B) Power Mode B) secured controller or	=	Run CeCANR_					
							emission critical then use	=	e_OBDII_	Boolean				
							controller power mode B) Power Mode		Dsbl					
							C) ignition off enable	= =	Run 1	Boolean				
							C) Power Mode	=	accessory					
							C) battery voltage all conditions A and B below must occur	>=	11	volts				
							<ul> <li>A) post clear code timer</li> </ul>	>=	0.15	seconds				
							<ul><li>B) when Propulsion System Active use low voltage check</li></ul>	=	FALSE	Boolean				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable		Time		Mil Illum.
System	Code	Description	Criteria	Value	Malfunction		Conditions		Require	ea .	ıııum.
					NOT in low voltage engine						
					crank condition defined by A or						
					B below during, for low voltage						
					mode time						
					low voltage mode time	>=	2.50E-02	seconds			
					<ul> <li>A) low voltage mode</li> </ul>	<=	0.1	seconds			
					hysteresis time	\_	0.1	30001103			
					<ul><li>B) ignition voltage, set low</li></ul>	<=	6.4091797	volts			
					voltage mode	<=	0.4091797	VUILS			
				Disable	MIL not Illuminated for	TCM: None					
				Conditions:	DTC's:						
						ECM: None					
					fail times are caculated based						One Tri
		Lost Communications with ECM			on Rx message enable		Tx				
Communication	U0100	(Engine Control Module)	TCM Rx message missed frame		calibration set to		controller				
		(Engine control medale)			CeCANR_e_BusA_ECM		00111101101				
					000/1111(_0_bu3/(_b0))						
							see Table		see Table 65		
			TCM Rx frame message missed	= TRUE Boolean	TCM Rx frame calibration	<b>≠</b>	64 in	enumeration		seconds	
			frame	= TRUE BOOIEATI	enabled	<i>+</i>	supporting	enumeration		Seconus	
							documents		documents		
											-
					Frame recovery stabilization	>=	0.5	seconds			
					delay						
					all conditions A and B and C						
					below must occur for						
					stabilization time						
					Bus Stabilization time	>=	3	seconds			
					<ul> <li>A) Service mode \$04 active</li> </ul>						
					and end of trip pocessing	=	FALSE	Boolean			
					active						
					A) normal serial data		TDUE	Deelees			
					communication enabled	=	TRUE	Boolean			
					A) P0073 status not	=	fault active				
					B) secured controller or		CeCANR_				
					emission critical then use	=	e_OBDII_	Boolean			
					ignition voltage		Dsbl	Doolcan			
					B) secureed controller or		5551				
					emission critical Ignition	>=	11	volts			
					Voltage		11	VOILS			
							Dum				
					B) Power Mode	=	Run				1
					B) secured controller or		CeCANR_	Dooloor			1
					emission critical then use	=	e_OBDII_	Boolean			1
					controller power mode		Dsbl				1
					B) Power Mode	=	Run				
					C) ignition off enable	=	1	Boolean			1
					C) Power Mode	=	accessory				
					C) battery voltage	>=	11	volts			1
					all conditions A and B below						1
					must occur	1					1
					<ul> <li>A) post clear code timer</li> </ul>	>=	0.15	seconds			
					B) when Propulsion System		FALSE	Doolaan			
	1	ı	ì	i	Active use low voltage check	=	FALSE	Boolean	1		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mi Illur
Gystem	Code	Scotipadii		70.00	NOT in low voltage engine crank condition defined by A or B below during, for low voltage mode time low voltage mode A) low voltage mode hysteresis time B) ignition voltage, set low voltage mode	>= <= <= =	2.50E-02 0.1 6.4091797 fault active	seconds seconds volts		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None				
Communication	U0121	Loss Communications with ABS (Anti- lock Brake System)	TCM Rx message missed frame		fail times are caculated based on the following Rx messages enable calibration set to CeCANR_e_BusA_ABS		Tx controller			Spec No N
			TCM Rx frame message missed frame	= TRUE Boolean	TCM Rx frame calibration enabled	<b>≠</b>	see Table 64 in supporting documents	enumeration	see Table 65 >= in supporting se documents	econds
					Frame recovery stabilization delay all conditions A and B and C below must occur for stabilization time	>=	0.5	seconds		
					Bus Stabilization time A) Service mode \$04 active	>=	3	seconds		
					and end of trip pocessing active A) normal serial data	=	FALSE TRUE	Boolean Boolean		
					communication enabled A) P0073 status not	=	fault active	boolean		
					B) secured controller or emission critical then use ignition voltage B) secureed controller or	=	CeCANR_ e_OBDII_ Dsbl	Boolean		
					emission critical Ignition Voltage B) Power Mode	>=	11 Run	volts		
					B) secured controller or emission critical then use controller power mode B) Power Mode	=	CeCANR_ e_OBDII_ Dsbl Run	Boolean		
					C) ignition off enable C) Power Mode C) battery voltage all conditions A and B below	= = >=	1 accessory 11	Boolean		
ı					must occur A) post clear code timer	>=	0.15	seconds		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Require		Mil Illum.
					B) when Propulsion System Active use low voltage check NOT in low voltage engine crank condition defined by A or B below during, for low voltage	=	FALSE	Boolean			
					mode time low voltage mode time	>=	2.50E-02	seconds			
					A) low voltage mode	<=	0.1	seconds			
					hysteresis time B) ignition voltage, set low		/ 4001707	uelte			
					voltage mode	<=	6.4091797	volts			
					U0121 fault status is not	=	fault active				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None					
Communication	U0140	Loss Communications with BCM (Body Control Module)	TCM Rx message missed frame		fail times are caculated based on the following Rx messages enable calibration set to CeCANR_e_BusA_BCM		Tx controller				Specia No MII
			TCM Rx frame message missed frame	= TRUE Boolean	TCM Rx frame calibration enabled	<b>≠</b>	see Table 64 in supporting documents	enumeration	see Table 65 >= in supporting documents	seconds	
					Frame recovery stabilization delay	>=	0.5	seconds			1
					all conditions A and B and C below must occur for stabilization time						
					Bus Stabilization time	>=	3	seconds			
					A) Service mode \$04 active and end of trip pocessing	=	FALSE	Boolean			
					active A) normal serial data communication enabled	=	TRUE	Boolean			
					A) P0073 status not	=	fault active				
					B) secured controller or emission critical then use ignition voltage	=	CeCANR_ e_OBDII_ Dsbl	Boolean			
					B) secureed controller or emission critical Ignition Voltage	>=	11	volts			
					B) Power Mode B) secured controller or emission critical then use	=	Run CeCANR_ e_OBDII_	Boolean			
					controller power mode B) Power Mode	=	Dsbl Run				
					C) ignition off enable	=	1	Boolean			
					C) Power Mode C) battery voltage	= >=	accessory 11	volts			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illun
					all conditions A and B below					
					must occur					
					<ul> <li>A) post clear code timer</li> </ul>	>=	0.15	seconds		
					B) when Propulsion System	=	FALSE	Boolean		
					Active use low voltage check	=	FALSE	Duolean		
					NOT in low voltage engine					
					crank condition defined by A or					
					B below during, for low voltage					
					mode time					
					low voltage mode time	>=	2.50E-02	seconds		
					A) low voltage mode	<=	0.1	seconds		
					hysteresis time					
					B) ignition voltage, set low	<=	6.4091797	volts		
					voltage mode					
					U0140 fault status is not	=	fault active			
				1						- 1

#### Table 1

Axis	0.00	64.00	128.00	192.00	256.00	320.00	384.00	448.00	512.00 N*n	n
Curve	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00 RPI	Μ

#### Table 2

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	1.60	1.10	0.95	0.85	0.85	Se

#### Table 3

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	1.55	1.05	0.90	0.80	0.80	Sed

#### Table 4

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	1.40	0.90	0.75	0.65	0.65	Sec

### Table 5

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	1.55	1.05	1.00	1.00	1.00	Sec

#### Table 6

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	1.55	1.05	0.90	0.80	0.80	Sec

#### Table 7

Axis	R_e_CD_21	SR_e_CD_31	R_e_CD_32	R_e_CD_42	R_e_CD_43	R_e_CD_51	R_e_CD_53	R_e_CD_54	R_e_CD_63	closed throttle down shift type: 2-1, 3-1, 3-2, 4-2, 4-3, 5-1, 5-3, 5-4, 6-3
Curve	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0 k	kPa
Axis	R_e_CD_64	SR_e_CD_65	R_e_CD_71	R_e_CD_75	R_e_CD_76	R_e_CD_82	R_e_CD_84	R_e_CD_86	R_e_CD_87	closed throttle down shift type: 6-4, 6-5, 7-1, 7-,5 7-6, 8-2, 8-4, 8-6, 8-7
Curve	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	kPa

Axis	R_e_US_12	SR_e_US_23	R_e_US_34	R_e_US_45	R_e_US_56	R_e_US_67	R_e_US_78	R_e_US_13	R_e_US_24	up shift type: 1-2, 2-3, 3-4, 4-5, 5-6, 6-7, 7-8, 1-3, 2-4
Curve	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	kPa
Axis	R_e_US_35	SR_e_US_46	R_e_US_57	R_e_US_68	up shift type	e: 3-5, 4-6,	5-7, 6-8			•
Curve	750.0	750.0	750.0	750.0	kPa					

#### Table 9

NOT USED NOT USED

#### Table 10

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	1	1	. 1	1	1	BOOLEAN

#### **Table 11**

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch	clutch1 CB1278R,	clutch 2 CB12345R,	clutch3 C13567,	clutch4 C23468, clutch5 C4	↓5678R
Curve	180.0	180.0	180.0	180.0	180.0	N*m				

### Table 12

Axis	_C1_Clu	ıtch e	_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	6	50.0	60.0	60.0	60.0	60.0	N*m

#### Table 13

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	C5_Clutch clutch	n1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678	R
Curve	10.0	10.0	10.0	10.0	10.0 N*m		

#### Table 14

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	-30.0	-30.0	-30.0	-30.0	-30.0	N*m

### Table 15

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	100.0	100.0	100.0	100.0	100.0	N*m

### <u>Table 16</u>

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	60.0	60.0	60.0	60.0	60.0	N*m

#### Table 17

Axis C1\_Clutch e\_C2\_Clutch C3\_Clutch C4\_Clutch C5\_Clutch clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R

Curve	10.0	10.0	10.0	10.0	10.0 N*m

### Table 18

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch clu	ch1 CB1278R, clutch 2	CB12345R, c	clutch3 C13567,	clutch4 C23468, clut	ch5 C45678R
Curve	-30.0	-30.0	-30.0	-30.0	-30.0 N*					

#### Table 19

NOT USED NOT USED

#### Table 20

NOT USED NOT USED

#### Table 21

Axis	-40.00	0.00	40.00	٥С
Curve	5.00	5.00	5.00	Sec

#### Table 22

NOT USED NOT USED

#### Table 23

NOT USED NOT USED

Axis	-7.00	10.00	40.00	٥С
Curve	1.50	1.25	1.00	Sec

#### Table 25

Axis	-7.00	10.00	40.00	°C
Curve	-2000.00	-2000.00	-2000.00	RPM/Sec

#### Table 26

Axis	-40.00	-30.00	-20.00	0.00	20.00	٥С
Curve	1800.00	1500.00	1200.00	600.00	60.00	Sec

#### Table 27

Axis	0.00	20.00	60.00	100.00	120.00	Kph
Curve	-8.00	-8.00	-8.00	-8.00	-8.00	٥С

#### Table 28

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	5.00	3.00	2.00	1.75	1.00	Sec

#### Table 29

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	0.9000	0.9000	0.9000	0.9000	0.9000	seconds

#### Table 30

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	0.9000	0.9000	0.9000	0.9000	0.9000	seconds

### Table 31

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch	clutch1 CB1278R,	clutch 2 CB12345	R, clutch3 C13567	, clutch4 C23468, c	lutch5 C45678R
Curve	0.9000	0.9000	0.9000	0.9000	0.9000	seconds				

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	4	4	4	4	4	counts

#### Table 33

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	4	4	4	4	4	counts

#### Table 34

NOT USED NOT USED

#### Table 35

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	0.5000	0.5000	0.5000	0.5000	0.5000	seconds

#### Table 36

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	0.5000	0.5000	0.5000	0.5000	0.5000	seconds

#### Table 37

Axis	_C1_Clutch	e_C2_Clutch	_C3_Clutch	_C4_Clutch	_C5_Clutch clut	ch1 CB1278R,	clutch 2 CB12345R	, clutch3 C13567	, clutch4 C23468,	, clutch5 C45678R
Curve	300.0	300.0	300.0	300.0	300.0 kPa					

### Table 38

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	0.95	0.45	0.30	0.30	0.30	Sec

#### Table 39

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	0.95	0.45	0.30	0.20	0.20	Se

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	0.95	0.45	0.30	0.20	0.20	Sed

#### Table 41

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	1.10	0.60	0.55	0.55	0.55	Sec

#### Table 42

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	0.95	0.45	0.30	0.20	0.20	Sec

#### Table 43

NOT USED NOT USED

#### Table 44

NOT USED NOT USED

#### Table 45

Axis	_e_CC_US	R_e_CC_CD	_e_CC_PD	_e_CC_GS	up shift, closed throttle down shift, power down shift, garage shift
Curve	1	1	1	0	BOOLEAN

#### Table 46

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

### Table 47

Axis	stVoltage1	TestVoltage2	stVoltage3	stVoltage4	1 ADchannel, 2 AD channels, 3 AD channels, 4 AD channels
Curve	5.0000	25.0000	75.0000	95.0000	volts

#### Table 48

Axis	p25msSeq	_12.5msSeq	_25msSeq	LORES_C	6.25 msec loop, 12.5 msec loop, 25 msec loop, low res engine
Curve	0.2000	0.2000	0.2000	409.5938	seconds

Axis	p25msSeq	_12.5msSeq	_25msSeq	LORES_C	6.25 msec loop, 12.5 msec loop, 25 msec loop, low res engine
Curve	16	8	4	16	counts

Table 50	Axis i_MontrA R_i_MontrB i_MontrC seed key test enable, seed sequence test enable, seed timeout test enable Curve 1 0 0 0 BOOLEAN
	Axis 0 1 speed sensor1, speed sensor2  Curve 0.2500 0.0000 volts
Table 52	Axis 0 1 speed sensor1, speed sensor2 Curve 40 65535 counts
Table 53	Axis 0 1 speed sensor1, speed sensor2 Curve 0.0500 409.5938 seconds
Table 54	Axis 0 1 speed sensor1, speed sensor2 Curve 1 0 BOOLEAN
Table 55	Axis 0 1 speed sensor1, speed sensor2  Curve 4.7500 12.0000 volts
Table 56	Axis 0 1 speed sensor1, speed sensor2 Curve 40 65535 counts
Table 57	Axis 0 1 speed sensor1, speed sensor2  Curve 0.0500 409.5938 seconds
Table 58	Axis 0 1 speed sensor circuit low, speed sensor circuit high Curve 1 0 BOOLEAN

### Table 59

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

#### Table 60

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

### Table 61

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

#### Table 62

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

#### Table 63

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

#### Table 64

Axis	0BE_BusA	GACY_BusA	0C1_BusA	0C5_BusA	0C9_BusA	0F1_BusA	_CA_BusA	12A_BusA	_185_BusA	18E_BusA	ACY_BusA	_191_BusA	1A1_BusA	frame
Curve	dRxDevice	alidRxDevice	dRxDevice	dRxDevice	BusA_ECM	dRxDevice	dRxDevice	dRxDevice	dRxDevice	BusA_ECM	dRxDevice	dRxDevice	BusA_ECM	enable or invalid
Axis	1A3_BusA	g_1A5_BusA	1AA_BusA	ACY_BusA	1BA_BusA	1CB_BusA	1DF_BusA	1E9_BusA	1F1_BusA	1F3_BusA	1F9_BusA	1FC_BusA	287_BusA	frame
Curve	dRxDevice	alidRxDevice	BusA_ECM	dRxDevice	BusA_ECM	dRxDevice	dRxDevice	BusA_ABS	dRxDevice	BusA_BCM	BusA_PTO	dRxDevice	dRxDevice	enable or invalid
		g_2F9_BusA												
Curve	ISA_TCCM	alidRxDevice	dRxDevice	BusB_ECM	dRxDevice	dRxDevice	BusA_ECM	dRxDevice	dRxDevice	dRxDevice	dRxDevice	dRxDevice	dRxDevice	enable or invalid

Axis	0BE_BusA	GACY_BusA	0C1_BusA	0C5_BusA	0C9_BusA	0F1_BusA	_CA_BusA	12A_BusA	_185_BusA	18E_BusA	ACY_BusA	_191_BusA	1A1_BusA frame
Curve	12.000	12.000	12.000	12.000	0.500	12.000	12.000	12.000	12.000	0.500	12.000	12.000	12.000 seconds
Axis	1A3_BusA	g_1A5_BusA	1AA_BusA	ACY_BusA	1BA_BusA	1CB_BusA	1DF_BusA	1E9_BusA	1F1_BusA	1F3_BusA	1F9_BusA	1FC_BusA	287_BusA frame
Curve	12.000	12.000	0.500	12.000	0.500	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000 seconds
Axis	2D1_Bus/	g_2F9_BusA	3D1_BusA	3E9_BusA	3FC_BusA	4A3_BusA	4C1_BusA	4C7_BusA	4DF_BusA	4E1_BusA	4E9_BusA	4F1_BusA	589_BusA frame
Curve	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	0.500 seconds

											_	
3D Table 1	CeTSKR_Cnt_MaxCPUs	X-Axis Calibration		CeTSKR_e	e_CPU		CeTSKR_e_CPU2					
	CePISR_e_NumOfSeqTasks	Y-Axis Calibration	CePISR_e_6p25msSeq	CePISR_e_12p5msSeq	CePISR_e_25msSeq	CePISR_e_LORES_C	CePISR_e_6p25msSeq	CePISR_e_12p5msSeq	CePISR_e_25msSeq	CePISR_e_LORES_C	loop test ty	
	KaPISD_b_ProgSeqWatchEnbl	<b>Table Calibration</b>	1	1	1	0	0	0	0	C	BOOLEAN	