Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	=	TRUE	Boolean					>=	5	Fail Counts	One Trip
						Disable Conditions:	MIL not Illuminated for DTC's:							
								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					Co	Runs		One Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0603						
							-10.0	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
		, monday									=	16	Sample Counts	
						Disable	MIL not Illuminated for	TCM: P0604						
	Transmission Floate Huden					Conditions:	DTC's:	ECM: None						
Transmission Control Module (TCM)	ISMISSION CONTROL Module DOGSE Control Module	Transmission Electro-Hydraulic Control Module Long Term Memory Performance	TCM Non-Volatile Memory bit Incorrect flag at Powerdown		TRUE	Boolean					Co	Runs		One Tri
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P062F						
						Conditions.	D10 3.	ECM: None						
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	<u>Fail Case 1</u> Substrate Temperature	>= 1	42.101562	5 °C					>=	5	Fail Time (Sec)	One Trip
			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	>=	8.5996094	Volts				
							Ignition Voltage Hi	<=	31.999023	Volts				
							Substrate Temp Lo Substrate Temp Hi Substrate Temp Between Temp Range for Time	>= <= >=	0 170 0.25	°C °C Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime uired	Mil Illum.
					P0634 Status is	Test Failed This Key ≠ On or Fault Active				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None				
High Side Driver 1	P0658	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (open or ground short) error flag	= TRUE Boolean			>= out	4	Fail Counts Sample Counts	One Trip
					P0658 Status is not High Side Driver 1 On	Test Failed This Key On or Fault Active True Boolean	of		Sample Counts	
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None				
Transmission Control Module (TCM)	P0667	TCM Internal Temp (substrate) Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ							Two Trips
			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 the median temp of trans oil temp,				>= Out	3000	Fail Counts (100ms loop) Sample Counts	
			substrate temp and power up temp. Non-continuous (intermittent) fail conditions will delay resetting fail				of >=	3750 700	(100ms loop) Pass Counts	
			counter until				Out	875	(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	= TRUE Boolean = TRUE Boolean >= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresho Value	d	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
						Engine Speed is within the	>=	5	Sec		
						allowable limits for			366		
						Brake torque active	=	FALSE			
						Below describes the brake					
						torque entry criteria		00	N18		
						Engine Torque Throttle	>=	90 30.000305	N*m Pct		
						Transmission Input Speed	>= <=	200	RPM		
						Vehicle Speed	<=	8	Kph		
						Transmission Range	≠	Park	крп		
						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			
						Clutch hydraulic pressure	≠	Hydraulic			
						Ciulcii fiyuraulic pressure	<i>+</i>	Air Purge			
								Event			
						Clutch used to exit brake		CeTFTD_e			
						torque active	=	_C3_RatIE			
						•		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			
						D0//7.01.1	,	This Key			
						P0667 Status is	≠	On or Fault			
								Active			
					Disable	MIL not Illuminated for	TCM: DO4E0	D0440 D0440	DUEVD		
					Conditions:			, 1 0000, 1 0003, 16, P0712, P071:			
					Conditions.			10, P0712, P071. 13, P0962, P0963			
								0, P0971, P2150			
							P2721, P272		5, 12120,		
							1 2/21,1 2/2	7,1 2700			
							ECM: P0101	I, P0102, P0103,	P0106.		
								8, P0171, P0172			
								1, P0202, P0203			
								6, P0207, P0208			
								2, P0303, P0304			
								7, P0308, P0401			
Transmission Control Market	Î	TCM internal temperature (substants)		CeTFTI_e_Vo							Two
Transmission Control Module (TCM)	P0668	TCM internal temperature (substrate) thermistor failed at a low voltge	Type of Sensor Used	= ItageDirectPro							Trips
(I CIVI)	1	memisior railed at a low volige	<u></u>	р							1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction		Enable Conditions			Ti Red	me uired	Mil Illum
		2000, p. 100	If TCM Substrate Temperature Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and		°C								
			Temp Either condition above will satisfy							>=	60	Fail Timer (Sec)	
			the fail conditions			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec				
					Disable Conditions		TCM: None ECM: None						
nsmission Control Module CM)	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	CeTFTI_e_ = ItageDirectl p >= 249									Tw Trip
			Either condition above will satisfy the fail conditions							>=	60	Fail Timer (Sec)	
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5 Test Failed This Key	Volts Volts RPM RPM Sec				
						P0669 Status is	≠	On or Fault Active					
						must also be met Estimated Motor Power Loss Estimated Motor Power Loss greater than limit for time Lost Communication with Hybrid Processor Control	>= >=	0 0 FALSE	kW Sec				
						Module Estimated Motor Power Loss Fault	=	FALSE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions				ime uired	Mil IIIun
Oyatem	Code	Description	Ontella	v aluc	\dashv			Jonations			rec	04	ull
				n	isable	MIL not Illuminated for	TCM: D0714	D0717 D072	D0723				
				Condi		DTC's:	T CIVI. F 0 / 10,	FU/1/, FU/22	2, FU/23				
							ECM: None						
				Refer to Table	\dashv								Two
ransmission Control Module	P06AC	TCM Power-up Temp Sensor Circuit	If TCM power-up temp to	20 in °C									Trip
CM)	TOUAC	Range/Performance	substrate temp Δ	supporting									
				documents									
				Refer to Table									
			If transmission oil temp to power	> 18 in °C									
			up temp Δ	supporting documents									
			Both conditions above required to		\dashv					1		Fail Counts	-
			increment fail counter							>=	3000	(100ms loop)	
			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.							OI		(1001113 1000)	
			Non-continuous (intermittent) fail									Pass Counts	
			conditions will delay resetting fail counter until							>=	700	(100ms loop)	
			countries and							Out	875	Sample Counts	
										of	075	(100ms loop)	
						Engine Torque Signal Valid	=	TRUE	Boolean				ı
						Accelerator Position Signal	=	TRUE	Boolean				
						Valid Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.999023	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi Engine Speed is within the	<=	7500	RPM				
						allowable limits for	>=	5	Sec				
						Brake torque active	=	FALSE					
						Below describes the brake torque entry criteria							
						Engine Torque	>=	90	N*m				
						Throttle	>=	30.000305	Pct				
						Transmission Input Speed Vehicle Speed	<= <=	200 8	RPM Kph				
						Transmission Range	≠	Park	крп				
						Transmission Range	≠	Neutral					
						PTO Set Brake Torque Active	=	Not Active					
						TRUE if above conditions are	>=	7	sec				
						met for:							1
						Below describes the brake torque exit criteria							
						Brake torque entry criteria	=	Not Met					

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	Event 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)	P06AD	TCM power-up thermistor circuit voltage low	Power Up Temp	<= -59 °C			>= 60 Fail Time (Sec	Two
(TOM)		vollage low			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		
					P06AD Status is	Test Failed This Key ≠ On or Fault Active		
					For Hybrids, below conditions must also be met Estimated Motor Power Loss Estimated Motor Power Loss greater than limit for time	>= 0 kW >= 0 Sec		
					Lost Communication with Hybrid Processor Control Module Estimated Motor Power Loss	= FALSE		
					Fault	- FALSE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			me uired	Mil Illum.
- Cystein	Odde	Description	O. C. C.	Disable Conditions:	MIL not Illuminated for DTC's:			oq.		
Transmission Control Module (TCM)	P06AE	TCM power-up thermistor circuit voltage high	Power Up Temp		Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for P06AE Status is	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec Test Failed This Key ≠ On or Fault Active	>=	60	Fail Time (Sec)	Two Trips
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None				
Transmission Fluid Temperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ If transmission oil temp to power up temp Δ	documents Refer to Table 18 in °C						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				>= Out of	3000 3750	Fail Counts (100ms loop) Sample Counts (100ms loop)	
			temp. Non-continuous (intermittent) fail conditions will delay resetting fail counter until				>= Out of	700 875	Pass Counts (100ms loop) Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed in Engine Speed In Bradie Signe Sheed Hi Engine Speed is within the allowable limits for Brake torque active	= TRUE Boolean = TRUE Boolean >= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = FALSE				

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		00	N18		
					Engine Torque Throttle	>= >=	90 30.000305	N*m Pct		
					Transmission Input Speed	>= <=	200	RPM		
					Vehicle Speed	<=	8	Kph		
					Transmission Range	≠	Park			
					Transmission Range	≠	Neutral			
					PTO	=	Not Active			
					Set Brake Torque Active		_			
					TRUE if above conditions are	>=	7	sec		
					met for: Below describes the brake					
					torque exit criteria					
					Brake torque entry criteria	=	Not Met			
							Clutch			
					Clutch hydraulic pressure	<i>≠</i>	Hydraulic			
					Ciulcii riyuraulic pressure	<i>+</i>	Air Purge			
							Event			
					Clutch used to exit brake		CeTFTD_e			
					torque active	=	_C3_RatIE			
					The above clutch pressure is		nbl			
					greater than this value for one	>=	600	kpa		
					loop		000	кри		
					Set Brake Torque Active					
					FALSE if above conditions are	>=	20	Sec		
					met for:					
							Test Failed			
							This Key			
					P0711 Status is	≠	On or			
							Fault			
							Active			
				Disab	le MIL not Illuminated for	TCM: P065	R P0668 P0669	ΡΛ6ΔΠ		
				Condition			16, P0712, P071			
							23, P0962, P0963			
							70, P0971, P2150			
						P2721, P27	29, P2730			
							1, P0102, P0103			
							08, P0171, P0172			
							01, P0202, P0203			
							06, P0207, P0208 02, P0303, P0304			
							02, F0303, F030 07, P0308, P040			
Franchiccion Fluid		Transmission fluid tomporature		CeTFTI_e_Vo						Two
Fransmission Fluid Femperature Sensor (TFT)	P0712	Transmission fluid temperature thermistor failed at a low voltage	Type of Sensor Used	= ItageDirectPro						Trips
curberarate action (11.1)		monnistor railed at a low voltage		р						
			If Transmission Fluid Temperature							
			Sensor = Direct Proportional and							
			Temp							
			If Transmission Fluid Temperature Sensor = Indirect Proportional and	>= -74 °C						
	1	l	 Sensor = indirect Proportional and 	l>= -/4 "(.	•				1	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Oystem	Code	Description	Either condition above will satisfy	Value	a.ra.ra.ra.ra	Conditions	1	
			the fail conditions				>= 60 Fail Time	(Sec)
					Ignition Voltage Lo	>= 8.5996094 Volts		
					Ignition Voltage Hi Engine Speed Lo	<= 31.999023 Volts >= 400 RPM		
					Engine Speed Eo	<= 7500 RPM		
					Engine Speed is within the			
					allowable limits for	>= 5 Sec		
						Test Failed		
					D0710 Ct-t !-	This Key		
					P0712 Status is	≠ On or Fault		
						Active		
					For Hybrids, below conditions	Active		
					must also be met			
					Estimated Motor Power Loss	>= 0 kW		
					Estimated Motor Power Loss	>= 0 Sec		
					greater than limit for time Lost Communication with			
					Hybrid Processor Control	= FALSE		
					Module	- TAESE		
					Estimated Motor Power Loss	= FALSE		
					Fault	- TALSE		
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723		
				Conditions:	DTC's:	1001.10710,10717,10722,10723		
						ECM: None		
Transmission Fluid	P0713	Transmission fluid temperature	Tuno of Concor Lload	CeTFTI_e_Vo				Two
Temperature Sensor (TFT)	P0/13	thermistor failed at a high voltage	Type of Sensor Used	= ltageDirectPro p				Trips
			If Transmission Fluid Temperature	۴				
			Sensor = Direct Proportional and	>= 174 °C				
			Temp					
			If Transmission Fluid Temperature	174 00				
			Sensor = Indirect Proportional and Temp	<= 174 °C				
			Either condition above will satisfy					
			the fail conditions				>= 60 Fail Time	(Sec)
					Ignition Voltage Lo	>= 8.5996094 Volts		
					Ignition Voltage Hi	<= 31.999023 Volts		
					Engine Speed Lo Engine Speed Hi	>= 400 RPM <= 7500 RPM		
					Engine Speed is within the			
					allowable limits for	>= 5 Sec		
1						Test Failed		
						This Key		
					P0713 Status is	≠ On or Fault		
						Active		
						7.55		
				Disable		TCM: P0713, P0716, P0717, P0722,		
				Conditions:	DTC's:	P0/23		
						ECM: None		
						E S.III. HONG	1	

Component/ System	Fault Code	Monitor Strategy Description	Malfui Crit	nction eria	,	hreshold Value		Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
Transmission Input Speed Sensor (TISS)		Input Speed Sensor Performance		sion 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 8191.875 400 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	< >=	8191.875 0	RPM/Loop Sec				
								been satisfied for Throttle Position Signal Valid Engine Torque Signal Valid Ignition Voltage Ignition Voltage	= = >= <=	TRUE TRUE 8.5996094 31.999023 Test Failed	Boolean Boolean Volts Volts				
								P0716 Status is not	=	This Key On or Fault Active					
							Disable litions:			I, P0102, P0103					
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	<u>Fail Case 1</u> Tran	nsmission Input Speed is	< 33	RPM						>=	4.5	Fail Time (Sec)	One Trip
				722 DTC Status equal to Failed and Transmission Input Speed is	< 653.1	25 RPM		Controller uses a single power supply for the speed sensors	=	1	Boolean				
								Engine Torque is Engine Torque is Vehicle Speed Engine Torque Signal Valid Ignition Voltage Ignition Voltage	>= <= >= = >= <=	120 8191.875 12 TRUE 8.5996094 31.999023	N*m N*m Kph Boolean Volts Volts				
								Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >=	400 7500 5	RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
-,			2.1.00 100				P0717 Status is not	=	Test Failed This Key On or Fault Active					
						Disabl Conditions			P0723 P0102, P0103					
Transmission Output Speed Sensor (TOSS)		Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<=	35	RPM					>=	4.5	Fail Time (Sec)	One Tri
Seristi (1033)		Voltage	Selisti Raw Speed				P0722 Status is not Transmission Input Speed Check Engine Torque Check Throttle Position Transmission Transmission Temperature Disable this DTC if the PTO is active	= = = >= >= =	Test Failed This Key On or Fault Active TRUE TRUE 8.0001831 -40	Boolean Boolean Pct °C Boolean				
							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 TRUE 8.5996094 31.999023 400 7500 5	Boolean Boolean Volts Volts RPM RPM Sec				-
							The Engine Torque Check is TRUE, if either of the two following conditions are TRUE Engine Torque Condition 1	≠	Range shift	ENUM				
							OR Transmission Range is Engine Torque is Engine Torque condition 2 Engine Torque is Engine Torque is	= >= <= >= <=	Completed Park or Neutral 8191.75 8191.75 54 8191.75	N*m N*m N*m				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
	- 340		2.330.00		- 44		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	>= <=	653.125 5350	RPM RPM				
							TIS Check Condition 2 Engine Speed without the brake applied is	>=	3200	RPM				
							Engine Speed with the brake applied is Engine Speed is	>= <=	3200 8191.875	RPM RPM				
							Controller uses a single power supply for the speed sensors Powertrain Brake Pedal is	=	1 TRUE	Boolean Boolean				
						Disabl Conditions	: DTC's:	TCM: P0716,	, P0717, P0723	}				
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>=	105	RPM					>=	0	Enable Time (Sec) Enable Time	One Trip
			Output Speed Delta		8192	RPM					>=	0	(Sec) Output Speed	
			Output Speed Drop AND	>	650	RPM					>=	1.5	Drop Recovery Fail Time (Sec)	
			Transmission Range is	= Dr	riven range (R,D)									
							Range_Disable OR	=	FALSE	See Below				
							Neutral_Range_Enable And	=	TRUE	See Below				
							Neutral_Speed_Enable are TRUE concurrently	=	TRUE	See Below				
							Transmission_Range_Enable 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	! !!!
					Disable this DTC if the PTO is	=	1	Boolean		
					active					
					Ignition Voltage is	>=	8.5996094	Volts		
					Ignition Voltage is Engine Speed is	<= >=	31.999023 400	Volts RPM		
					Engine Speed is		7500	RPM		
					Engine Speed is within the	<=		KPIVI		
					allowable limits for	>=	5	Sec		
					Enable_Flags Defined Below					
					Eriabic_r lags beliried 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	<=	4095.875	RPM		
					Raw Input Speed	>=	500	RPM		
					TIS Condition 2 is TRUE when					
					ALL of the next two conditions					
					are satisfied					
					Input Speed	=	0	RPM		
					A Single Power Supply is used	=	TRUE	Boolean		
					for all speed sensors		INOL	Doolcan		
					Neutral_Range_Enable is					-
					TRUE when any of the next 3					
					conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
					g					
							Reverse/N			
					Transmission Range is	=	eutral	ENUM		
							Transitonal			
							Neutral/Dri			
							ve	E111114		
					Transmission Range is	=	Transitiona	ENUM		
							I			
					And when a drop occurs					
					Loop to Loop Drop of					
					Transmission Output Speed is	>	650	RPM		
					Transmission Surpar Speed is					
					Denne Dischle is TDUE :					
					Range_Disable is TRUE when					
					any of the next three					
					conditions are TRUE		Dark	ENI INA		
					Transmission Range is	=	Park	ENUM		
							Park/Reve			
					Transmission Range is	=	rse	ENUM		
							Transitonal			
					Input Clutch is not	=	ON (Fully Applied)	ENUM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Time Requir		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				
						Transmission Range is	=	Reverse/N eutral Transitiona	ENUM				
						Transmission Range is	=	Neutral/Dri ve Transitiona I	ENUM				
						Time since a driven range (R,D) has been selected	>=	Table Based Time Please Refer to Table 21 in supporting documents	Sec				
						Transmission Output Speed Sensor Raw Speed Output Speed when a fault was detected	>=	500 500	RPM RPM				
				(Disable Conditions:	MIL not Illuminated for DTC's:		, P0102, P0103					
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	1					>=	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			eshold 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	>=	8.5996094	Volts				
							Ignition Voltage Hi	<=	31.999023	Volts				
							Engine Speed	>=	400	RPM				
							Engine Speed Engine Speed is within the	<=	7500	RPM				
							allowable limits for	>=	5	Sec				
							Engine Torque Lo	>=	50	N*m				
							Engine Torque Hi	<=	8191.875	N*m				
							Throttle Position Lo Throttle Position Hi	>= <=	8.0001831 99.998474	Pct Pct				
							2nd Gear Ratio Lo	>=	2.1948242	Ratio				
							2nd Gear Ratio High	<=	2.5251465	Ratio				
							3rd Gear Ratio Lo	>=	1.4228516	Ratio				
							3rd Gear Ratio High 4th Gear Ratio Lo	<= >=	1.637085 1.069458	Ratio Ratio				
							4th Gear Ratio High	>= <=	1.2304688	Ratio				
							5th Gear Ratio Lo	>=	0.7905273	Ratio				
							5th Gear Ratio Hi	<=	0.9095459	Ratio				
							6th Gear Ratio Lo	>=	0.6230469	Ratio				
							6th Gear Ratio High Transmission Fluid	<=	0.7169189	Ratio				
							Temperature Lo	>=	-6.65625	°C				
							Transmission Fluid	<=	130	°C				
							Temperature Hi	<=						
							PTO Not Active	=	TRUE	Boolean				
							Engine Torque Signal Valid Throttle Position Signal Valid	=	TRUE TRUE	Boolean Boolean				
							Dynamic Mode	=	FALSE	Boolean				
							,		Test Failed					
									This Key					
							P0741 Status is	≠	On or Fault					
									Active					
									Notivo					
						Disable	MIL not Illuminated for			, P0723,				
						Conditions:	DIC'S:	P0742, P27	63, P2/64					
								ECM: P010	01, P0102, P010	3, P0106,				
									08, P0171, P017					
									01, P0202, P020					
									206, P0207, P020					
									302, P0303, P030 307, P0308, P040					
Torque Converter Clutch	-													One Trip
(TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>=	-50	RPM								One mp
/			TCC Slip Speed	<=	13	RPM						4.5	F 11 T1 (C)	
			If Above Conditions Have been								>=	1.5	Fail Time (Sec)	
			Met, and Fail Timer Expired,								>=	6	Fail Counter	
			Increment Fail Counter											

Component/ System	Fault Code	Monitor Strategy	Malfunction	Threshold	Secondary					N
-		Description	Criteria	Value	Malfunction		Conditions		Required	III
		· ·		i	TCC Mode	=	Off		·	
					Enable test if Cmnd Gear =		Oli			
						=	1	Boolean		
					1stFW and value true					
					Enable test if Cmnd Gear =	=	0	Boolean		
					2nd and value true	=	U	DUUIEAII		
					Engine Speed Hi	<=	6000	RPM		
								RPM		
					Engine Speed Lo	>=	500			
					Vehicle Speed HI	<=	511	KPH		
					Vehicle Speed Lo	>=	1	KPH		
					Engine Torque Hi	<=	8191.875	Nm		
					Engine Torque Lo	>=	80	Nm		
					Current Range	≠	Neutral	Range		
					Current Range	≠	Reverse	Range		
					Transmission Sump					
					Temperature	<=	130	°C		
					Transmission Sump	>=	18	°C		
					Temperature	-	10	Ü		
	1 1	I		1	Throttle Position Hyst High	>=	5.0003052	Pct		
		l		1	AND					
		I			Max Vehicle Speed to Meet					
					wax venicle Speed to weet	<=	8	KPH		
					Throttle Enable					
					Once Hyst High has been met,					
					the enable will remain while	>=	2.0004272	Pct		
					Throttle Position		2.000 1272			
					Disable for Throttle Position	>=	75	Pct		
					Disable if PTO active and		1	Dooloon		
					value true	=	1	Boolean		
					Disable if in D1 and value true	=	1	Boolean		
					Disable if in D2 and value true	=	1	Boolean		
					Disable if in D3 and value true	=	1	Boolean		
					Disable if in D4 and value true	=	1	Boolean		
					Disable if in D5 and value true	=	1	Boolean		
								Doolcan		
					Disable if in MUMD and value	=	1	Boolean		
					true		•			
					Disable if in TUTD and value			Б		
					true	=	1	Boolean		
					4 Wheel Drive Low Active	=	FALSE	Boolean		
						=	FALSE	boolean		
					Disable if Air Purge active and	=	0	Boolean		
		I			value false	_	U	Doolcail		
		I			RVT Diagnostic Active	=	FALSE	Boolean		
		I			Ignition Voltage	>=	8.5996094	V		
	1 1	I		1						
	1 1	I		1	Ignition Voltage	<=	31.999023	V		
	1 1	l		1	Vehicle Speed	<=	511	KPH		
		I			Engine Speed	>=	400	RPM		
	1 1	I		1	Engine Speed	<=	7500	RPM		
	1 1	I		1	Engine Speed is within the	\-				
		l		1		>=	5	Sec		
	1 1	I		1	allowable limits for					
	1 1	I		1	Engine Torque Signal Valid	=	TRUE	Boolean		
		l		1	Throttle Position Signal Valid	=	TRUE	Boolean		
		I			valle i collett olgital valla		Test Failed			
	1 1	I		1	1					
		I			1		This Key			
	1 1	I		1	P0742 Status is	≠	On or			
	1 1	I		1			Fault			
	1 1	l		1			Active			
		I			1		Active			
				1					1	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions				ime Juired	Mil Illum.
				Disable Conditions:	DTC's:	TCM: P0716, P0717, P072: P0741, P2763, P2764 ECM: P0101, P0102, P010 P0107, P0108, P0171, P01 P0175, P0201, P0202, P02 P0205, P0206, P0207, P02 P0301, P0302, P0303, P03 P0306, P0307, P0308, P04	93, P0106, 72, P0174, 03, P0204, 08, P0300, 04, P0305,				
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off		>= 400 RPM = 1st Lock rpm <= 1.209594727 >= 1.094360352	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	>= 8.5996094 <= 31.999023 >= 400 <= 7500 >= 5 >= -6.65625 Range Shift Completed >= 0.5004883	Volts Volts RPM RPM Sec °C	>= = # >= >=	0.2 5 0 0.3 8	Fail Tmr Fail Counts Neutral Timer (Sec) Fail Timer (Sec) Counts	Two
					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	>= 67 = TRUE = TRUE = TRUE = FALSE = FALSE = TRUE	RPM Boolean Boolean Boolean Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
System	Code	Description	Citteria	Disab Conditions	le MIL not Illuminated for		Required	
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Node 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 400 RPM				One T
			Commanded Gear Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On If the above parameters are true	= TRUE Boolean			Please Refer to Table 16 in Neutral Timer	
							>= Supporting (Sec) Documents >= 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	>= 8.5996094 Volts <= 31,999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = TRUE Boolean = TRUE Boolean >= 67 RPM >= 0.5004883 %	>= 5 Counts	
					Range Shift State Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	Range Shift ENUM Completed >= -6.65625 °C = FALSE Boolean = FALSE Boolean = TRUE		

	ault ode	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disabl Conditions	e MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,	,	
Mode 2 Multiplex Valve P0	0.0756	Shift Solenoid Valve B Stuck Off		>= 400 RPM = 1st Locked Gear <= 2.482177734 >= 2.245849609	Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed Hi Engine Speed Hi Engine Speed Hi Output Speed OR TPS Range Shift State Transmission Fluid Temperature High-Side Driver is Enabled Throttle Position Signal Valid from ECM Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>= 8.5996094 Volt: <= 31.999023 Volt: >= 400 RPM: <= 7500 RPM: >= 5 Sec >= 67 RPM: >= 0.5004883 % Range = Shift ENUI Completed >= TRUE Boole = TRUE Boole = FALSE Boole = TRUE = TRUE	Please Refer to Table 5 in Neutral Timer Supporting (Sec) >= 1 Sec >= 3 counts	One Tri

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria	Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,	Nequireu	mum.
				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		
riable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B	Fail Case 1 Case: Steady State 3rd Gear					One T
.,,		Stuck Off [C35R]	-	= 3rd Gear				
			Commanded Gear Gearbox Slip					
			Gearbox Slip	>- 400 KTW			Please Refer	
							to Table 16 in Neutral Timer	
							>= Supporting (Sec)	
							Documents	
			Command 4th Gear once Output Shaft Speed	<= 400 RPM				
			•	>= 1.094360352				
				<= 1.209594727				
							>= 3 Fail Timer (Sec	\
							,)
			It the above condiations are true,				>= 3 3rd Gear Fail	
			Increment 3rd gear fail counter				Counts	
							3 5D Clutch	
			and C35R Fail counter				>= 14 Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear					1
			Commanded Gear	= 5th Gear				
							DI D (
							Please Refer	
			Gearbox Slip	>= 400 Rpm			>= to Table 5 in Neutral Timer Supporting (Sec)	
							Documents	
			Intrusius Teet. Command (th. Coor					
			Intrusive Test: Command 6th Gear					
				Please refer				
			If attained Gear=6th gear Time	>= to Table 3 in Shift Time (Sec)				
				supporting documents				
			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	
					PRNDL State defaulted	= FALSE Boolean	Fail Counts	1
					inhibit RVT	= FALSE Boolean = FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		1
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for	>= 67 RPM		1
					RVT]		
					A OR B (A) Output speed enable	>= 67 RPM		
	I		I	I	(A) Output speed elidble	/- 0/ RPIVI	I	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time equired	Mil Illum
•		, , ,			(B) Accelerator Pedal enable	>= 0.5004883 Pct			
					Common Enable Criteria Ignition Voltage Lo	>= 8.5996094 Volts			
					Ignition Voltage Et	>= 8.5996094 Volts <= 31.999023 Volts			
					Engine Speed Lo	>= 400 RPM			
					Engine Speed Hi	<= 7500 RPM			
					Engine Speed is within the	>= 5 Sec			
					allowable limits for Throttle Position Signal valid	= TRUE Boolean			
					HSD Enabled	= TRUE Boolean			
					Transmission Fluid	>= -6.65625 °C			
					Temperature				
					Input Speed Sensor fault Output Speed Sensor fault	= FALSE Boolean = FALSE Boolean			
					Default Gear Option is not				
					present	= TRUE			
				Disable	MIL or at Illiano la atrad fan	TOM D071/ D0717 D0700 D0700			
				Disable Conditions:	MIL not illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182F			
				Conditions.	D103.	1 1022			
						ECM: P0101, P0102, P0103, P0106,			
						P0107, P0108, P0171, P0172, P0174,			
						P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300,			
						P0301, P0302, P0303, P0304, P0305,			
						P0306, P0307, P0308, P0401, P042E			
		Duranina Cantral (DC) Callinal d D	F-11 O 1						O T
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1 Case: Steady State 1st						One Ti
		Stack On [eddin] (Steady State)	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)	<= 1.608642578					
				<= 1.006042576 >= 1.455444336					
			If the above parameters are true	1.100111000					
			· ·				>= 1.1	Fail Timer (Sec)	
							>= 2	Fail Count in 1st Gear	
								or Or	
							. 2	Total Fail	
							>= 3	Counts	
			Fail Case 2 Case: Steady State 2nd gear	Table Deced					
				Table Based value Please					
			Max Delta Output Speed	Refer to 3D					
			Hysteresis	Table 1 in					
				supporting					
				documents					1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		me uired
			Min Delta Output Speed Hysteresis	Table Based value Please Refer to 3D Table 2 in supporting documents Table Based Time Please				
			If the Above is True for Time	Pofor to Table				
				documents <= 1.608642578				
			Gear Ratio If the above parameters are true	>= 1.455444336			>= 1.1	Fail Timer (Sec)
							>= 3	Fail Count in 2nd Gear
							>= 3	or Total Fail Counts
			Fail Case 3 Case: Steady State 4th gear	Table Based value Please				
			Max Delta Output Speed Hysteresis	>= Refer to 3D Table 1 in supporting				
			Min Dolta Output Speed	documents Table Based value Please				
			Min Delta Output Speed Hysteresis	>= Refer to 3D Table 2 in supporting documents				
			If the Above is True for Time	Table Based Time Please Refer to Table				
			Intrusive test:	17 in supporting documents				
			(C1234 clutch exhausted) Gear Ratio	<= 0.89465332 >= 0.809448242				
			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 Conditions				ime quired	Mil Illun
		2000.1511011		Table Based	N N N N N N N N N N N N N N N N N N N						100	
				value Please								
			Max Delta Output Speed						1			
			Hysteresis	Table Fill					1			
				supporting					1			
				documents Table Based					1			
				value Please								
			Min Delta Output Speed	Refer to 3D								
			Hysteresis	>= Table 2 in rpm/sec					1			
			1	supporting								
				documents								
				Table Based								
				Time Please								
			If the Above is True for Time	>= Refer to Table 17 in Sec								
				supporting					1			
				documents								
			Intrusive test:						1			
			(CB26 clutch exhausted)									
				<= 0.89465332					>=	1.1	Fail Timer (Sec)	
			Gear Ratio	>= 0.809448242					>=	3	counts	
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
										3	Fail Count in	
									>=	3	6th Gear	
											or Tatal Fall	
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean	l		Counts	1
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag HSD Enabled	=	TRUE TRUE	Boolean Boolean				
					Hydraulic_System_Pressurize							
					d	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	67	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo Ignition Voltage Hi	>= <=	8.5996094 31.999023	Volts Volts				
					Engine Speed Lo	<= >=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the		5					
					allowable limits for	>=	Э	Sec				
					if Attained Gear=1st FW	>=	5.0003052	Pct				
					Accelerator Pedal enable		1.1100002					
					if Attained Gear=1st FW Engine Torque Enable	>=	5	Nm				
					if Attained Gear=1st FW							
					Engine Torque Enable	<=	8191.875	Nm				
					Transmission Fluid		/ / 5/05	00				
					Temperature	>=	-6.65625	°C	1			
					Input Speed Sensor fault	=	FALSE	Boolean				l

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Cyclom		2 ccompaint		Vui		Output Speed Sensor fault	= FALSE Boolean		
					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		
			Delayara Official an Obstable						Out To
orioble Dieed Calendid (VDC)	D0777	Pressure Control (PC) Solenoid B	Primary Offgoing Clutch is exhausted (See Table 12 in	TDUE	Daalaan				One Tri
riable Bleed Solenoid (VBS)	P0777	StuckOn [C35R] (Dymanic)	Supporting Documents for	= TRUE	Boolean				
			Exhaust Delay Timers) Primary Oncoming Clutch	Maximum					
			Pressure Command Status	= pressurized					
			Primary Offgoing Clutch Pressure	Clutch = exhaust					
			Command Status	command					
			Range Shift Status	≠ Initial Clutch Control					
			Attained Gear Slip		RPM				
			If the above conditions are true						
			run appropriate Fail 1 Timers						
			Below: fail timer 1	0.5	5 H.T. (O.)				
			(3-1 shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Throttle)	>= 0.299804688	Fail Time (Sec)				
			fail timer 1	>= 0.5	Fail Time (Sec)				
			(3-2 shifting with Closed Throttle) fail timer 1						
			(3-4 shifting with Throttle)	>= 0.299804688	Fall Time (Sec)				
			fail timer 1 (3-4shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1	>= 0.299804688	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 (5-3 shifting with Throttle)	>= 0.299804688	Fail Time (Sec)				
			fail timer 1	>= 0.5	Fail Time (Sec)				
			(5-3 shifting with Closed Throttle) fail timer 1						
			(5-4 shifting with Throttle)	>= 0.299804688	rali tittle (Sec)				
			fail timer 1 (5-4 shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1	>= 0.299804688	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	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					
			3rd gear fail counter				>= 3 3rd gear fail counts OR	
			5th gear fail counter				>= 3 5th gear fail counts OR	
			Total fail counter		TUT Enable temperature Input Speed Sensor faul Output Speed Sensor faul Command / Attained Gea High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulter IMS Fault Pending Service Fast Learn Mode HSD Enabled Default Gear Option is no	= FALSE Boolean = FALSE Boolean # 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean	>= 5 total fail count	3
				Со		TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear Gear slip	>= 400 RPM			Please See Table 5 For Neutral Timer Neutral Time (Sec)	One Tri
			Intrusive test: commanded 5th gear				Cal	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	M IIIu
			If attained Gear ≠5th for time	Supporting				
			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	1
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Timer Neutral Time (Sec) Cal	
			Intrusive test: commanded 6th gear				Cui	
			If attained Gear ≠6th for time	Please Refer to Table 3 in Supporting Documents Shift Time (Sec)				
			if the above conditions have been met					
			Increment 5th Gear Fail Counter				>= 3 5th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gear				Please See	1
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Timer Neutral Time (Sec) Cal	
			Intrusive test: commanded 5th gear				Cai	
			If attained Gear ≠ 5th for time	Supporting				
			if the above conditions have been	Documents				
			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 Boolean = FALSE Boolean		
					IMS fault pending indication TPS validity flag	= FALSE Boolean = TRUE Boolean		
					Hydraulic System Pressurized Minimum output speed for	= TRUE Boolean >= 67 RPM		
					RVT A OR B (A) Output speed enable	>= 67 RPM		
					(B) Accelerator Pedal enable	>= 0.5004883 Pct		

	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		ime quired	Mil Illum.
					Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM			
					Engine Speed is within the allowable limits for Throttle Position Signal valid HSD Enabled	>= 5 Sec = TRUE Boolean = TRUE Boolean			
					Transmission Fluid Temperature Input Speed Sensor fault	>= -6.65625 °C = FALSE Boolean			
					OutputSpeed Sensor fault Default Gear Option is not present	= FALSE Boolean = TRUE			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E			
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st						One Trip
			Attained Gear slip	Table Based Time Please					
			If the Above is True for Time	4 in (Sec) supporting					
				documents <= 1.209594727 >= 1.094360352					
			ii alo aboro paramotoro aro ado				>= 1.1	Fail Timer (Sec)	
							>= 2	Fail Count in 1st Gear or	
			Foil Copp 2				>= 3	Total Fail Counts	
			Fail Case 2 Case Steady State 2nd Max Delta Output Speed Hysteresis	Table Based value Please Refer to 3D Table 1 in supporting					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	II
			Min Delta Output Speed Hysteresis	Table Based value Please Refer to 3D Table 2 in rpm/sec				
			If the Above is True for Time	supporting documents Table Based Time Please Refer to Table >= 17 in Sec				
			Intrusive test:	>= 17 in Sec supporting documents				
			(CB26 clutch exhausted) Gear Ratio	<= 1.209594727 >= 1.094360352				
			ii tile above parameters are tide				>= 1.1 Fail Timer (So	ec)
							>= 3 Fail Count i 2nd Gear or	
							>= 3 Total fail cour	nts
			Fail Case 3 Case Steady State 3rd	Table Based value Please				
			Max Delta Output Speed Hysteresis	>= Refer to 3D Table 1 in supporting				
			M. D. I. O. I. O. I.	documents Table Based value Please				
			Min Delta Output Speed Hysteresis	>= Refer to 3D Table 2 in supporting documents				
				Table Based Time Please Refer to Table				
			If the Above is True for Time	>= Refer to Table Sec 17 in Supporting documents				
				<= 1.209594727				
			Gear Ratio If the above parameters are true	>= 1.094360352			11 Fall Three /C	
							>= 1.1 Fail Timer (Sr >= 3 Fail Count i 3rd Gear	
							OR Total Fail	
					PRNDL State defaulted	= FALSE Boolean	Counts	\dashv

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
Oystem	Oouc	Возоприон	Ontena			inhibit RVT	=	FALSE	Boolean	Roquirou	
						IMS fault pending indication	=	FALSE	Boolean		
						output speed	>=	0	RPM		
						TPS validity flag HSD Enabled	=	TRUE TRUE	Boolean Boolean		
						Hydraulic_System_Pressurize	-				
						d	=	TRUE	Boolean		
						A OR B					
						(A) Output speed enable	>=	67	Nm		
						(B) Accelerator Pedal enable	>=	0.5004883	Nm		
						Ignition Voltage Lo	>=	8.5996094	Volts		
						Ignition Voltage Hi Engine Speed Lo	<= >=	31.999023 400	Volts RPM		
						Engine Speed Lo	>= <=	7500	RPM		
						Engine Speed is within the					
						allowable limits for	>=	5	Sec		
						if Attained Gear=1st FW		E 00030E3	Det		
						Accelerator Pedal enable	>=	5.0003052	Pct		
						if Attained Gear=1st FW	>=	5	Nm		
						Engine Torque Enable	/-	5	INIII		
						if Attained Gear=1st FW	<=	8191.875	Nm		
						Engine Torque Enable					
						Transmission Fluid	>=	-6.65625	°C		
						Temperature Input Speed Sensor fault	=	FALSE	Boolean		
						Output Speed Sensor fault	=	FALSE	Boolean		
						Default Gear Option is not			Doolcan		
						present	=	TRUE			
					Disable	MIL not Illuminated for		5, P0717, P0722	, P0723,		
					Conditions:	DTC's:	P182E				
							FCM· P∩1∩°	1, P0102, P0103	P0106		
								08, P0171, P01			
								01, P0202, P020			
								06, P0207, P020			
							P0301, P03	02, P0303, P030	04, P0305,		
							P0306, P03	07, P0308, P040	01, P042E		
	1		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 Off [C430] (Dynamic)	Exhaust Delay Timers)								
			Primary Oncoming Clutch	Maximum							
			Pressure Command Status	= pressurized							
			Primary Offgoing Clutch Prossuro	Clutch							
			Primary Offgoing Clutch Pressure Command Status	= exhaust							
			Command Status	command							
			Range Shift Status	≠ Initial Clutch							
			, and the second	Control	DDM						
			Attained Gear Slip	<= 40	RPM						
			If the above conditions are true								
			increment appropriate Fail 1								

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:			P0723,		- 1		
							P0107, P0108 P0175, P0201 P0205, P0206 P0301, P0302	P0102, P0103, 8, P0171, P017; , P0202, P0200, 9, P0207, P0206 9, P0303, P0304 7, P0308, P040	2, P0174, 3, P0204, 8, P0300, 4, P0305,				
'ariable 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	>= <= >= <= >=	8.5996094 31.999023 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	>= <= >= <= >=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec	OI		(386)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
/ariable Bleed Solenoid (VBS)	P0963	Pressure Control (PC) Solenoid A Control Circuit High Voltage (Line Pressure VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	Two Trips
						Ignition Voltage	>=	8.5996094	Volts	out of	5	Sample Time (Sec)	-

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	reshold /alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
-,					Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <= >=	31.999023 400 7500 5	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	Boolean					>= out	0.3	Fail Time (Sec) Sample Time	One Trip
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for		8.5996094 31.999023 400 7500 5 Test Failed This Key On or Fault Active	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)	P0967	Pressure Control (PC) Solenoid B Control Circuit High Voltage (C35R VBS)	The HWIO reports a high voltage (open or power short) error flag	Boolean					>=	0.3	Fail Time (Sec)	One Tri
									out of	0.375	Sample Time (Sec)	
					Ignition Voltage Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
	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
											of	0.375	(Sec)	
							P0970 Status is not	=	Test Failed This Key On or Fault					
							Ignition Voltage Ignition Voltage Engine Speed	>= <= >=	Active 8.5996094 31.999023 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						
Variable Bleed Solenoid (VBS)	P0971	Pressure Control (PC) Solenoid C Control Circuit High Voltage (C456/CBR1 VBS)	The HWIO reports a high voltage (open or power short) error flag	=	TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Tr
		(0430/05/(1785)									out of	0.375	Sample Time (Sec)	
							P0971 Status is not	=	Test Failed This Key On or Fault		OI .		(Sec)	
							Ignition Voltage Ignition Voltage Engine Speed	>= <= >=	Active 8.5996094 31.999023 400 7500	Volts Volts RPM RPM				
							Engine Speed Engine Speed is within the allowable limits for	<= >=	5	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 vollage (ground short) error flag	=	TRUE	Boolean					>=	1.2	Fail Time (Sec)	One Tr
											out of	1.5	Sample Time (Sec)	
							P0973 Status is not	=	Test Failed This Key On or Fault					
							Ignition Voltage Ignition Voltage Engine Speed Engine Speed	>= <= >= <=	Active 8.5996094 31.999023 400 7500	Volts Volts RPM RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tii Requ		Mil Illum.
						Engine Speed is within the allowable limits for	>=	5	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Shift Solinoid	P0974	Shift Solenoid A Control Circuit High (Mode 2 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= 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 is within the allowable limits for	= <= >= <= >=	Test Failed This Key On or Fault Active 8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Mode 3 Multiplex Valve	P0977	Shift Solenoid B Control Circuit High (Mode 3 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= out	1.2	Sec	One Trip
					Disable Conditions:	P0977 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:	= >= <= >= <= >= TCM: None	Test Failed This Key On or Fault Active 8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec	of	1.5	Sec	
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	<u>Fail Case 1</u> Current range	Transition 1 = (bit state 1110)	Range								One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tin Requ		
				CeTRGR_e									Π
			Previous range	≠ PRNDL_Driv	e Range								
				6									
				CeTRGR_e_									
			Previous range	≠ PRNDL_Driv	e Range								
				4									
			Range Shift State	Range Shift	ENUM								ı
				Completed									ı
			Absolute Attained Gear Slip Attained Gear	<= 50 <= Sixth	rpm								ı
			Attained Gear	<= Sixtri >= First									
			Throttle Position Available	= TRUE									
			Throttle Position		5 nct								ı
			Output Speed		rpm								
			Engine Torque		Nm								
			Engine Torque										
			If the above conditions are met								1	Eail Casanda	
			then Increment Fail Timer							>=	1	Fail Seconds	
			If Fail Timer has Expired then							>=	5	Fail Counts	
			Increment Fail Counter								5	i dii Courits	4
			Fail Case 2 Output Speed	<= 70	rpm								
			The following PRNDL sequence events occur in this exact order:										1
				Drive 6 (bit									
			PRNDL state	= state 0110)									
			PRNDL state = Drive 6 for		Sec								1
				Transition 8									1
			PRNDL state		Range								1
				0111)	Ü								1
			PRNDL state	Drive 6 (bit	Range								
			1 NNDE State	state 0110)	range								
				Technical									
			DDNDI stata	Transition 1	Pango								
			PRNDL state	= (bit state 1110)	Range								1
				1110)									
			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	Fail Seconds	
			met Increment Fail Timer							1	5	i an occords	
			delay timer	>= 1	Sec								
			Input Speed	>= 400	Sec								
			If Fail Timer has Expired then Increment Fail Counter							>=	2	Fail Counts	
			Fail Case 3	Transition 13	2			CeTRGR_					1
			Current range			Previous range	≠	e_PRNDL					
			Surrentrunge	0010)	90		,	_Drive2					
				,				CeTRGR_					
			Engine Torque	>= -8192	Nm	Previous range	≠	e_PRNDL					1
						<u> </u>		_Drive1					1
	1 1		Engine Torque	<= 8191.75	Nm	IMS is 7 position configuration	=	1	Boolean	I			1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	III
					1 then the "previous range"			
			If the above conditions are met		criteria above must also be		>= 0.225 Seconds	
			then, Increment Fail Timer				>= 0.225 Seconds	
					satsified when the "current			
			If Fail Timer has Expired then		rango" – "Transition 12"			
			Increment Fail Counter				>= 15 Fail Counts	S
			Fail Case 4		_		+	
			rall Case 4	Transition 8	Disable Fail Case 4 if last			
			Current range	= (bit state Range	positive range was Drive 6 and			
				0111)	current range is transition 8			
				0111)	_			
					Set inhibit bit true if PRNDL =			
					1100 (rev) or 0100 (Rev-Neu			
			Inhibit bit (see definition)	= FALSE	transition 11)			
			minut sit (ees deminion)	771202	Set inhibit bit false if PRNDL =			
	1		C+- + C	100	1001 (park)			- 1
			Steady State Engine Torque		1			
			Steady State Engine Torque	<= 8191.75 Nm	1			
			If the above conditions are met		1		>= 0.225 Seconds	
			then Increment Fail Timer		1		>= 0.225 Seconds	
	1		Make also O 100 I		1			
			If the above Condtions have been				>= 15 Fail Counts	;
			met, Increment Fail Counter				, is rail ocurre	
			Fail Case 5 Throttle Position Available	= TRUE Boolean				-
				= IRUE DUUIEAII				
			The following PRNDL sequence					
			events occur in this exact order:					
			PRNDL State	= Reverse (bit Range				
			T KNDE State	state 1100)				
				Transition 11				
			PRNDL State	= (bit state Range				
				0100)				
				Noutral (bit				
			PRNDL State	state 0101) Range				
				Transition 11				
			PRNDL State	= (bit state Range				
				0100)				
	1		Above sequencing occurs in	<= 1 Sec	1			
			Then delay timer increments		1			
	1		Delay timer	>= 5 sec	1			
			· I	Range Shift	1			
	1		Range Shift State	= Complete	1			
	1		About the Attack of Co.		1			
	1		Absolute Attained Gear Slip		1			
				<= Sixth	1			
			Attained Gear	>= First	1			
			Throttle Position :	>= 8.000183105 pct	1			
			Output Speed		1			
	1		If the above conditions are met		1			
	1		In the above conditions are met		1		>= 20 Seconds	
			Fail Case 6	Illogal (bit	A Open Circuit Definition (float		+	\dashv
				Illegal (bit	A Open Circuit Definition (flag			
			Current range	= state 0000 or	set false if the following			
				1000 or 0001)	conditions are met):			
	1		1		1	Transition		
	1]		1	11 (bit		
	1		and		Current Range	≠ state		
	1		1		1	0100)		
			1			01001		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresho Value		Secondary Malfunction		Enable Conditions			Tiı Requ	me uired	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 ABCP = 1101 R									
			Previous PRNDL state	= PRNDL circuit ABCP =1111	ange								
			Input Speed	>= 150 R	PM								
			Reverse Trans Ratio Reverse Trans Ratio	<= 2.845825195 ra >= 3.274169922 ra									
			If the above Condtions are met then, Increment Fail timer							>=	6.25	Seconds	
			then, increment rail times										
			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	>= <= >= <= >=	8.5996094 31.999023 400 7500 5 TRUE	Volts Volts RPM RPM Sec Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:		P0717, P0722, BF, P077C, P07					
							P0107, P010 P0175, P020 P0205, P020 P0301, P030	, P0102, P0103 8, P0171, P017 1, P0202, P020 6, P0207, P020 2, P0303, P030 7, P0308, P040	2, P0174, 3, P0204, 8, P0300, 4, P0305,				
Internal Mode Switch (IMS)	P1915		PRNDL State is	≠ Park or E	numeration								One Trip
		Start	The following events must occur Sequentially										
			Initial Engine speed	<= 50 R	PM					>=	0.25	Enable Time (Sec)	
			Then Engine Speed Between Following Cals										
		1	Engine Speed Lo Hist	>= 50 R	PM								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Valu		Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
			Engine Speed Hi Hist	<= 48	30	RPM					>=	0.06875	Enable Time (Sec)	
			Then Final Engine Speed Final Transmission Input Speed	>= 52 >= 10		RPM RPM					>=	1.25	Fail Time (Sec)	
							DTC has Ran this Key Cycle?	=	FALSE	Boolean			-	
							Ignition Voltage Lo Ignition Voltage Hi	>= <=	6 31.999023	V V				
							Ignition Voltage Hyst High (enables above this value)	>=	5	V				
							Ignition Voltage Hyst Low (disabled below this value) Transmission Output Speed	<= <=	2 90	V rpm				
							P1915 Status is	≠	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, ECM: None	P0723					
Transmission Control Module (TCM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below)	= FAL	.SE	Boolean								One Trip
(TOW)		Circuit Low	Ignition Voltage High Hyst (run crank goes true when above this value)	5	5	Volts					>=	280	Fail Counts (25ms loop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)	2	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		TCM: None						
						Conditions:	DTC's:	ECM: None						
Transmission Control Module (TCM)	P2535	Ignition Switch Run/Start Position Circuit High	TCM Run crank active (based on voltage thresholds below)	= TRI	UE	Boolean								One Trip
(13.11)		oout ingi	Ignition Voltage High Hyst (run crank goes true when above this value)	5	5	Volts					>=	280	Fail Counts (25ms loop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)	2	2	Volts					Out of	280	Sample Counts (25ms loop)	
							ECM run/crank active status available	=	TRUE	Boolean				
							ECM run/crank active status	=	FALSE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Time Requir		Mil Illum.
System	Code	Description	Criteria	value	Walluffction		Conditions		1	Requii	eu	mum.
				Disable	MIL not Illuminated for	TCM: None						
				Conditions:	DTC's:							
						ECM: None						
		Droccure Central (DC) Calonaid D	Foil Coco 1									One Trip
Variable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D Stuck Off [CB26]	Fail Case 1 Case: Steady State 2nd Gear									One m
		otasit on [obzo]							Pleas	se See		
			Gear slip	>= 400 RPM						5 For	Neutral Timer	
			Gear sup	7- 100 11111					Neutra	al Time	(Sec)	
			Intrusive test:							Cal		
			commanded 3rd gear									
]	Table Based								
				Time Please See Table 2 in France France								
			If attained Gear = 3rd for Time									
				Supporting (Sec) Documents								
			If Above Conditions have been	Documents								
			met									
			Increment 2nd gear fail count						>=	3	2nd Gear Fail	
			morement zna gear ian eoant							0	Count	
											or CB26 Fail	
			and CB26 Fail Count						>= '	14	Count	
			Fail Case 2 Case: Steady State 6th Gear									
										se See		
			Gear slip	>= 400 RPM						5 For	Neutral Timer	
			1							al Time Cal	(Sec)	
			Intrusive test:							ui		
			commanded 5th gear									
				Table Based								
			If attained Coor Eth For Time	Time Please >= see Table 2 in Supporting Finable Time (Sec)								
			If attained Gear = 5th For Time	Supporting (Sec)								
				Documents								
			If Above Conditions have been								5th Gear Fail	
			met, Increment 5th gear fail						>=	3	Count	
			counter								or	
											CB26 Fail	
			and CB26 Fail Count						>= '	14	Count	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication TPS validity flag	= =	FALSE TRUE	Boolean Boolean				
					Hydraulic System Pressurized	=	TRUE	Boolean				
					Minimum output speed for	>=	0	RPM				
					RVT	>=	U	IXI, IAI				
					A OR B		47	DDM				
					(A) Output speed enable (B) Accelerator Pedal enable	>= >=	67 0.5004883	RPM Pct				
					Common Enable Criteria	/-	0.5004003	1 61				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					Engine Speed Lo	>=	400	RPM	I			l

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val	shold lue	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
эузтепп	Code	Description	Cineria	va	Disable Conditions:	Engine Speed Hi Engine Speed is within the allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present MIL not Illuminated for DTC's:	P182E ECM: P010 ¹ P0107, P01 ¹	7500 5 TRUE TRUE -6.65625 FALSE FALSE TRUE	RPM Sec Boolean Boolean °C Boolean Boolean Boolean Boolean Boolean	nequireu	munt
			Primary Offgoing Clutch is				P0205, P02 P0301, P03	06, P0207, P02 02, P0303, P03 07, P0308, P04	208, P0300, 804, P0305,		One Trip
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Oftgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status Primary Offgoing Clutch Pressure Command Status Range Shift Status Attained Gear Slip	Control	Boolean						One Irip
			If above coditons are true, increment appropriate Fail 1 Timers Below: fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-3 shifting without throttle) fail timer 1 (2-3 shifting with out throttle) fail timer 1 (2-3 shifting without throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting without throttle) fail timer 1 (2-4 shifting without throttle) fail timer 1 (6-4 shifting with throttle) fail timer 1 (6-4 shifting without throttle) fail timer 1	>= 0.299804688 >= 0.5 >= 0.299804688 >= 0.5 >= 0.299804688 >= 0.5 >= 0.299804688 >= 0.5	Fail Time (Sec)						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (6-5 shifting with throttle) fail timer 1 (6-5 shifting without throttle)	>= 0.299804688 Fail Time (Sec) >= 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	
			6th gear fail counter				From 2nd Gear OR >= 3 Fail Counter From 6th Gear OR	
			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	= FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean	>= 5 Counter	
				Disable Conditions:		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, P0306, P0307,		
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		P0306, P0307, P0308, P0401, P042E		One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	R	Time equired	II
•		•		Table Based					T
				Time Please					П
			If the Above is True for Time	Refer to Table Enable Time					
			II the Above is true for Time	>= 4 in (Sec)					
				supporting					
				documents					
			Intrusive test:						
			(CBR1 clutch exhausted)						П
				<= 2.482177734					П
				>= 2.245849609					П
			If the above parameters are true						ı
							>= 1.1	Fail Timer (Sec)	.)
								Fail Count in	ı
							>= 5	1st Gear	
								Or Oct	
								Total Fail	
							>= 5	Counts	
			Fail Case 2 Case: Steady State 3rd Gear						1
				Table Based					
				value Please					
			Max Delta Output Speed	>= Refer to 3D rpm/sec					ı
			Hysteresis	Table I III					П
				supporting					П
				documents					
				Table Based					П
			M. B. II. O. I. IO. I	value Please					П
			Min Delta Output Speed	>= Refer to 3D Table 2 in rpm/sec					
			Hysteresis						
				supporting documents					П
				Table Based					П
				Time Please					
				Pofor to Table					
			If the Above is True for Time	>= 17 in Sec					ı
				supporting					П
				documents					
			Intrusive test:						
			(C35R clutch exhausted)						
				<= 2.482177734					ı
				>= 2.245849609					
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec)	()
							>= 3	Fail Count in 3rd Gear	1
							1	or	
								Total Fail	1
							>= 5	Counts	1
			Fail Case 3 Case: Steady State 4rd Gear						1
			, , , , ,	Table Based			1		ı
				value Please					1
			Max Delta Output Speed	Refer to 3D			1		
			Hysteresis	>= Refer to 3D rpm/sec					
]	supporting					
	1 1			documents					

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
System	Code	Description	Onteria	**	aiuc	IMS fault pending indication	=	FALSE	Boolean		rtoq	uncu	
						output speed	>=	0	RPM				
						TPS validity flag	=	TRUE	Boolean				
						HSD Enabled	=	TRUE	Boolean				
						Hydraulic_System_Pressurize	=	TRUE	Boolean				
						d	_	INOL	Doolean				
						A OR B							
						(A) Output speed enable	>=	67	Nm				
						(B) Accelerator Pedal enable	>=	0.5004883	Nm				
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.999023	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the	>=	5	Sec				
						allowable limits for							
						if Attained Gear=1st FW	>=	5.0003052	Pct				
						Accelerator Pedal enable							
						if Attained Gear=1st FW	>=	5	Nm				
						Engine Torque Enable							
						if Attained Gear=1st FW	<=	8191.875	Nm				
						Engine Torque Enable							
						Transmission Fluid	>=	-6.65625	°C				
						Temperature		FALCE	Deelees				
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault	=	FALSE	Boolean				
						Default Gear Option is not present	=	TRUE					
						·							
					Disable Conditions:	MIL not Illuminated for DTC's:		, P0717, P0722	, P0723,				
							P0107, P010 P0175, P020 P0205, P020 P0301, P030	, P0102, P0103 08, P0171, P017 01, P0202, P020 06, P0207, P020 02, P0303, P030 07, P0308, P040	2, P0174, 3, P0204, 8, P0300, 4, P0305,				
Variable Bleed Solenoid (VBS)	P2720	Pressure Control (PC) Solenoid D Control Circuit Low	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
		(CB26 VBS)	, ,							out of	0.375	Sample Time (Sec)	
								Test Failed		UI		(356)	1
								This Key					
						P2770 Status is not	=	On or					
								Fault					
								Active					1
						Ignition Voltage	>=	8.5996094	Volts				
		i e e e e e e e e e e e e e e e e e e e		I		Ignition Voltage	<=	31.999023	Volts	I			1
						Engine Speed	>=	400	RPM				
						Engine Speed							
							>=	400	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresho Value		Secondary Malfunction		Enable Conditions			Time Requir		Mil Illum.
эухет	Code	Description	Criteria	value	Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None	Conditions			vedall	GU	mun.
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		Boolean					>= out of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Tr
						P2721 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 8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec			(-50)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
/ariable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1 Case: Steady State 1st Gear Gear slip Intrusive test: commanded 2nd gear If attained Gear ≠ 2nd for Time	Please refer	RPM					_ Tal	ease See ble 5 For utral Time Cal	Neutral Timer (Sec)	One T
			If Above Conditions have been met, Increment 1st gear fail counter and C1234 fail counter	Documents						>= >=	3	1st Gear Fail Count or C1234 Clutch Fail Count	
			Fail Case 2 Case: Steady State 2nd Gear Gear slip	>= 400 R	RPM					_ Tal	ease See ble 5 For utral Time Cal	Neutral Timer (Sec)	
			intrusive test: commanded 3rd gear If attained Gear ≠ 3rd for Time	Please refer	Shift Time (Sec)								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Tir Requ		M IIIu
•		•	If Above Conditions have been met, Increment 2nd gear fail counter					>= 3	2nd Gear Fail Count	
									or C1234 Clutch	
			and C1234 fail counter					>= 14	Fail Count	
			Fail Case 3 Case: Steady State 3rd Gear					Please See		
			Gear slip	>= 400 RPM				>= Table 5 For Neutral Time Cal	Neutral Timer (Sec)	
			Intrusive test:					Cai		
			commanded 4th gear	Please refer						
			If attained Gear ≠ 4th for time	to Table 3 in						
			If Above Conditions have been						3rd Gear Fail	
			met, Increment 3rd gear fail counter					>= 3	Count	
									or	
			and C1234 fail counter					>= 14	C1234 Clutch Fail Count	
			Fail Case 4 Case: Steady State 4th Gear					Please See		l
			Gear slip	>= 400 RPM				>= Table 5 For Neutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear					Our		
			If attained Gear = 5th For Time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)						
			If Above Conditions have been	Documents					4th Gear Fail	
			met, Increment 4th gear fail counter					>= 3	Count	
									or C1234 Clutch	
			and C1234 fail counter					>= 14	Fail Count	
					PRNDL State defaulted inhibit RVT	= FALSE = FALSE	Boolean Boolean			
					IMS fault pending indication	= FALSE	Boolean			
					TPS validity flag Hydraulic System Pressurized	= TRUE = TRUE	Boolean Boolean			
					Minimum output speed for	>= 0	RPM			
					RVT A OR B	<i>></i> - 0	IXI IVI			
					(A) Output speed enable	>= 67	RPM			
					(B) Accelerator Pedal enable Common Enable Criteria	>= 0.5004883	Pct			
					Ignition Voltage Lo	>= 8.5996094	Volts			
					Ignition Voltage Hi	<= 31.999023	Volts			
					Engine Speed Lo Engine Speed Hi	>= 400 <= 7500	RPM RPM			
					Engine Speed is within the	>= 7500	Sec			
					allowable limits for	>= 0	Sec			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	= TRUE Boolean = TRUE Boolean >= -6.65625 °C = FALSE Boolean = FALSE Boolean = TRUE		
				Disab Conditions		ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204,		
			Driman Offgaing Clutch is			P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		Ono Tri
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status Primary Offgoing Clutch Pressure Command Status Primary Offgoing Clutch Pressure Command Status Range Shift Status Attained Gear Slip If the above conditions are true increment appropriate Fail 1 Timers Below: fail timer 1 (2-6 shifting with throttle) fail timer 1 (2-6 shifting without throttle) fail timer 1 (3-5 shifting without throttle) fail timer 1 (3-5 shifting without throttle) fail timer 1 (4-5 shifting with throttle) fail timer 1 (4-5 shifting without throttle) fail timer 1 (4-6 shifting with throttle) fail timer 1 (4-6 shifting with throttle) fail timer 1 (4-6 shifting with throttle) fail timer 1	= Maximum pressurized Clutch = exhaust command Initial Clutch ∠ Control				One Tri

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 Ge	
			3rd gear fail counter				>= 3 Fail Counter From 3rd Gea	
			4th gear fail counter				>= 3 Fail Counter From 4th Gea	
			total fail counter		TUTE	445405	>= 5 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 >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean = TRUE Boolean		
				Disable Conditions:	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 (VB	S) P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear					One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Ti Req	me uired	III
•		•		Table Based					Г
				value Please					ı
			Max Delta Output Speed	Refer to 3D					
			Hysteresis	>= Table 1 in rpm/sec					
			,	supporting					
				documents					
				Table Based					
				value Please					
			Min Delta Output Speed	Pofor to 3D					
			Hysteresis	>= Table 2 in rpm/sec					ı
			1	supporting					ı
				documents					
				Table Based					
				Time Please					
			1611 AL . T . 6 T	Pofor to Table					
			If the Above is True for Time	>= 17 in Sec					
				supporting					
				documents					
			Intrusive test:						1
			(C35R clutch exhausted)						
				<= 1.209594727					
			Gear Ratio						
			If the above parameters are true						
							>= 1.1	Fail Timor (Coo)	
							>= 1.1	Fail Timer (Sec)	
							>= 3	Fail Count in	
							>= 3	5th Gear	
								OR	
							>= 3	Total Fail	
							,- °	Counts	1
			Fail Case 2 Case: 6th Gear	Table Daniel					
				Table Based					
			M 5 11 0 1 10 1	value Please					
			Max Delta Output Speed	>= Refer to 3D rpm/sec					
			Hysteresis	Table I III					
				supporting					
				documents					
				Table Based					
			Min Dolta Output Spood	value Please Refer to 3D					
			Min Delta Output Speed	>= Refer to 3D rpm/sec					1
			Hysteresis	supporting					1
				documents					
				Table Based					
				Time Please					
				Pofor to Table					
			If the Above is True for Time	>= Refer to Table Sec					1
				17 111					1
				supporting documents					1
			Intrucivo toot	documents					
			Intrusive test:						
			(CB26 clutch exhausted)	<= 1.209594727					
				>= 1.094360352					1
			If the above parameters are true				1		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime quired	Mil Illun
System	Code	Description	Griteria	v alue	manunction	Collultions	+		Fail Count in	mull
							>=	3	6th Gear	
									OR	
								2	Total Fail	
							>=	3	Counts	
					PRNDL State defaulted	= FALSE Boole	n			1
					inhibit RVT	= FALSE Boole	n			
					IMS fault pending indication	= FALSE Boole	n			
					output speed	>= 0 RPN				
					TPS validity flag	= TRUE Boole	n			
					HSD Enabled	= TRUE Boole	n			
					Hydraulic_System_Pressurize	= TRUE Boole:	n			
					d	= TRUE Boole	1			
					A OR B					
					(A) Output speed enable	>= 67 Nm				
					(B) Accelerator Pedal enable	>= 0.5004883 Nm				
					Ignition Voltage Lo	>= 8.5996094 Volts				
					Ignition Voltage Hi	<= 31.999023 Volts				
					Engine Speed Lo	>= 400 RPM				
					Engine Speed Hi	<= 7500 RPM				1
					Engine Speed is within the	F 6				
					allowable limits for	>= 5 Sec				
					if Attained Gear=1st FW	F 0000050 B .				
					Accelerator Pedal enable	>= 5.0003052 Pct				
					if Attained Gear=1st FW					
					Engine Torque Enable	>= 5 Nm				
					if Attained Gear=1st FW					
					Engine Torque Enable	<= 8191.875 Nm				
					Transmission Fluid					
					Temperature	>= -6.65625 °C				
					Input Speed Sensor fault	= FALSE Boole	n			
					Output Speed Sensor fault	= FALSE Boole				
					Default Gear Option is not					
					present	= TRUE				
				Disa	ole MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,				
				Conditio						
						ECM: P0101, P0102, P0103, P0106,				
						P0107, P0108, P0171, P0172, P0174				
						P0175, P0201, P0202, P0203, P0204				
						P0205, P0206, P0207, P0208, P0300				
						P0301, P0302, P0303, P0304, P0309				
						P0306, P0307, P0308, P0401, P042				1
										1
		Pressure Control (PC) Solenoid E	Th. 10000				\neg			One T
ariable Bleed Solenoid (VBS)	P2729	Control Circuit Low	The HWIO reports a low voltage	= TRUE Boolean			>=	0.3	Fail Time (Sec)	
(100)		(C1234 VBS)	(ground short) error flag						(200)	1
							out	0	Sample Time	
							of	0.375	(Sec)	1
						Test Failed			\/	1
						This Key				1
					P2729 Status is not					1
						Fault				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5	Volt Volt RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2730	Pressure Control (PC) Solenoid E Control Circuit High (C1234 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
								Test Failed		out of	0.375	Sample Time (Sec)	-
						P2730 Status is not	= >=	This Key On or Fault Active 8.5996094	Volt				
						Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <= >=	31.999023 400 7500 5	Volt RPM RPM 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					>=	4.4	Fail Time (Sec)	Two Trips
										out of	5	Sample Time (Sec)	=
						P2763 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed	>= <= >= <=	8.5996094 31.999023 400 7500	Volt Volt RPM RPM				
						Engine Speed is within the allowable limits for High Side Driver Enabled	>= =	5 TRUE	Sec Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, ECM: None	P0659					

Fault	Monitor Strategy	Malfunction Criteria			eshold	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Code	· ·			VC	ilue	mananotion		Conditions			rtequ	uneu	One Trip
P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	pressure/low voltage (ground	=	TRUE	Boolean					>=	4.4	MPH	
		, 3								out of	5	MPH	
						P2764 Status is not	=	Test Failed This Key On or					
								Fault Active	V-14				
						Ignition Voltage Engine Speed	>= <= >=	31.999023 400	Volt RPM				
						Engine Speed is within the	<= >=	7500 5	RPM Sec				
						High Side Driver Enabled	=	TRUE	Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658	, P0659					
							ECM: None						
U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error			Boolean					>= Out	62	Fail counts (≈ 10 seconds)	1
		Delay timer	>=	0.1125	sec					of	70	(≈ 11 seconds)	
						Ignition Voltage Ignition Voltage	>= >= <=	3 8.5996094 31.999023	sec Volt Volt				
						Power Mode	=	Run					
					Disable Conditions:	MIL not Illuminated for DTC's:							
							ECIVI: NOTIE						
U0100	Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	=	TRUE	Boolean					>=	12	sec	One Trip
						Ignition Voltage Ignition Voltage	>= >= <=	3 8.5996094 31.999023	sec Volt Volt				
						Power Mode	=	Run					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						
	P2764	P2764 Torque Converter Clutch Pressure Control Solenoid Control Circuit Low U0073 Controller Area Network Bus Communication Error	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low The HWIO reports a high pressure/low voltage (ground short) error flag TRUE	P2764 Torque Converter Clutch Pressure Control Solenoid Control Circuit Low The HWIO reports a high pressure/low voltage (ground short) error flag TRUE Boolean	P2764 Torque Control Circuit Low The HWD reports a high pressure/low voltage (ground short) error flag Fig. Fig	P2764 Torque Converter Clutch Pressure The HMIO reports a high pressure/low voltage (ground control Certarial Control Clural Low P2764 Status is not =	P2764 Total Control Contro	P2764 TRUE Bolean TRUE Bolean TRUE Bolean P2764 Slatus is not P2765 Sl	P2764 The PMO reports a high pressure/law voltage (ground Soleroid Control Circuit Low Pares Centrel Circuit Pares (Pares Pares) P2764 Status is not or	Part Part	Part Part

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	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

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

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

<u>Table 10</u>

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	٥С
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	٥С
Curve	2.51	0.95	0.50	0.29	0.13	Sec

Table 14

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

Table 15

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

Table 16

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

Table 17

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

Table 18

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	
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 °C
Curve	5.00	3.00	1.00 Sec

3D_Table 1

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

		0.00	2.00	5.00	25.00	100.00
ı	-6.67	8191.75	8191.75	8191.75	8191.75	8191.75
ı	-6.66	8191.75	8191.75	8191.75	8191.75	8191.75
ı	40.00	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
-6.67	8191.75	8191.75	8191.75	8191.75	8191.75
-6.66	500.00	500.00	300.00	300.00	300.00
40.00	500.00	500.00	300.00	300.00	300.00